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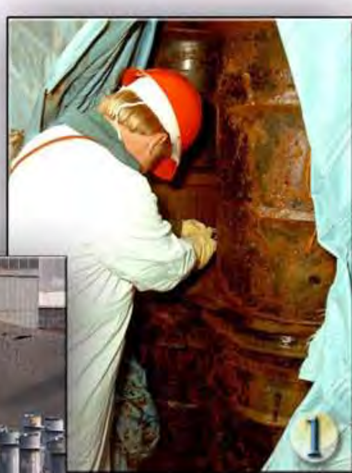
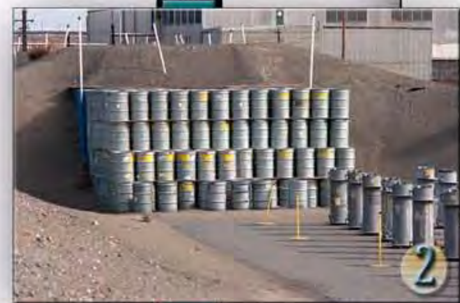
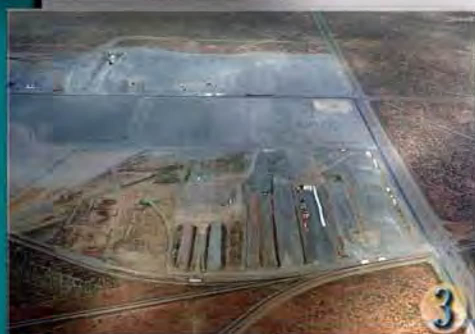
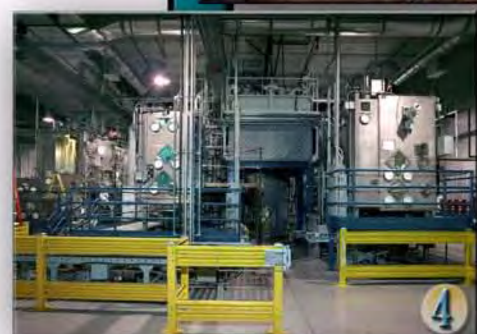


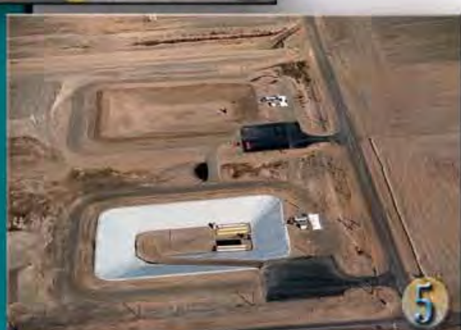


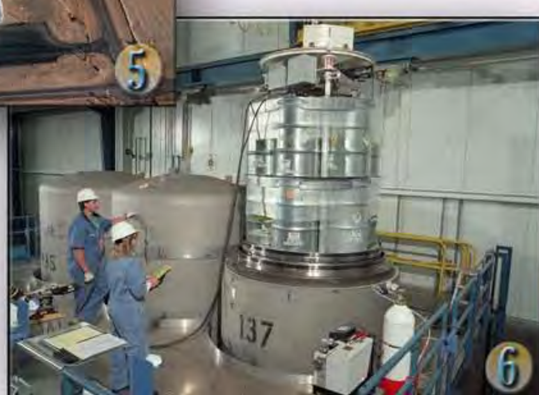


Final
Hanford Site Solid (Radioactive and Hazardous) Waste Program Environmental Impact Statement
Richland, Washington



Volume III
Comment Response Document





U.S. Department of Energy
Richland Operations Office
Richland, Washington

January 2004

Cover Photographs:

1. Hanford workers preparing to retrieve and repackage TRU waste drums
2. Drums of transuranic waste in a retrievable storage trench
3. A partial aerial view of Hanford's Low Level Burial Grounds
4. Waste Receiving and Processing Facility inspection and repackaging glove boxes
5. Hanford's Mixed Low-Level Waste disposal facility
6. Placing TRU waste into a TRUPACT shipping container for shipment to the Waste Isolation Pilot Plant

RESPONSIBLE AGENCY: **COVER SHEET**

U.S. Department of Energy, Richland Operations Office

TITLE:

Final Hanford Site Solid (Radioactive and Hazardous) Waste Program Environmental Impact Statement, Richland, Benton County, Washington (DOE/EIS-0286F)

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ABSTRACT:

The Hanford Site Solid (Radioactive and Hazardous) Waste Program Environmental Impact Statement (HSW EIS) provides environmental and technical information concerning U.S. Department of Energy (DOE) proposed waste management practices at the Hanford Site. The HSW EIS updates analyses of environmental consequences from previous documents and provides evaluations for activities that may be implemented consistent with the Waste Management Programmatic Environmental Impact Statement (WM PEIS) Records of Decision (RODs). Waste types considered in the HSW EIS include operational low-level radioactive waste (LLW), mixed low-level waste (MLLW), immobilized low-activity waste (ILAW), and transuranic (TRU) waste (including TRU mixed waste). MLLW contains chemically hazardous components in addition to radionuclides. Alternatives for management of these wastes at the Hanford Site, including the alternative of No Action, are analyzed in detail. The LLW, MLLW, and TRU waste alternatives are evaluated for a range of waste volumes, representing quantities of waste that could be managed at the Hanford Site. A single maximum forecast volume is evaluated for ILAW. The No Action Alternative considers continuation of ongoing waste management practices at the Hanford Site and ceasing some operations when the limits of existing capabilities are reached. The No Action Alternative provides for continued storage of some waste types. The other alternatives evaluate expanded waste management practices including treatment and disposal of most wastes. The potential environmental consequences of the alternatives are generally similar. The major differences occur with respect to the consequences of disposal versus continued storage and with respect to the range of waste volumes managed under the alternatives. DOE's preferred alternative is to dispose of LLW, MLLW, and ILAW in a single, modular, lined facility near PUREX on Hanford's Central Plateau; to treat MLLW using a combination of onsite and offsite facilities; and to certify TRU waste onsite using a combination of existing, upgraded, and mobile facilities. DOE issued the Notice of Intent to prepare the HSW EIS on October 27, 1997, and held public meetings during the scoping period that extended through January 30, 1998. In April 2002, DOE issued the initial draft of the EIS. During the public comment period that extended from May through August 2002, DOE received numerous comments from regulators, tribal nations, and other stakeholders. In March 2003, DOE issued a revised draft of the HSW EIS to address those comments, and to incorporate disposal of ILAW and other alternatives that had been under consideration since the first draft was published. Comments on the revised draft were received from April 11 through June 11, 2003. This final EIS responds to comments on the revised draft and includes updated analyses to incorporate information developed since the revised draft was published. DOE will publish the ROD(s) in the *Federal Register* no sooner than 30 days after publication of the Environmental Protection Agency's Notice of Availability of the final HSW EIS.

Contents

Acronyms/Abbreviations

AEA	Atomic Energy Act
APL	Accelerated Process Line
BRMaP	Biological Resources Management Plan
BRMiS	Biological Resource Mitigation Strategy
C3T	Cleanup, Constraints and Challenges Team
CAS	Critical Abstract Service
CEDE	committed effective dose equivalent
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CH	contact-handled
Ci	curie(s)
Cl	chlorine
COPC	chemicals of potential concern
CRCIA	Columbia River Comprehensive Impact Assessment
CRD	Comment Response Document
CRK	Columbia River Keeper
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
CWC	Central Waste Complex
DBA	design basis accident
DCG	derived concentration guides
DEIS	Draft Environmental Impact Statement
DOE	U.S. Department of Energy
DOE-RL	U.S. Department of Energy – Richland Operations Office
DOT	U.S. Department of Transportation
DST	double-shelled tank
ECEM	Ecological Contaminant Exposure Model (computer code)
EDE	effective dose equivalent
EIS	environmental impact statement
ER	environmental restoration
ERDF	Environmental Restoration Disposal Facility
ERPG	Emergency Response Planning Guidelines
ERWM	environmental restoration waste management
FPA	facility performance assessment
FEIS	final environmental impact statement
FGR 13	Federal Guidance Report 13
FH	Fluor Hanford
FR	Federal Register
FWS	U.S. Fish and Wildlife Service
FY	fiscal year
GAP	Government Accountability Project

HAB	Hanford Advisory Board
HFFACO	Hanford Federal Facility Agreement and Consent Order (also known as the Tri-Party Agreement {TPA})
Hg	mercury
HIC	high-integrity container
HLW	high-level waste
HPMP	Hanford Performance Management Plan
HRCQ	highway route controlled quantities
HSER	Hanford Site Environmental Report
HSRAM	Hanford Site Risk Assessment Methodology
HSSWAC	Hanford Site Solid Waste Acceptance Criteria
HSW EIS	Hanford Solid Waste Environmental Impact Statement
HUMAN	refers to human health impacts (computer code)
HWY	highway
I	interstate
ILAW	immobilized low-activity waste
ILCR	incidental latent cancer risk
IMAP	Integrated Mission Acceleration Plan
IRIS	Integrated Risk Information System
IUPAC	International Union of Pure and Applied Chemistry
K_d	distribution coefficient for partitioning of contaminants in soil
Kg	kilogram
km	kilometer
LAW	low-activity waste
LDR	land disposal restrictions
LETF	Liquid Effluent Treatment Facility
LLBG	low level burial grounds
LLW	low-level waste
LLWMA	low-level Waste Management Area
LOEC	lowest observed effects concentration
LTS	long-term stewardship
MCi	megacuries (pertains to a measure of radiation)
MCL	maximum contaminant level
MLLW	mixed low-level waste
mrem	millirem
MS	Multiple Sclerosis
MTCA	Model Toxics Control Act
MW	mixed waste
NEHRP	National Earthquake Hazard Reduction Program
NEPA	National Environmental Policy Act
NIOSH	National Institute for Occupational Safety and Health
NM	New Mexico
NMFS	National Marine Fisheries Service
NOD	Notice of Deficiency

NOEC	no observed effects concentration
NORAD	North American Air Defense Command
Np	neptunium
NPL	National Priority List
NPR	National Public Radio
NPT	Nez Perce Tribe
NTS	Nevada Test Site
NW	Northwest
ODOT	Oregon Department of Transportation
OR	Oregon
ORP	Office of River Protection
OSHA	Occupational Safety and Health Administration
Pa	protactinium
PA	performance assessment
PCB	polychlorinated biphenyl
pCi	picocurie(s) (pertains to a measure of radiation)
PEIS	programmatic environmental impact statement
PHS	priority habitat species
PMP	program management plan
PNNL	Pacific Northwest National Laboratory
PUREX	Plutonium-Uranium Extraction Facility
RCRA	Resource Conservation Recovery Act
RCW	Revised Code of Washington
REAC/TS	Radiological Emergency Assistance Center/Training Site
RH	remote-handled
RHSW EIS	Revised Hanford Solid Waste Environmental Impact Statement
ROD	Record of Decision
SAC	System Assessment Capability
Se	selenium
SEIS	supplemental environmental impact statement
SEPA	State Environmental Policy Act
SST	single-shelled tank
Tc	technetium
TNC	The Nature Conservancy
TPA	Tri-Party Agreement
TRU	transuranic
TRUM	transuranic mixed (waste)
TRUPACT	transuranic package transporter
TSD	treatment, storage and disposal
TWRS	Tank Waste Remediation System
U	uranium
USDOE	U.S. Department of Energy
WA	Washington
WAC	Washington Administrative Code

WIPP	Waste Isolation Pilot Plant
WM PEIS	Waste Management Programmatic Environmental Impact Statement
WRAP	Waste Receiving and Processing Facility
WSDFW	Washington State Department of Fish and Wildlife
WTP	Waste Treatment Plant
YN	Yakama Nation

1.0 Introduction

This volume of the final Hanford Solid Waste Environmental Impact Statement (HSW EIS) consists of responses to comments the U.S. Department of Energy (DOE) received on the revised draft HSW EIS. The public comment and related processes are described below.

1.1 Background

DOE issued the first *Draft Hanford Site Solid (Radioactive and Hazardous) Waste Program Environmental Impact Statement*, Richland, Washington (HSW EIS) (DOE 2002a), in April 2002. The purpose of the HSW EIS was to assess potential impacts from a range of alternatives to receive, process, treat, store, and dispose of low-level (LLW), mixed low-level (MLLW), and transuranic (TRU) solid wastes generated at Hanford and received from other DOE sites. The document provided the results of analyses performed to help decision makers and the public understand the potential environmental impacts of the described alternatives and options. The first draft HSW EIS was distributed to the public in May 2002, and the U.S. Environmental Protection Agency (EPA) announced the availability of the draft HSW EIS for public review and comment in the Federal Register on May 24, 2002 (67 FR 36592); this announcement began a 90 day comment period that ended on August 22, 2002.

DOE received over 3,800 comments on the first draft HSW EIS from Federal agencies; state, local, and tribal governments; public and private organizations; and individuals. These comments were presented as recorded statements at the public meetings; in written documents submitted at those meetings; or sent to DOE by regular mail, email, and fax.

The revised draft HSW EIS (DOE 2003) was prepared to address those comments and to incorporate new alternatives that had been under consideration after the first draft was prepared. It also incorporated alternatives for disposal of immobilized low activity waste (ILAW) from the Hanford tank waste treatment plant, which was initially to be the subject of a separate National Environmental Policy Act (NEPA) review. The revised draft HSW EIS reflected the considerable input from Federal and State regulators, as well as from members of the public and other stakeholders, with the aim of ensuring that critical issues were addressed. The revised draft contained a range of changes that respond to the fundamental concerns raised in these comments by:

- adding alternatives for disposal of ILAW
- addressing regulatory and stakeholder concerns by expanding the range and depth of alternatives analyzed
- distinguishing between "Hanford Only" waste volumes and those projected to originate offsite
- describing more fully how transporting waste could impact residents of Washington and Oregon
- expanding discussion of cumulative impacts, including those affecting groundwater

- expanding discussion of potential long term impacts for each alternative
- providing additional information on potential mitigation measures
- discussing the relationship of the HSW EIS to cleanup at the Hanford Site and other DOE facilities.

The revised draft HSW EIS (DOE 2003) was released for public review and comment in April 2003. Notification of the revised draft's availability and opening of a 47-day public comment period (April 11, 2003 through May 27, 2003) was published by EPA in the Federal Register (68 FR 17801). At the request of the public a 15-day extension (to June 11, 2003) to the original 47-day public comment period was granted by DOE and published by EPA in the Federal Register (68 FR 28821, 68 FR 32486).

Commenters were invited to submit their comments by regular mail, electronic mail (email), facsimile transmission (faxes), and at six public meetings at different locations. Table 1.1 lists the locations and dates of the public meetings. DOE representatives were available one hour prior to the start of the public meeting for informal discussions and to answer questions regarding the HSW EIS.

This Comment Response Document (CRD) includes responses to over 1,600 comments that the DOE received on the revised draft HSW EIS. DOE also responded to comments received after June 11, 2003, to the extent practicable.

The table in Section 4 (of this Volume III of the final HSW EIS) provides locations in the document for all of the comments received from organizations and individuals. On several occasions, speakers at public meetings represented various organizations. In such cases, the table lists the person who spoke at the meeting and their organizational affiliation.

1.2 Methodology

Because there were a large number of submittals (letters, emails, faxes, comment forms, public meeting transcripts) received during the public comment periods and the fact many of the comments were similar, DOE elected to group similar comments together and provide one response to the comments. DOE also corrected obvious typographical errors found in the comments.

The following list highlights key aspects of the DOE approach to capturing, tracking, and responding to comments.

- DOE read all comment documents and their attachments to identify and extract comments. As a part of this process, DOE also reviewed technical attachments (e.g., reports) for potential applicability to the HSW EIS. DOE then grouped similar comments together and developed responses for them. To prepare a response, technical comments were assigned to an expert in the appropriate discipline.

- When more than one commenter submitted identical or similar comments, DOE prepared a single response for the grouped comments. A single response was appropriate because of the similarity of their content and the number of comments received.

- Comments were extracted from comment documents as submitted by the commenters. That is, with the exception of correcting obvious errors and other minor modifications (see next bullet), DOE has neither edited nor rewritten the comments submitted. However, in some cases to ensure clarity, DOE did add words in brackets; e.g., "it [waste importation] must stop."

- DOE, similarly, did not modify comments excerpted from certified transcripts of public meetings. However, some transcripts contained obvious errors (for example, misspelled names or words). And, in some cases to ensure clarity, some clarifying words were added in brackets as noted in the previous bullet.

- When the meaning of a comment was not clear, DOE responded based on its interpretation of the comment.

- The comment documents and meeting transcripts are reproduced in their entirety in Volume IV of the final HSW EIS.

- In the Volume IV reproduced documents, text interpreted to be comments on the revised draft HSW EIS are marked with numbered side bars.

1.3 Public Involvement and Comment Acquisition

DOE has made extensive efforts to keep the public aware of the development of the HSW EIS and to allow the public opportunities to review and comment on drafts of the document. DOE used an open process and multiple means for inviting and receiving comments.

1.3.1 Revised Draft HSW EIS

The public involvement process for the revised draft HSW EIS consisted of several outreach efforts:

- mailing postcards to over 1,300 interested individuals and organizations announcing the release of the revised draft HSW EIS and providing opportunity for recipients to request the document

- holding meetings with regulatory agencies, the Hanford Advisory Board (HAB) – a Federal Advisory Committee – etc.

- publishing the availability of the revised draft HSW EIS through (EPA's) Notice of Availability in the April 11, 2003 Federal Register (68 FR 17801)

- mailing fact sheets describing the revised draft EIS and announcing the dates and times for public meetings to over 3,300 interested individuals and organizations

- distributing over 1,000 copies of the revised draft HSW EIS summary or full document primarily as a printed summary with compact disks (CDs) containing the full document. Full copies of the printed document were made available on request

- placing newspaper advertisements to announce public meetings in Richland, Spokane, and Seattle, Washington, and in Hood River, Portland, and La Grande, Oregon.

During the review period, DOE held six public meetings (see Table 1.1). The format for the meetings included an opportunity for informal discussions with project personnel before and after the formal presentation. Panel discussions were conducted at each meeting and included DOE staff, regulatory agency representatives, and local interest groups. Commenters were heard on a first come, first served basis. DOE encouraged those providing oral comments at the meetings to submit them in writing as well.

Table 1.1. Public Meetings Related to the Revised draft HSW EIS

Date	Time	City	Facility
May 1, 2003	7:00 – 10:00 pm	Richland, WA	Red Lion Hanford House
May 7, 2003	7:00 – 10:00 pm	Spokane, WA	West Coast River Inn
May 12, 2003	7:00 – 10:00 pm	La Grande, OR	Best Western
May 13, 2003	7:00 – 10:00 pm	Portland, OR	Radisson Hotel
May 14, 2003	7:00 – 10:00 pm	Hood River, OR	Best Western Hood River Inn
May 15, 2003	7:00 – 10:00 pm	Seattle, WA	Woodland Park Zoo Auditorium

1.3.2 Final HSW EIS

DOE assessed and considered all public comments received on the revised draft HSW EIS during the comment period, both individually and collectively. DOE developed a database to track and manage comments received on the revised draft HSW EIS. Documents/comments received were assigned an individual, identification number in accordance with the designation system described in Table 1.2. Each document received (email, form, letter, or transcript of each speaker at a public meeting) was evaluated for substantive comments that pertained to the HSW EIS, and each identified comment was assigned a sequential number within each document. In a few cases, the comment numbers were not sequential due to adjustments made during the comment response process.

DOE meetings/hearings to acquire comments on the Revised Draft Hanford Solid (Radioactive and Hazardous) Waste Management Program Environmental Impact Statement were conducted in a combination of forums to allow full participation of the audience and commenters. The overall forum consisted of periods for introductions, presentations, informal question and answer session, panel discussions, and formal comment periods. The identification of comments from the transcripts of these meetings required close reading and interpretation. The results are shown in the identification of formal comment speakers, numbering of comments related to the revised HSW EIS, and bar-coding of copies of the transcripts contained in Volume IV of the HSW EIS.

Material, such as attachments to comment letters (and other comment documents) that included comments already submitted on the first draft HSW EIS, comments pertaining to other Hanford environmental review documents, and text within comment documents redundant with other text recorded as comments, was not included as comments.

A listing of the individuals and organizations that commented on the revised draft HSW EIS appears in Section 4 of this volume, and is organized alphabetically by commenting organization or individual commenter. The comments and DOE responses are contained in Section 3 of this volume.

Table 1.2. Comment Document Numbering System

P	Postcard – containing individual unique comments.	F	Comment form – comments received from forms available at each of the six public meetings.
E	Email – individual, unique comments.	TRI	Transcript Richland – transcripts from the public meeting held in Richland, May 1, 2003.
EM	Mass email – consisting of identical comments per each email.	TSP	Transcript Spokane -- transcripts from the public meeting held in Spokane, May 7, 2003.
EMM	Modified mass email – consisting of comments that are a variation on a mass email.	TLG	Transcript La Grande -- transcripts from the public meeting held in La Grande, May 12, 2003.
L	Letter – containing individual unique comments.	TPO	Transcript Portland -- transcripts from the public meeting held in Portland, May 13, 2003.
LM	Mass letter – consisting of identical comments per letter.	THR	Transcript Hood River -- transcripts from the public meeting held in Hood River, May 14, 2003.
LMM	Modified mass letter – consisting of comments that are a variation on a mass letter.	TSE	Transcript Seattle -- transcripts from the public meeting held in Seattle, May 15, 2003.

A number of the responses to comments may refer to supporting documents. The reference list in this CRD includes only the documents cited in this volume of the final HSW EIS. References cited in other volumes of the HSW EIS are listed in those volumes. All documents cited as references in the HSW EIS are available through the DOE reading room in Richland, Washington.

1.4 How to Use this Comment Response Document

The HSW EIS Comment Response Document is provided in two volumes: HSW EIS Volume III and HSW EIS Volume IV. HSW EIS Volume III consists of an introduction section (Section 1), a discussion of key issues (Section 2), comments and responses (Section 3), an index (Section 4), and references (Section 5). HSW EIS Volume IV contains copies of public meeting transcripts and all comment documents received during the public comment period for the revised draft HSW EIS.

Individuals and organizations that submitted comments on the HSW EIS can examine their comments and see the DOE responses by using HSW EIS Volume III Section 3, HSW EIS Volume III Section 4, and HSW EIS Volume IV. Guidance regarding the layout and use of HSW EIS Volume III and HSW EIS Volume IV is outlined below:

- Copies of comment documents and transcripts are provided in HSW EIS Volume IV. The documents are in alpha-numeric order based on the document and comment numbering system previously explained in Section 1.3.2 and Table 1.2 herein (HSW EIS Volume III). Each comment within each document is indicated by a sidebar and a corresponding number.

- HSW EIS Volume III Section 3 presents the comments on the revised draft HSW EIS and the DOE responses. Database management techniques were used to compile the comments and assign responses. In some instances the comments were edited for typographical and minor grammatical corrections. Bracketed text "[ ]" was added to some of the comments to complete the comment or to add context for response.

- At the top of each page in HSW EIS Volume III Section 3 is a heading that summarizes the general subject area of the comment(s) and response(s) that appear on that page.

- HSW EIS Volume III Section 4 is an index table for the locations of comments. Individuals and organizations are listed alphabetically according to their last names. To find the organization that an individual commenter belongs to, one can look up the person's name in the table and immediately below the name is the organization the individual represents.

- Alternatively, to find an individual speaking for a particular organization, the individual's name may be presented directly below the organizational title. For example, Tom Fitzsimmons (Document Identifier L-0044) is listed as an individual who submitted comments on behalf of the Washington Department of Ecology. Mr. Fitzsimmons also is listed below the Washington Department of Ecology index name.

- To find a comment and the DOE response, locate the name of the person commenting and the associated list of comments in the HSW EIS Volume III Section 4 Comment IDs column. The HSW EIS Volume III Section 3 page number for each comment is identified in the Page Numbers column.

- Multiple comment identification numbers appearing above certain comments indicates multiple identical/similar comments. For instance, examples of identical comments are those received in duplicate letters, mass-mailed letters, and comments from the same sender received by both letter and e-mail.

- The DOE response follows each comment. For groups of related comments with a single DOE response, the DOE response appears after the list of comments.

- For those comments that are brief, are made by one individual only, or have been grouped with very few other related comments, the page number in the index table will be the same as the page number in HSW EIS Volume III Section 3. For comments that are grouped with large numbers of related comments, a particular comment may be located by turning to the index table page number and scanning the page and, if necessary, succeeding pages to locate the comment. Comments are listed in alphabetical order according to the comment identification numbers.

- For readers who first review HSW EIS Volume III front-to-back, or by particular subject areas of interest, the comment identifiers and the HSW EIS Volume III Section 4 index table can also be used to trace comments back to their source documents in HSW EIS Volume IV.

As an example, the Washington State Department of Ecology's letter (Document Identifier L-0044) contains 144 identified comments – see pages 4.18 and 4.74 of this HSW EIS Volume III. The comments are listed in the Section 4 table under "Washington Department of Ecology" beginning on page 4.73. The fifth comment in the letter (Comment Identifier L-0044/005) can be located by turning to page number 3.200. This is the beginning of the list of comments related to comment L-0044/005 that are all addressed with the same response. The reader then scans page 3.199 and the following page to locate comment L-0044/005. The L-0044/005 comment identification number and the text of the comment are found at the top of page 3.200. The response to this comment follows the list of related comments and is in the middle of page 3.200. The L-0044 comments are also listed under "Fitzsimmons, Tom" beginning on page 4.18 of the table in Section 4.

2.0 An Overview of Key Issues Raised in Comments on the Revised Draft HSW EIS

This section summarizes key issues raised during the public comment process for the DOE revised draft HSW EIS (DOE 2003). It also provides the DOE responses to those key issues, including changes incorporated into the final HSW EIS. DOE identified the issues as “key” based on factors such as the:

- number of comments received on a particular issue
- extent to which an issue concerned fundamental aspects of the proposed action
- nature of the comments characterized by the commenters
- extent to which DOE changed the final HSW EIS in response to the issue.

Key issues are grouped under the following six general categories:

- Effects of importing offsite waste
- Impacts on groundwater
- Scope of the HSW EIS
- Health, safety, and regulatory concerns
- Public involvement and trust
- Progress on Hanford cleanup.

Subsequent sections of this CRD presents comments received on the revised draft HSW EIS and provide the DOE’s responses to these comments.

1. Effects of importing offsite waste.

Why would Hanford receive offsite waste without first cleaning up the wastes already at Hanford?

DOE is responsible for the cleanup of dozens of sites around the country. DOE’s approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford has the capabilities to safely treat, store, or dispose of the wastes, whereas many other sites lack such capabilities. Hanford is part of the waste management system across the DOE complex and is meeting cleanup commitments and seeking to accelerate its cleanup schedule. In order to accelerate the cleanup of the Hanford site and other sites across the complex, it may be necessary to undertake actions that may marginally increase the amount of waste at Hanford. In turn, substantial quantities of Hanford waste will be disposed of at other facilities. Some of the other sites may not have the treatment capabilities or capacities that exist at Hanford. Offsite wastes imported to Hanford may enable other sites that lack the capacity to treat these wastes to clean up sooner, thus saving money and releasing these sites for other uses. Leaving waste at these generator sites would increase DOE's overall waste management costs, and result in greater complex-wide impacts to workers and the environment. Finally, the ability to close other facilities reduces complex-wide needs for surveillance and security for radioactive and hazardous wastes.

Will the importation of wastes to Hanford increase existing levels of contamination of the site's soil and groundwater?

There are concerns about importing offsite wastes and the effect that waste might have on Hanford's environment. To address the issue, different waste volumes were analyzed under each of the alternatives – Hanford Only, Lower Bound, and Upper Bound. The Hanford Only waste volume was analyzed in the revised draft and in this final EIS because of comments received on the first draft HSW EIS that the impacts of offsite waste should be clearly identifiable relative to those from Hanford waste.

Waste imported from other DOE facilities would have minimal adverse impacts on the environment when compared to the waste received from generators at Hanford. Moreover, on balance, the quantities of radionuclides in waste imported from offsite generators would be much smaller than in waste Hanford would ship to offsite disposal facilities.

Why weren't the offsite transportation risks of shipping waste to Hanford evaluated?

About 300,000,000 hazardous material shipments take place every year in the U.S. Of these shipments, about 3,000,000 involve radioactive materials, including about 10,000 DOE shipments. The environmental and health and safety impacts of offsite waste transportation were previously discussed in the Waste Management Programmatic Environmental Impact Statement (WM PEIS). The WM PEIS considered shipment by rail, as well as by truck, and addressed all waste types, including both contact-handled and remote-handled TRU waste shipped to or from Hanford. This final HSW EIS includes an updated version of the WM PEIS transportation analysis for wastes that may be shipped to, or from, Hanford. See Volume I, Section 5.8 and Volume II, Appendix H.

Offsite LLW, MLLW, and TRU waste can be safely shipped to and from Hanford without exposing the public and environment to undue risks. This is ensured by a number of means that emphasize preventing releases of radioactive and hazardous material in transit – including appropriate packaging, route selection, communications, vehicle safety, and driver training. Onsite hazardous material transfers must comply with the U.S. Department of Transportation (DOT) hazardous materials regulations. For offsite hazardous materials packaging and transportation safety, each package and shipment of hazardous materials must be prepared in compliance with the DOT hazardous materials regulations and applicable tribal, state, and local regulations not otherwise preempted by DOT. In the unlikely event that an accidental release occurs, DOE provides the necessary support to local first responders to effectively mitigate, clean up, and monitor potential releases, as well as provide medical treatment to people exposed to radiation.

At a public meeting on the revised draft HSW EIS held in La Grande, Oregon, on May 12, 2003, state officials from the Oregon Department of Transportation (ODOT) offered information on the safety of shipping wastes through Oregon. They stated that since 1982 over 15,000 radioactive waste shipments have gone through Oregon, with only seven incidents occurring, one of which would be considered serious (i.e., a roll over). However, none resulted in a release of radioactive material.

Why wasn't the most recent census data employed in doing the offsite transportation analysis?

The 2000 Census has been employed in the final HSW EIS to analyze the transportation of waste to and from Hanford. The conclusions of this analysis are consistent with the conclusions reached in the WM PEIS transportation analysis.

Many of Oregon's highway bridges are in a perilous state of disrepair. The HSW EIS does not evaluate the transportation risks of detouring waste shipments through cities and towns along the interstate while these bridges are being repaired.

ODOT has identified 487 bridges with some degree of cracking; 309 of those are likely candidates for repair or replacement. Two hundred twenty-one of the critical bridges lie on Interstate 5 and Interstate 84. Oregon has developed a strategy to fix Highways 20 (Bend to Ontario) and 97 (California border to the Washington State line) as alternative east-west and north-south routes that can be improved quickly at least cost (scheduled for completion in 2005), and could serve as detour routes if necessary for subsequent stages of the work to restore the interstate system. The subsequent stages of the project will address the bridges on I-84 and begin work on Interstate 5, proceeding from the north to the south. As work progresses southward on Interstate 5, lateral routes will be fixed that will reconnect the coastal parts and Central Oregon to Interstate 5 as repairs continue southward. The repairs on the interstates are expected to be completed by 2015 (Oregon 2003).

During the period of repair, truckloads of radioactive/hazardous materials will stay on the interstates wherever possible and would typically not be detoured through cities and towns along the route. If construction/repair of a bridge is taking place, traffic would be detoured to the opposite side of the freeway from where construction/repair is taking place – the open half of the freeway would temporarily become a two-way road. If the entire bridge were to be closed, the most common procedure would be to have traffic exit the freeway at the interchange immediately before the bridge and enter the freeway on the other side of the bridge at the same interchange or at the next entrance (information presented by Mike Barry, Oregon Department of Transportation, during the public hearing in La Grande, Oregon, on May 12, 2003, see a transcript of the presentation in Volume IV of this HSW EIS). In such cases, having a small number of shipments travel a short distance on routes other than the interstate freeways would not substantially change the transportation risks or conclusions presented in the HSW EIS.

DOE has not considered the advent of a terrorist attack or other malevolent event affecting the transportation of radioactive/hazardous waste being shipped to Hanford.

The consequences of a "malevolent event" are expected to be within the range of accidents including severe (low probability, high consequences) accidents already evaluated in this HSW EIS. The HSW EIS analyzes several accident scenarios, including fires, explosions, and earthquakes (see Volumes I and II, Section 5.11 and Appendix F, respectively). This EIS also analyzes the impacts of accidents during transportation of waste (see Volumes I and II, Section 5.8 and Appendix H, respectively). It is not possible to predict the probability of a malevolent event; however, in general the LLW, MLLW, and TRU wastes do not present an attractive target. The shipping containers and other measures used for transporting these materials are designed to be commensurate with the potential hazard. In response to comments, DOE included a discussion of the potential impacts of acts of sabotage or terrorist attacks in Volume II Appendix H of this EIS.

2. Impacts on Groundwater.

The HSW EIS should evaluate the contributions to cumulative impacts on groundwater of Iodine-129 (I-129).

The final inventories of I-129 in various waste streams are still under development for a future site-wide composite analysis of waste remaining at the Hanford Site over the long term. However, the HSW EIS cumulative impacts analysis for groundwater has been revised to include a conservative estimate for the inventories and groundwater concentrations of I-129. The cumulative impacts analysis includes estimates for groundwater concentrations of radionuclides that are expected to be the major contributors to potential health impacts over the long term. See the discussions in Volume I, Section 5.14 and Volume II, Appendix L of the final HSW EIS.

The HSW EIS should evaluate groundwater impacts adjacent to the disposal facility boundary; e.g., within 100 m.

The final HSW EIS provides a quantitative analysis on the relative impact at the facility boundaries (about 100 meters down gradient versus impacts at 1 kilometer [km] from the burial ground) for the preferred alternative, and a qualitative comparison is made for the other alternatives. The analysis is reported in Volume I Section 5.3 and Volume II Appendix G of the final HSW EIS. The Facility Performance Assessment (FPA) would include analysis at the point of compliance, based on applicable requirements for obtaining a Washington State permit and the DOE disposal authorization for facility construction. This process will occur after the final HSW EIS and Records of Decision (RODs) are issued, and a more definitive design for the disposal facility has been developed. The disposal facility will comply with all applicable standards and regulations.

Why would DOE want to add to groundwater and vadose zone contamination?

DOE believes that the risks associated with properly disposing of waste in regulatory compliant disposal facilities are lower than leaving radioactive and mixed wastes in other more environmentally accessible locations. The potential impacts of activities proposed in the HSW EIS occurs several hundreds to thousands of years in the future. They are not expected to contribute to existing levels of groundwater contamination, which are anticipated to decrease over the next few hundred years.

DOE has been monitoring groundwater on the Hanford Site since the 1950s, and a centralized Hanford Groundwater Monitoring Project since 1996 helps assure protection of the public and the environment while improving the efficacy of monitoring activities.

How did DOE determine the scope of the Groundwater Impact Analysis?

This HSW EIS evaluates the groundwater impacts of managing solid LLW, MLLW, TRU waste, and ILAW at Hanford, as discussed in Volume I, Section 2.1. To perform the evaluation, DOE employed methods for estimating (based on available information) the total quantity of radionuclides from all sources at Hanford that could affect groundwater. Prior to disposal, as proposed in this HSW EIS, MLLW would be treated in accordance with applicable standards to meet land disposal restriction (LDR) requirements and waste acceptance criteria. Therefore, based on available information, the remaining chemical constituents of this waste are not expected to contribute substantially to cumulative groundwater impacts from previously disposed of waste. For groundwater impacts from the EIS alternatives and cumulative groundwater impacts from proposed actions analyzed in this HSW EIS, as well as other Hanford Site activities, see Volume I Sections 5.3 and 5.14 and Volume II Appendixes G and L of this EIS.

The HSW EIS should evaluate the contributions to groundwater contamination from tank waste residuals and older burial grounds containing hazardous constituents and TRU waste.

The HSW EIS cumulative impacts analyses account for contributions from tank waste residuals, contaminated soil sites, and inactive burial grounds to the extent information is available (see Volumes I and II, Section 5.14 and Appendix L, respectively). Impacts from various alternatives for retrieving tank waste are expected to be evaluated as part of the *Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Wastes and Closure of Single-Shell Tanks at the Hanford Site* (68 FR 1052). Inactive burial grounds are being, and will continue to be, evaluated under the Resource Conservation and Recovery Act (RCRA) past practice or Comprehensive Environmental Response, Compensation, Liability Act (CERCLA) process. The characterization necessary to determine appropriate remediation measures for many of these sites is ongoing. DOE is addressing concerns associated with 200 Area disposal sites, such as the discovery of carbon tetrachloride vapor in a 200 West Area low-level burial ground, as part of a program to characterize older disposal sites that may present a near-term risk. As the inactive disposal sites are characterized, appropriate measures to stabilize or remediate the sites will be determined. In the meantime, DOE needs to continue its ongoing waste management activities to support facility deactivation and other operations.

3. Scope of the HSW EIS.

How are tank wastes dealt with in the HSW EIS?

Management of the Hanford Single-Shell Tank System and Double-Shell Tank System is not within the scope of the HSW EIS. Management of Hanford tank waste has been the subject of two previous NEPA analyses (DOE 1987, DOE and Ecology 1996), and will be addressed further in the *Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single-Shell Tanks at the Hanford Site* (68 FR 1052). That EIS will evaluate alternatives for treatment and disposal of some tank wastes at Hanford. High-level waste (HLW) will be disposed of in a geologic repository. DOE is now preparing a license application to the Nuclear Regulatory Commission (NRC) to obtain a permit to construct a repository for Spent Nuclear Fuel (SNF) and HLW at Yucca Mountain in Nevada.

The HSW EIS addresses management of LLW, MLLW (including waste treatment plant melters), ILAW, and TRU waste. On July 8, 2002, DOE published a Notice of Intent in the Federal Register announcing its plan to prepare a supplemental EIS (SEIS) to the Tank Waste Remediation System (TWRS) EIS for the disposal of ILAW (67 FR 45104). During the scoping period, all interested parties were invited to submit comments concerning the scope of the issues, alternatives, and environmental impacts to be analyzed in the ILAW SEIS, and a public scoping meeting was held in Richland, Washington, on August 20, 2002. One of the comments provided during scoping was that disposal of ILAW at Hanford should be considered with disposal of other similar radioactive wastes, such as LLW and MLLW, and should be included in the HSW EIS. In response to this concern, DOE decided to include the ILAW disposal analysis in the HSW EIS. Consequently, topics that were originally identified in the Notice of Intent for consideration in the TWRS Supplemental EIS are now addressed in this final HSW EIS, and all comments on ILAW generated during the scoping phase of the TWRS Supplemental EIS are now included in Volume II, Appendix A of the HSW EIS. DOE published a Notice of Revised Scope for the HSW EIS in the Federal Register on February 12, 2003 (68 FR 7110).

Why would DOE consider unlined trenches for burying radioactive wastes?

The HSW EIS considers a wide range of alternatives for disposal of LLW in both lined and unlined facilities. The use of unlined trenches for disposal of LLW is an established, legal, and environmentally protective method of LLW disposal at both DOE and commercial facilities. As such, it is a reasonable alternative under the Council on Environmental Quality (CEQ) regulations, and must be analyzed. DOE uses, and would continue to use, regulatory compliant facilities incorporating liner and leachate collection systems for disposal of MLLW, and is considering using lined trenches for all future waste disposals, including LLW. The HSW EIS analysis, assuming continued use of existing disposal capacity in both lined and unlined trenches, is conservative and shows that environmental impacts would be small. Disposal of LLW would meet applicable regulatory requirements and Hanford Site Solid Waste Acceptance Criteria to ensure protection of public health and the environment.

Some waste inventories have been incompletely characterized and reported. Why is this the case?

The basis for waste inventories varies with the type of waste and its source, and may include information such as process knowledge or direct assay. In general, inventories for wastes received in recent years are associated with less uncertainty than those disposed of in the early 1970s. Wastes received in later years are more fully characterized because of improved analytical capabilities and added requirements for record keeping. The HSW EIS discusses areas of uncertainties and incomplete information, and where quantitative analyses are performed, makes conservative assumptions regarding waste inventories based on process knowledge, assays of previously received waste, or other available information.

Inventories of hazardous chemicals in waste were not generally maintained by industries in the United States prior to the implementation of RCRA. Consistent with these general practices, inventories of hazardous chemicals in radioactive waste were not required to be determined or documented before the application of RCRA to radioactive mixed waste at DOE facilities in late 1987. Wastes placed in the LLBGs before late 1987 have not been specifically characterized for hazardous chemical content, but they have been evaluated in the EIS alternatives relative to their radionuclide inventories. In addition, preliminary estimates of chemical inventories in this waste have been developed for analysis in the HSW EIS, and a summary of their potential impacts on groundwater has been added to Volume I, Section 5.3 and Volume II, Appendix G. A listing of the types of hazardous constituents in solid waste disposed of between 1968 and 1988 indicates the presence of RCRA- or state-designated hazardous inorganic chemicals, acids, oils, solvents, and metals such as beryllium and lead (DOE-RL 1985 and 1989). The bulk of these materials was in a solid non-dispersible form and is not highly mobile in groundwater. Practices used to stabilize and contain radionuclides in the waste would also aid in limiting migration of nonradioactive hazardous constituents.

Most hazardous materials historically used in large quantities at Hanford were organic liquids or solutions containing inorganic compounds and metals such as cadmium. At that time, bulk liquid wastes were disposed of directly to the ground via ponds, trenches, cribs, and ditches – a historical practice that was reduced over time and discontinued in 1995. Some of those contaminants have been detected in groundwater as a result of the past liquid waste disposal practices. A previous evaluation of waste disposal sites confirmed that groundwater contamination by hazardous chemicals was primarily a result of past liquid discharges rather than solid waste disposals (DOE 1996).

Wastes and residual soil contamination remaining at Hanford over the long term, and which are not specifically evaluated as part of the HSW EIS proposed action and alternatives, have been evaluated previously as part of NEPA or CERCLA reviews. The risks associated with older solid waste burials, tank waste residuals and leaks, and transuranic-contaminated soil sites, were assessed previously and found to be very small, even for alternatives where the waste is stabilized in place (DOE 1987, DOE and Ecology 1996). Sampling of soil and groundwater up- and down-gradient from active solid waste disposal facilities has not provided evidence that these facilities contributed to existing groundwater contamination (Hartman et al. 2002).

The HSW EIS has benefited from preceding analyses and field observations, including the performance assessments for 200 West and 200 East post-1988 burial grounds (Wood et al. 1995, 1996), the remedial investigation and feasibility study of the ERDF (DOE 1994), the disposal of ILAW originating from the single- and double-shell tanks (Mann et al. 1997) and (Mann et al. 2001), and the Composite Analysis of the 200 Area Plateau (Kincaid et al. 1998). These and related environmental analysis documents have provided inventory data and screening or significance criteria to identify those radionuclides that could be expected to substantially contribute to either the dose or risk calculated in the respective analysis. The radionuclides identified as potentially significant in these published analyses are also expected to be key radionuclides in this assessment.

DOE plans to further characterize many of these sites under the RCRA past practice or CERCLA processes to determine whether remedial action would be required before the facilities are closed. Therefore, either the long-term risks from these wastes would be determined to be minimal, or the waste would be remediated by removal or stabilization to reduce its potential hazard. An updated analysis of long-term impacts from these sites is also included in the cumulative impacts analysis in this EIS (See Volumes I and II, Section 5.14 and Appendix L, respectively).

DOE is continuing to refine computer models and their supporting data to provide estimates that are more precise. If further analysis shows the potential for adverse cumulative groundwater impacts, then DOE would implement additional mitigation measures to prevent such cumulative impacts from occurring. Potential mitigation measures could include treating waste by such methods as macro-encapsulation, grouting, or placing it in robust containers.

Why doesn't the HSW EIS evaluate all waste forms on the Hanford site instead of only solid waste?

The purpose of the HSW EIS is to meet DOE needs to provide capabilities to continue, or modify, the way it treats, stores, and disposes of existing and anticipated quantities of solid LLW, MLLW, TRU waste, and ILAW at Hanford. This is undertaken to protect human health and the environment; facilitate cleanup at Hanford and other DOE facilities; take actions consistent with decisions reached by DOE under the WM PEIS; comply with local, State, and Federal laws and regulations; and meet other obligations such as the Hanford Federal Facility Agreement and Consent Order (also known as the Tri-Party Agreement [TPA]).

Volume I Section 5.14 (Cumulative Impacts) in the HSW EIS includes a discussion on past, current and reasonably foreseeable future actions in the Hanford area. Current and future activities include preparation for treatment and disposal of tank waste, CERCLA remediation projects, decontamination and decommissioning of the Hanford production reactors and other facilities, operation of a commercial LLW disposal site by U.S. Ecology, Inc., and operation of the Columbia Generating Station by Energy Northwest. Potential cumulative impacts associated with implementing the various HSW EIS alternative groups are summarized for storage, treatment, and disposal of the range of waste volumes evaluated. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower and Upper Bound volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the other activities, are small.

Older burial ground and contaminated sites containing hazardous materials and TRU waste are not evaluated within the scope of this EIS. Why?

The scope of the HSW EIS is to evaluate the potential environmental impacts of ongoing activities of the Hanford Solid Waste Program, to evaluate implementation of alternatives consistent with the WM PEIS, and to evaluate reasonably foreseeable treatment, storage, and disposal facilities and activities. A discussion of the WM PEIS and its relationship to the HSW EIS can be found in Volume I Section 1.5 of the final HSW EIS. The scope of this HSW EIS has been revised to evaluate disposal of the immobilized low-activity waste generated by the Hanford Waste Treatment Plant. The cumulative impacts analysis (Volumes I and II, Section 5.14 and Appendix L, respectively) provides an evaluation of groundwater, health, and safety consequences from other past-buried wastes at Hanford, including pre-1970 burial sites, tank waste residuals, leaks, spills, commercial LLW, and environmental restoration waste.

The HSW EIS evaluates potential offsite TRU waste that could be shipped to Hanford as newly generated TRU waste. This TRU waste will not be disposed of at Hanford. It will be shipped to the Waste Isolation Pilot Plant (WIPP). TRU waste that is hazardous mixed waste will also be shipped to the WIPP. Decisions regarding “pre-1970 TRU waste” will be made through appropriate CERCLA or RCRA processes in collaboration with EPA and/or Ecology. The alternatives in this HSW EIS assume the post-1970 retrievably stored TRU waste will be shipped to WIPP in New Mexico based on previous NEPA decisions. The long-term environmental impacts of leaving the retrievably stored TRU wastes at Hanford were not evaluated in this HSW EIS because none of these wastes are expected to remain onsite. DOE plans to begin retrieving contact-handled retrievably stored waste from the LLBGs in FY 2004. Retrieval of this waste is scheduled to be complete in FY 2011. DOE plans to begin retrieving remote-handled, retrievably-stored waste from the LLBGs in FY 2011 and complete this retrieval in FY 2019 (United States of America and Ecology 2003).

The HSW EIS includes potential impacts of disposing of MLLW (mixed radioactive and hazardous waste), and radioactively contaminated lead shielding. With some exceptions, estimated inventories of hazardous chemical constituents associated with LLW and MLLW disposed after 1988 are being considered under each alternative and are expected to be found at trace levels. MLLW, which would be expected to contain the majority of hazardous chemical constituents, will undergo pre-disposal treatment to meet current Waste Acceptance Criteria and RCRA Land Disposal Restrictions before being disposed of in lined MLLW facilities.

4. Health, Safety and Regulatory Concerns.

Health and Safety

Why did DOE limit the scenarios in the human health impact analysis?

This HSW EIS evaluates a number of health impact scenarios using representative individuals and groups that could be exposed from continued and expanded solid waste operations at Hanford. These scenarios are consistent with health impact analyses in recent Hanford-related NEPA documents and with scenarios used to assess the impacts of Hanford operations in the Annual Hanford Environmental Report

(Poston et al. 2002). The scenarios are summarized in Volume I Section 5.11 and described in detail in Volume II Appendix F of the final HSW EIS.

The HSW EIS evaluates compliance with regulatory requirements, impacts on the environment, and the risk to human health for each alternative. DOE believes these scenarios adequately address potential human activities during normal operations, during postulated accidents, and during long periods after closure of waste management units, including intrusion into waste disposal areas long after closure, and impacts from use of groundwater or the Columbia River. The scenarios were selected to include activities that anyone living in the area would be engaged in, including activities postulated for persons having special sensitivity or unique living habits such as children or Native Americans. The scenarios also were selected to ensure that sufficient information would be available to support the specific actions for which the EIS was developed. These scenarios also include conservative unlikely cases such as use of groundwater as a source of drinking water near the waste disposal sites on the 200 Area plateau, even though institutional controls are expected to preclude such uses.

For wastes that are the subject of the proposed action and alternatives analyzed in this HSW EIS, DOE has evaluated the movement of contaminants through groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all constituent contaminants in groundwater from these wastes were well below benchmark drinking water standards at a hypothetical well located 1 km from the disposal facilities following implementation of any of the HSW EIS alternatives.

What are the long-term effects of groundwater contamination on the Hanford Site on the Columbia River?

Analysis of alternatives assesses the impacts on water quality in the Columbia River. For all alternatives analyzed in this HSW EIS, DOE has analyzed the movement of contaminants through groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at hypothetical wells located near the Columbia River. The health impacts on downstream populations of groundwater reaching the Columbia River are discussed in Volumes I and II, Section 5.11 and Appendix F, respectively, of this HSW EIS. The ecological impacts are discussed in Volumes I and II, Section 5.5 and Appendix I, respectively. The impacts of groundwater reaching the river are discussed in Volumes I and II, Section 5.3 and Appendix G, respectively.

Regulatory Concerns

DOE received a number of comments regarding the adequacy of the HSW EIS with respect to NEPA and the NEPA process. These comments can be grouped into two categories. The first deals with the relationship between the HSW EIS and the *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste* (WM PEIS, DOE 1997b). The second focuses more specifically on NEPA compliance and process, including the adequacy of compliance with NEPA requirements. These categories are now briefly discussed.

What is the relationship between the WM PEIS and HSW EIS?

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS decisions regarding certain TRU waste, LLW, and MLLW streams. Site-specific waste management actions at Hanford involve transportation, treatment and processing of TRU waste and MLLW, disposal of LLW, MLLW and ILAW, and storage of LLW, MLLW, and TRU waste. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

The WM PEIS was a comprehensive evaluation of DOE nationwide waste management. The WM PEIS evaluated a broad suite of alternatives for waste management across the DOE complex, including managing most waste at generator facilities, or consolidating waste management at fewer sites that have existing facilities suitable to accept waste from other facilities. The impacts of those alternatives were compared for a variety of waste volumes at different DOE sites, including larger quantities of waste than are evaluated in the HSW EIS. The general result of the WM PEIS was that radioactive and hazardous wastes generated at a DOE site should be disposed of at that site unless the site was not capable of or not technically able to support those actions. DOE determined there was sufficient information in the WM PEIS to support decisions regarding the sites that were suitable for long-term waste management missions. Those decisions included processing and disposing of Hanford waste at Hanford, and the importation of wastes from other sites that could not adequately handle them. Decisions made as part of the WM PEIS made Hanford available for the disposal of low-level waste and mixed low-level waste from other DOE generators. The initial WM PEIS decisions related to LLW, MLLW, and TRU waste were issued between January 1998 and February 2000.

Are the HSW EIS and the process leading to a ROD complying with applicable NEPA regulations?

Yes. DOE has adhered to the CEQ regulations (40 CFR {Code of Federal Regulations} 1500-1508) and DOE NEPA requirements (10 CFR 1021) in preparing this HSW EIS.

Did DOE address the requirements of NEPA to consider cumulative impacts?

The final HSW EIS addresses environmental consequences including cumulative impacts on land use, air quality, ecological and cultural resources, socioeconomics, public health, and worker health and safety. Updated inventory information and calculations from the Hanford System Assessment Capability have also been incorporated into the cumulative impacts analysis for groundwater and the Columbia River (Volume I Section 5.14; Volume II Appendix L).

What is the relationship between the HSW EIS and the Tri-Party Agreement?

The Tri-Party Agreement (TPA) establishes milestones to bring DOE operating facilities into compliance with RCRA standards and to coordinate environmental restoration of Hanford under

CERCLA. This EIS analyzes certain activities that DOE proposes to take to meet related TPA milestones according to the agreed-upon schedule in the TPA.

Shouldn't the final HSW EIS provide more information about other Hanford environmental protection programs and requirements?

The final HSW EIS includes summaries of the major components of the proposed action regulatory framework in Volume I Section 6. Detailed evaluation of other environmental regulatory programs and their requirements is more appropriately addressed in the documentation prepared for those programs. Information about CERCLA, RCRA, dangerous waste management, groundwater monitoring, closure, post-closure care, and corrective action requirements is also addressed in detail in environmental documentation prepared pursuant to the environmental restoration programs, the TPA, and the Hanford dangerous waste management permit.

5. Public Involvement.

How did DOE advertise and notify the public of public meetings?

DOE maintains open channels of communication with members of potentially affected groups and other interested parties. The Hanford Advisory Board (HAB) is one such forum for these ongoing informational exchanges. The public involvement process for the revised draft HSW EIS consisted of several outreach efforts to assure a full exchange of information. Some of these outreach efforts included briefings to, and discussions with, the HAB and its committees and state regulatory agencies; distribution of postcards announcing the release of the revised draft HSW EIS to over 1,300 interested individuals and organizations; advanced mailing of over 3,300 fact sheets announcing the public meetings; press releases; the creation of a special HSW EIS website; and public meeting announcements in the major newspapers serving the Tri-Cities, La Grande, Hood River, Portland, Seattle, and Spokane. Information on the availability of the revised draft HSW EIS and the schedule for public meetings was sent to anyone who requested information, attended a public meeting, or submitted comments on the draft documents.

What was the public involvement process for the revised draft HSW EIS?

For the revised draft HSW EIS, DOE sought input from regulatory agencies, tribal nations, and members of the public. To ensure that interested parties were able to respond to the revised draft, DOE conducted public meetings in six different cities in Oregon and Washington, and provided a 47 day comment period. In response to requests for an extension, the comment period was extended by 15 days for a total comment period of 62 days (68 FR 28821, 68 FR 32486). Notification letters were sent to all individuals who requested information, attended meetings, and commented on the first draft HSW EIS. DOE considered comments received on the revised draft HSW EIS in preparing the final HSW EIS.

6. Progress on Hanford Cleanup

What progress has DOE made in the cleanup of Hanford?

Environmental cleanup is a top priority at Hanford and other DOE sites. Cleanup activities are being performed in accordance with the milestones and other provisions of the Hanford Federal Facility Agreement and Consent Order (Ecology et al. 1989, also referred to as the TPA). To date, DOE cleanup accomplishments have included the following:

- remediated over 210 contaminated soil and waste sites

- decommissioned over 500 inactive facilities

- placed three production reactors into interim safe storage and have accomplished significant portions of two more reactors

- disposed of over 4 million tons of environmental restoration waste in an approved facility, including over 800,000 tons since the beginning of FY 2002

- stabilized and moved more than 1,500 metric tons of the 2,100 metric tons of production reactor fuel from the K Basins to storage on the Central Plateau during the past three years

- shipped nearly 900 metric tons of uranium to an offsite storage facility

- initiated construction of the tank waste treatment plant for treatment of Hanford's tank waste

- continued treatment and disposal of MLLW in permitted facilities, including the treatment of over 550 cubic meters and the disposal of over 450 cubic meters since the beginning of FY 2002

- continued certification of TRU waste and off-site shipment to the Waste Isolation Pilot Plant, with over 34 shipments to WIPP (23 during FY 2003)

- continued retrieval of TRU waste, with over 1,400 drums processed to date

- continued stabilization and packaging of plutonium material, including completion of all plutonium-bearing solutions, plutonium metal, plutonium residues, and significant portions of plutonium polycubes and oxides

- continued treatment of contaminated groundwater—more than 6.7 billion liters of groundwater have been treated to remove substantial amounts of chromium, carbon tetrachloride, uranium, technetium-99, and strontium-90 contamination. In addition, installation of a chromium treatment barrier system in the 100 area has also been completed

- as of September 2002, removed over 84,700 kilograms (kg) (186,000 pounds) of carbon tetrachloride from the soil and groundwater by vapor extraction to remediate groundwater contamination, to prevent future groundwater contamination, and to reduce worker exposure (Hartman et al. 2003).

3.0 Responses to Revised Draft HSW EIS Comments

Affected Environment

Comments

L-0028/003

The dumping of nuclear waste in the state of Washington is particularly hazardous because of the high risk of earthquakes.

P-0142/002

I am deeply concerned with the storage of mobile forms of radioactive waste because of the Hanford location at the edge of a very active seismic zone with cataclysmic potential.

Response

Earthquakes and seismicity are discussed in Volume I Section 4.4.4 of the HSW EIS. Though there are active fault lines throughout the State and the northwest region in general, Hanford is in an area considered to be of low seismic activity (in terms of intensity). DOE's extensive programs for safety and safeguarding of nuclear materials consider a variety of possible worst-case scenarios. Safety analysis reports and other safety documentation were used to assess impacts resulting from reasonably foreseeable catastrophic events.

Comments

L-0055/018

DOE has understated the earthquake potential in this area. Recent NEHRP [National Earthquake Hazard Reduction Program] studies in the Yakima fold belt, including Toppenish, Ahtanum, and Rattlesnake Ridge have shown earthquakes in this area with a magnitude of at least 7.3. These fold belts are still considered active since some of these events occurred within the past 10,000 years. Are faults addressed in the current SAC model?

Response

Earthquakes and seismicity are discussed in Volume I Section 4.4.4 of the HSW EIS. Though there are active fault lines throughout the State and the northwest region in general, Hanford is in an area considered to be of low seismic activity (in terms of intensity). DOE's extensive programs for safety and safeguarding of nuclear materials consider a variety of possible worst-case scenarios. Safety analysis reports and other safety documentation were used to assess impacts resulting from reasonably foreseeable catastrophic events.

Studies of seismicity at the Hanford Site have shown that the depth of seismic activity is related to crustal stratigraphy (layers of rock types) (Hartshorn et al. 2002). The main geologic units important to earthquakes at Hanford and the surrounding area are: the Miocene Columbia River Basalt Group; pre-basalt sediments of Paleocene, Eocene, and Oligocene age; the crystalline basement consisting of 2 layers composed of Precambrian and Paleozoic craton; and Mesozoic accreted terranes.

Since records have been kept, most of the earthquakes at the Hanford Site have originated in the Columbia River Basalt Group. The crystalline basement has had the next greatest amount of earthquakes followed by the pre-basalt sediments. However, the stratigraphic distribution of earthquakes will vary on a yearly basis. For example in FY 1999, 39 earthquakes occurred in the basalt layer, 6 were in the pre-basalt sediments, and 27 were in the crystalline basement (Hartshorn et al. 2000). In contrast, for FY 2002, there were 13 earthquakes in the basalt layer, 12 earthquakes in the pre-basalt sediments, and 17 earthquakes in the crystalline basement (Hartshorn et al. 1999, Hartshorn et al. 2002).

The basalt was assigned a very low hydraulic conductivity and was essentially treated as an impermeable unit in the SAC model. Therefore, we did not include fault zones. Including faults in the model would be expected to reduce contaminant concentrations in groundwater over the long-term due to additional recharge (upwelling of water) from the confined aquifer.

Comments

TLG-0006/003

The last thing that I'd like to point out is that we need to find different methods of storing this nuclear waste at the facility, because it's sitting on a patch of columnar basalt, which most of you know. And that columnar basalt does not stop nuclear waste from going straight down in the groundwater, which it's continuing to do, if we bring in more nuclear wastes.

Response

Information about the geology and hydrology at the Hanford Site is contained in Volume I Sections 4.4 and 4.5 of the HSW EIS and references for that section. In general, soil and gravel deposits separate the waste units from the basalt. The unconfined aquifer is above the basalt layer.

Comments

E-0002/002

It is too dangerous to the environment being so close to the Columbia River. Improper storage of such waste can leak and eventually contaminate this great river.

E-0003/002

Second, the danger of further contamination at Hanford where the nuclear waste can gets into the water in Eastern Washington area, with who knows what effects on the people and the environment.

E-0008/001

Documented activities at Hanford have already polluted the Columbia River with radioactive materials, endangering the health of humans and wildlife.

E-0022/002

This site is leaking radioactive and other toxic carcinogens into ground water and the Columbia River, putting even more people at risk for cancer.

F-0004/001

Most certainly, this EIS, given the large amounts of proposed waste and the known and proposed storage methods are not adequate to maintain the health of the Columbia River.

F-0012/002

We have now a growing plume of radioactive groundwater extremely carcinogenic reaching out to meet the Columbia River.

F-0026/003, F-0028/003

Waste that we have created must be disposed of but it must be done with careful planning so as not to contaminate the ground and rivers of our beautiful country.

F-0029/006

Waste is leaking into the soil and water which is lethal/carcinogenic/sickening to all beings.

L-0021/001, TSE-0015/001

But, the Hanford nuclear reservation is the most contaminated site in the western world. For 60 years, in the name of progress and national security, millions of cubic meters of radioactive materials have accumulated at Hanford, and 440 billion gallons of liquid waste were dumped into the soil. Toxic chemicals inch towards the mighty Columbia River - which could become a highway to distribute plutonium, uranium, and other hazardous chemicals throughout the Columbia Basin.

L-0024/001

Please - no more hazardous waste near our Columbia River.

L-0029/003

Poisons are many and have already entered the groundwater and the Columbia River upstream from large cities (populations) whose size we can only guess 10,000 years from now will be.

L-0041/049

DOE should present an analysis of variation of risks over time from the contaminants proposed for burial at the Hanford site. A temporal analysis is necessary to gauge the effects of the burial for the foreseeable future. Radioactive waste will decay over the next million years, however many of the inorganic contaminants will never diminish in toxicity. Thus, these sites will always present a base level of human health and ecological risk that will preclude any future use. This analysis is required to assess the affect of proposed actions and is necessary to plan appropriate mitigation strategies.

Columbia River

L-0043/004

Short of the best containment within our know-how today, we face certain destruction of a magnificent river system of inestimable commercial and recreational value, and greatly increased cancer deaths.

L-0043/005

Because of the tidal influence, the Willamette River will also be compromised.

E-0049/004, L-0048/004

Further, the revised EIS proposes to re-contaminate the groundwater as new burial sites are developed and the disposed waste begins to leach contaminants into the groundwater. The risks associated with recontamination resulting from future disposal of large amounts of radioactive and chemical contaminants have not been adequately analyzed.

L-0057/005

We don't need further soil and ground water contamination.

L-0060/002

The report has not made use of the "Columbia River Basin Treaty" that covers the water in the River. Testing the water using the records before the Project was started and the changes that have resulted since. We do not seem to have used these records. Enclosed is a copy of the Treaty[.]

P-0008/002

ENOUGH GROUNDWATER CONTAMINATION!

P-0021/002

It just seems crazy, especially with leakage already headed for the Columbia River. Let us keep in mind that 100's and 1000s of years is a long time to plan for.

P-0028/002

The Columbia River needs protection, not more pollution.

P-0030/003

Groundwater seeping into our River is potential health hazard for thousands.

P-0033/003

We must save the Columbia River and the future of Hanford Reach.

P-0036/001

Dumping more radioactive waste at Hanford increases more risk to human health from contaminated groundwater.

P-0047/002

The health of our people and our environment is already being very adversely affected by waste leakage.

P-0054/002

What sense comes from seeping contaminants into purity?

P-0055/002

I fear for the safety and viability of the Columbia River.

P-0058/001

With fish and other living (people, crops, etc) things depending upon the Columbia river water - it would seem to me to immediately stop any further erosion of the protection of the radio-active waste from polluting the Columbia. Already it is proved it is leaking into the Columbia[.]

Columbia River

P-0075/003

Save the Columbia River and the future of the Hanford Reach.

Protect the public health!

P-0084/001

Please do not allow contaminated groundwater to enter the Columbia River.

P-0092/003

Dumping more waste increases risk to health from contaminated groundwater.

P-0093/002

[I am very concerned about DOE's current plan regarding] groundwater / Columbia River contamination health risks[.]

P-0109/003

Please save the Columbia River & the future of the Hanford Reach!!

P-0110/001

We must stop the Hanford mess to save the Columbia River for future generations.

P-0113/001

I remain concerned that contaminants are expected to continue to leach into the Columbia River.

P-0114/002

The inevitable contamination of the Columbia River is in our future.

P-0135/002

The Columbia River is threatened by radioactive waste[.]

P-0139/001

How can Hanford, an already overloaded site, be the receiver of more [radioactive waste]. The Columbia River will be the Ultimate Receiver[.]

P-0141/001

I believe the issue of importation of solid waste to Hanford is one which is critical in light of the contamination already being experienced in the Columbia River. I believe that action to prevent such imports is vital to the safety of the region.

P-0164/001

As a downriver person worried about radioactive waste at Hanford I want to say "No" to bringing more dangerous wastes to your facility.

THR-0003/004

And also irrigation downstream. The shrub-steppe area is very dependent on agriculture economically, and the irrigation is key to allowing this agriculture to exist in areas around the Hanford Area.

THR-0008/002

The groundwater contamination doesn't consider that there is the potential, the eventuality that this is going to get into the river. That isn't even part of the assessment.

THR-0017/001

I am concerned that they [children] are going to be inheriting a world where, you know, if it goes to the river, it's going to the ocean as well. And we are killing the world.

Columbia River

TLG-0003/003

There's groundwater contamination, there's contamination in the Columbia River.

TLG-0009/002

Oregonians don't want to add to the waste that is already leaking into the Columbia[.]

TPO-0011/009

But the fact that the groundwater, there is no real assessment of what's going to happen to groundwater.

TPO-0014/004

And it's clear for everyone to see that none of these steps are adequate to prevent a serious, horrible permanent disaster and the destruction of a water system and the ecosystem.

TSE-0003/001, TSE-0004/001, TSE-0005/001, TSE-0006/001, TSE-0007/001

The scenario we heard just makes me afraid that what I have always suspected, namely, that we are not going to be able to keep this stuff from getting into the groundwater.

TSE-0003/005, TSE-0004/005, TSE-0005/005, TSE-0006/005, TSE-0007/005

Clean up the waste, it's later than you think, clean up the waste, before it's in the drink.

Response

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

Comments

F-0021/001

It is absolutely NOT ACCEPTABLE to endanger the future Columbia River. This means no contaminated groundwater can ever enter the river. To achieve this goal the already contaminated groundwater must be cleaned and no more waste must enter the groundwater - ever; all the waste must be cleaned.

L-0012/010

We want to be assured of a defensible groundwater strategy that will protect the Columbia River.

L-0041/002

Past activities at Hanford have already resulted in significant contamination of the groundwater and vadose zone. The effects on the Columbia River from this contamination have not been fully determined. Further disposal of wastes at Hanford must not exacerbate the situation and cause increased contamination of the river

L-0041/041

The contaminant fate and transport model should be revised to include transport into and impacts on the Columbia River environment. Assessment of the interaction of the river and groundwater will require significant characterization to verify the assumptions employed in analyses to date. Upwelling of contaminated groundwater into the river requires additional clarification studies by DOE to assess potential impacts to the river environment.

P-0009/001

I agree with citizens groups believing a commitment was made by the EPA and USDOE to clean up all soil and groundwater to allow true unrestricted public access to the Hanford Reach by 2018. The recent strategy released by the Tri-Parties does not call for cleaning up groundwater so that this contamination will continue to enter the Columbia River.

My family and friends want you to commit!! to groundwater cleanup - for our/your children's sake and future - FUTURE!!

P-0040/001

Dumping more radioactive waste at Hanford increases risk to human health (and ecological health) from contaminated groundwater... The most recent plan (I was informed) for groundwater clean-up allows contamination to enter the Columbia River for the next 150 years.

P-0070/002

We should concentrate on preventing the contaminated water from reaching the river.

TSE-0011/004

And I think that it has become perfectly clear that the citizens of this area feel very strongly about the groundwater. It's been talked about for a number of years. And there seems to be a continued failure on the part of the Department of Energy to address the groundwater.

TSE-0027/006

I simply don't believe the charts and the numbers. The DEIS contains a lot of material, but for instance, very real problems like drinking whatever water in the Tri-Cities is just sort of glossed over. I saw no mention of systems to filter the water adequately.

TSP-0006/005

So far the waste in Hanford has traveled to the Columbia River. We know that. We know that at the present time, the facilities are not in place to monitor that or to keep the various wastes from going through the groundwater to the river. The effects of this for thousands, maybe millions of years are not known, and are absolutely a danger.

TSP-0012/001

And I wonder, my question is, how many other people that are living downstream of the Columbia River are actually drinking the water and getting contaminated with all of this horrible stuff that's underneath the ground? And there is nothing being done for it. And it doesn't seem like there is going to be anything done for it, because the cleanup process virtually impossible, or difficult, or costly or whatever the word is.

Response

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

Groundwater monitoring is conducted according to TPA requirements, the Hanford Dangerous Waste Management permit, and DOE Orders. Groundwater monitoring will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations.

Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. The CERCLA process considers legally applicable Federal, State, and local laws or relevant and appropriate requirements (ARARs). Any decisions reached by DOE on the basis of analysis in the HSW EIS would be implemented in accordance with applicable Federal, State, and local laws and regulations. See Volume II Appendix N, Section N.2.4.

Comments

L-0058/001

The safety of all life down-river from Hanford must be foremost. Those of us who did not produce this waste should not be endangered by its leaking into the Columbia River.

Response

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

The human exposure scenarios described in Volume II Appendix F consider direct and indirect use of the Columbia River water and biota (e.g., swimming, consumption of fish). For those radiological and non-radiological contaminants that will reach the Columbia River bioaccumulation of contaminants and resulting impacts to non-human biota are also expected to be small. See Volume I Sections 5.5 and 5.11, and Volume II Appendix F and Appendix I.

Comments

L-0032/003, LM-0005/003, LM-0006/003, LM-0007/003, LM-0008/003, LM-0009/003, LM-0010/003, LM-0011/003, LM-0012/003, LM-0013/003, LM-0014/003, LM-0015/003, LM-0016/003

Please do not offload more waste on us in a time when our salmon populations are in desperate need of stability in the Hanford Reach. Please don't send us these lethal chemicals in a time when our state pollution and development is on the rise.

L-0044/024

Vol. II, App. F Fish consumption: Since there is public concern regarding contamination of fish in the Columbia River, it would be worthwhile to explain why consumption of Columbia River fish is not included in the exposure pathway analysis, as listed in Table F.39.

P-0020/001

I think that dumping more radioactive waste at Hanford makes the risk to people and wildlife unacceptably high. Groundwater would be at risk for the next 150 years. That means that fish in the Columbia river would also be at risk.

P-0026/003

Our beloved Columbia River is becoming dangerously soiled. Please stop this travesty.

P-0027/002

Contamination of the Columbia River needs to be stopped: people eat fish from the river!

P-0035/001

There cannot be any worse thing then polluting the very important Columbia river. It provides life for thousands of people, fish and animals in the great Pacific Northwest.

Columbia River

P-0090/002

Hanford has already contaminated the Columbia River. Some of the tanks are leaking. Contamination of salmon is extremely serious - effecting those who eat them and people whose livelihood depends on them.

P-0094/002

[By adding additional waste to Hanford, DOE is] further endangering a major waterway, endangering not only our fish but our people.

P-0104/001

Additional radioactive waste is unacceptable in the Hanford area. The Columbia River has been degraded enough without this additional risk.

P-0124/002

This [dumping waste at Hanford] would increase danger to the Columbia River and adjoining areas. It would contaminate the food supply: fish and farms by causing groundwater and river water toxicity. Also, it would cause health risks for humans and animals.

THR-0009/004

The groundwater is essential to address, it's already creating contamination in the Columbia, and I don't find any contamination in the Columbia acceptable. The fish in the Reach are already changing gender, because they don't like it either, and they sense that their survival is at risk, and so they are creating more females.

TSE-0003/007, TSE-0004/007, TSE-0005/007, TSE-0006/007, TSE-0007/007

Uphold the Tri-Party Agreement, Protect the Columbia fish, We don't want radioactive salmon, to be served up to us on our dish.

TSP-0007/003

The river. I have been told that the prediction has been that the contamination coming from Hanford into the river, by now it would be going down, and I was told, surprise, surprise, the contamination into the river is going up.

TSP-0007/005

And I think the revised, and I hope there is another revision that makes more sense this time, EIS, does indeed look down a few years ahead relative to the contamination in the river, what would the impact be? What would the impact be on people who might, for example, make the mistake and drink out of the river, make a mistake and eat a fish that is in the river, just in case there still are some fish there.

Response

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

The EPA Columbia River Basin Fish Contaminants Survey 1996-1998 (EPA 2002) was a study of organic, metal, and radionuclide concentrations in 208 fish tissue samples collected from 24 locations on the Columbia, Snake, Yakima, Clearwater, Klickitat, Deschutes, Willamette and other rivers that drain the Columbia River Basin. Locations included the Hanford Reach of the Columbia River, artificial ponds on the Hanford Site, and the upper Snake River. Cancer risks were estimated for consumption of fish that were contaminated with radionuclides. These risks were small relative to the estimated risks associated with radiation from naturally occurring background sources, to which everyone is exposed. The levels of radionuclides in fish tissue from the Hanford Reach of the Columbia River and the ponds on the Hanford Site were similar to levels in fish from the Snake River. These estimates of risks were not combined with the potential risks from other chemicals, such as PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and a limited number of pesticides. The potential cancer risks from consuming fish collected from Hanford Reach and the artificial ponds on the Hanford Site were similar to cancer risks in fish collected from the upper Snake River. EPA reported that the Yakima River and the Hanford Reach of the Columbia River tended to have higher concentrations of organic chemicals than other study sites. EPA also reported that the chemicals and or chemical classes that contributed the most to cancer risk for most of the resident fish were PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and a limited number of pesticides. For most of the anadromous fish, the chemicals that contributed the most to cancer risk were PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and arsenic. These chemicals occur in the Columbia River as a result of agricultural and industrial operations (pulp and paper plants, for example) and are very unlikely to be of Hanford origin. These chemicals would not exist in wastes proposed for future disposal at Hanford, or, if initially present, would be treated to reduce their mobility and toxicity to meet applicable standards prior to disposal.

Comments

L-0041/009

DOE's own "best case" scenarios show unacceptable future risk when analyzing effects of Hanford's current inventory of waste, not even considering the effects of disposal of additional off-site waste.

Response

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated releases and levels of groundwater contamination. As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater at 1 km from the disposal facilities are expected to be below the benchmark drinking water standards. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

Comments

E-0048/003

Soil and groundwater contamination will increase, not decrease, under the proposed plan of importing more toxic waste to Hanford. The EIS proposes to test water at the Columbia River. However, the groundwater will certainly be poisoned at Hanford sooner than all the way at the River. This means a) Hanford will have contaminated soil and groundwater, making it unusable by people and animals, and b) by the time the toxins are measurable at the Columbia River, it will be too late to stop the river from being poisoned.

Response

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

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Comments

TPO-0014/006

But this waste in this kind of concentration, this kind of morbidity, is going to spread in the food, in the water, it's going to blow all over of the country, it's going to blow all over the world.

Response

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

During facility construction and disposal operations, DOE would use appropriate measures to prevent fugitive air emissions. Once the disposal facilities are filled DOE would place caps over those facilities to prevent spread of contamination.

Comments

E-0043/046, EM-0217/046, EM-0218/046, L-0056/046, LM-0017/046, LM-0018/046

The revised draft Hanford Solid Waste EIS (HSW EIS) adds insult to injury. The fish in the Hanford Reach are already the most chemically-contaminated in the entire Columbia River system. The fish are so poisonous that the EPA reports that tribal peoples suffer a cancer risk of 1 in 50 simply from consuming these fish. Tribal children eating fish from the Hanford Reach have risks of immune-diseases and central nervous system disorders that are over 100 times greater than for non-Indian children, according to the EPA.

L-0021/004, TSE-0015/004

However, based on past performance, we are skeptical about their [DOE's] ability to protect our precious water and fish resources.

L-0054/005

Recent studies have proven the linkage between the health of the Columbia River and its resources, Tribal human health and restoration of Tribal trust resources. In 2000 and 2001, the United States Geological Survey (USGS) released results of fish studies investigating the potential of hexavalent chromium emanating from Hanford to adversely affect Chinook salmon. USGS scientists found physiological impacts and behavioral modifications.

A study completed in September 2001 by the U.S. Centers for Disease Control concluded that Tribal members were exposed to more cancer-causing ionizing radiation from Hanford radiological discharges than other people living near Hanford. This study concluded that the Hanford Environmental Dose Reconstruction Project (HEDR) has underestimated risks from Hanford radiation by at least fifteen times, and estimated an approximate 1:50 fatal cancer risk from historic Hanford operations to Tribal people.

The U.S. Environmental Protection Agency (EPA) released the results of their "Columbia River Basin Fish Contaminant Survey" in August 2002, and found that the highest concentration of chemical contaminants in Columbia River fish were found in fish from the Hanford Reach. These organic toxins alone, without considering the contribution of radionuclides in the river, were found to pose a fatal cancer risk of up to 1 in 50 for tribal people.

The results of these studies indicate the need to reassess whether Hanford is an appropriate site to dispose of any long-lived nuclear waste, such as iodine-129, technetium-99, or any other long-lived fission products or transuranic elements.

L-0054/007

Significantly, the Hanford Site Environmental Report for Calendar Year 2001 (HSER 2001), which compiles information on risks from Hanford nuclear waste discharges, does not document the impacts found in the reports cited above. In fact, the HSER 2001 finds that Hanford's historical and current operations pose no significant impacts to humans or natural resources. This finding by USDOE is stark evidence that SWEIS analysis and planning should be conducted by an agency or contractor fully independent from Hanford, to reveal impacts of USDOE's proposed actions and to provide affected governments and affected people with transparent and credible information.

THR-0003/001

My first [concern regarding the EIS] is the salmon populations that use the Hanford Reach in that area. Now, we all know salmon migrate out to the ocean. Are they, is that species of salmon contaminated and does that contamination reach the ocean? Is it effecting the ecology in the ocean?

Response

The EPA Columbia River Basin Fish Contaminants Survey 1996-1998 (EPA 2002) was a study of organic, metal, and radionuclide concentrations in 208 fish tissue samples collected from 24 locations on the

Columbia River

Columbia, Snake, Yakima, Clearwater, Klickitat, Deschutes, Willamette and other rivers that drain the Columbia River Basin. Locations included the Hanford Reach of the Columbia River, artificial ponds on the Hanford Site, and the upper Snake River. Cancer risks were estimated for consumption of fish that were contaminated with radionuclides. These risks were small relative to the estimated risks associated with radiation from naturally occurring background sources, to which everyone is exposed. The levels of radionuclides in fish tissue from the Hanford Reach of the Columbia River and the ponds on the Hanford Site were similar to levels in fish from the Snake River. These estimates of risks were not combined with the potential risks from other chemicals, such as PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and a limited number of pesticides. The potential cancer risks from consuming fish collected from Hanford Reach and the artificial ponds on the Hanford Site were similar to cancer risks in fish collected from the upper Snake River. EPA reported that the Yakima River and the Hanford Reach of the Columbia River tended to have higher concentrations of organic chemicals than other study sites. EPA also reported that the chemicals and or chemical classes that contributed the most to cancer risk for most of the resident fish were PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and a limited number of pesticides. For most of the anadromous fish, the chemicals that contributed the most to cancer risk were PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and arsenic. These chemicals occur in the Columbia River as a result of agricultural and industrial operations (pulp and paper plants, for example) and are very unlikely to be of Hanford origin. These chemicals would not exist in wastes proposed for future disposal at Hanford, or, if initially present, would be treated to reduce their mobility and toxicity to meet applicable standards prior to disposal.

Comments

E-0043/040, EM-0217/040, EM-0218/040, L-0056/040, LM-0017/040, LM-0018/040

GAP agrees with the Hanford Advisory Board's advice that DOE should consider a cost method whereby the generators of the imported waste pay the cost of treatment and disposal of their waste. If the costs are covered by money designated for Hanford cleanup, then the cleanup necessarily will suffer and might not meet the Tri-Party Agreement milestones or other compliance requirements.

E-0043/069, EM-0217/069, EM-0218/069, L-0056/069, LM-0017/069, LM-0018/069

The EIS should include accurate, full life-cycle costs of storage and disposal.

Hanford funds should not be used to pay for or subsidize the treatment or disposal from other sites.

E-0055/026

We repeat our prior comments and the Advisory Board's advice that the HSW-EIS consider the impacts on Hanford Cleanup from the costs of offsite waste (see consensus advice #79, #84, and #94). Charging generators the long-term, fully burdened costs of disposal (and treatment or storage), as the Board has advised (see consensus advise # 98), would encourage treatment and reduction in waste volumes. It would also reduce the impact of offsite waste on the ability of the Hanford site to meet TPA milestones and other compliance requirements. This costing method must be considered in the HSW-EIS.

TPO-0008/005

What are the estimated overall costs? And are these costs summarized as to short term, long term, or continuous?

TPO-0013/007

And how much will it [additional waste import] cost?

TRI-0001/008

The issue of importing waste also has a related impact that needs to be considered of how it affects Hanford cleanup funding. The Department of Energy's own study last summer found that off-site generators pay less than 50 percent of the cost of disposal of waste.

When we begin talking about building new facilities and we begin talking about increasing the waste imported, we are talking about a dramatic increase in the subsidy of our Hanford cleanup dollars at a time when DOE continues to say it cannot afford to do all the things that regulators and the public wish it to do, like cleaning up groundwater along the Columbia River, or continuing to remediate the N-Area cribs near the Columbia River, or installing all the legally required groundwater monitoring around these burial grounds.

We are talking about a pretty significant impact on Hanford cleanup. And one of the things that is clear under NEPA, you must consider the alternative of charging the generator the fully burdened long-term cost of disposal, because it has shown repeatedly that charging the generator the full cost will decrease the amount of waste. It also dramatically changes the equation of whether or not we minimize waste and treat waste before disposal.

This document unfortunately implements a decision from the Waste Management EIS to use minimal treatment before disposal, and minimal minimization of waste volumes. That would change dramatically if we charged the generators the fully burdened long-term cost of disposal. And that is a dramatic environmental impact. And it needs to be considered in this EIS. And I would also say it violates the Secretary of Energy's commitment made to Congress last summer in writing that said that all future disposal decisions will consider and discuss the fully burdened long-term costs of disposal before they are made. That needs to be in this EIS and clearly stated.

Cost

Then what are we talking about here? Hanford's cost of disposal, using '99 figures, was $29.63 a foot. The rate charged was $14 a cubic foot. And that does not include the long-term costs. For instance, capping, groundwater monitoring. Of course the land is being treated as if it's free. We need to move to a system where if waste is imported, I am not advocating that it should be, but that the generators charge the fully burdened long-term cost, and that this is a reasonable alternative that has to be considered in this EIS. We have said that last year, and we are shocked, surprised because it is a legal requirement, to find that it is not in here this year.

Response

Charging DOE waste generators higher disposal costs is not expected to reduce the amount of waste generated by DOE sites or to increase the amount of waste reduction already occurring under the DOE pollution prevention and waste minimization program. The Pollution Prevention Act, Section 6002 of RCRA and several executive orders were enacted, in part, because it was recognized that (1) government organizations should make efforts to minimize the amount of waste they generate and (2) economic incentives generally do not work for government entities. For waste being disposed of at Hanford, the waste generator and the disposal facility are both part of the same government organization, the DOE. Although private companies can collect money today for work to be performed in later years, government organizations like DOE are precluded from collecting money to cover future costs (such as closure costs and long-term monitoring costs) without specific congressional approval.

The recent "Report to Congress - The Cost of Waste Disposal: Life Cycle Cost Analysis of Disposal of Department of Energy Low-Level Radioactive Waste at Federal and Commercial Facilities" (DOE 2002d) explains that waste disposal decisions should be made based on the total life-cycle cost of waste disposal. These decisions need to consider the costs for treatment, inspection and verification, disposal, closure, and long-term monitoring. The DOE pollution prevention and waste minimization program already requires waste disposal decisions to be made based on life-cycle costs and other factors. See Volume I Section 2.2.5 for a discussion of the DOE pollution prevention/waste minimization program.

The cost estimates for the alternative groups evaluated in the HSW EIS are for continued operation of existing facilities, the modification of existing facilities, construction of new facilities, and operation of the new or modified facilities. Costs for certain operations extending beyond 2046, such as capping the LLBG disposal units and treatment of leachate from mixed waste trenches, are also reflected in the estimates. Costs of alternatives are discussed in Volume I Section 3.6, and are summarized in Volume I Table 3.21. Cost estimates are for life-cycle activities and are in constant 2002 dollars. No costs are discounted. Details of the cost estimates are presented in Appendix C of the Hanford Site Solid Waste Management Environmental Impact Statement Technical Information Document (FH 2003). Costs include post-closure activities, such as monitoring during the institutional control period.

Comments

L-0044/087

Sec. 1.4.2, p.1.13 The discussion of the Cost Report should indicate who should consider life-cycle costs (lines 38-40) and indicate how this EIS relates to such "consideration".

Response

Volume I Section 1.4.2 has been revised to indicate DOE is the organization who considers life cycle costs. DOE may use life cycle costs in addition to environmental and other factors to make decisions.

Comments

L-0044/052

Vol. I, Sec. 3.6, pp. 3.58-59, Table 3.21 Ecology's August 21, 2002 comments (numbered 8, 102, 103, 104, 105, 106, and 177) identified the omission of addressing groundwater monitoring requirements, including monitoring well installation and monitoring costs. Specifically, Ecology's comment indicated the omissions rendered the impact and cost evaluations "1) nonbounding and incomplete and 2) do not allow the reader to understand that the groundwater quality impact analysis is not supported by adequate LLBG-specific data."

L-0044/054

Vol. I, Sec. 3.6, pp. 3.58-59, Table 3.21 Ecology's August 21, 2002 comments (numbered 8, 102, 103, 104, 105, 106, and 177) identified the omission of addressing groundwater monitoring requirements, including monitoring well installation and monitoring costs. Specifically, Ecology's comment indicated the omissions rendered the impact and cost evaluations "1) nonbounding and incomplete and 2) do not allow the reader to understand that the groundwater quality impact analysis is not supported by adequate LLBG-specific data."

L-0044/056

The EIS does not appear to include groundwater monitoring for the LLBGs in the comparison of costs of alternatives (see Sec. 3.6). Washington Administrative Code (WAC) 173-303-645 requires groundwater monitoring at RCRA land-based TSDs. Even though only portions of the LLBGs will be permitted to operate under final facility standards, the majority of the LLBGs will be subject to land-based RCRA TSD closure standards which will include groundwater monitoring requirements of WAC 173-303-645.

L-0044/074

2.2.7, pp. 2.40-41 There is no indication of which of the "specific measures that long-term stewardship can include" will be assumed to be applied when decisions are made under this EIS, or which are included in the cost estimated in Table 3.21.

Response

The HSW EIS has been prepared to meet NEPA environmental review requirements and to support DOE decisions about its solid waste management activities at Hanford. The alternatives evaluated in the HSW EIS have been formulated based on an underlying purpose and need for agency action, consideration of the WM PEIS and its records of decision, and comments received during the EIS scoping process and during other opportunities for public comment. The HSW EIS expressly recognizes that other statutes, regulatory programs, permits, compliance agreements, and other specific requirements will apply to implementation of any alternative group. Groundwater protection and management through the operational and post-closure periods will be addressed through the application of requirements under the TPA and the Hanford Sitewide Dangerous Waste permit. See Volume I Section 6.

The cost estimates for the alternative groups evaluated in the HSW EIS are for continued operation of existing facilities, the modification of existing facilities, construction of new facilities, and operation of the new or modified facilities. Costs for certain operations extending beyond 2046, such as capping the LLBG disposal units and treatment of leachate from mixed waste trenches, are also reflected in the estimates. Costs of alternatives are discussed in Volume I Section 3.6, and are summarized in Volume I Table 3.21. Cost estimates are for life-cycle activities and are in constant 2002 dollars. No costs are discounted. Details of the cost estimates are presented in Appendix C of the Hanford Site Solid Waste Management Environmental Impact Statement Technical Information Document (FH 2003). Costs include post-closure activities, such as monitoring during the institutional control period.

All HSW EIS alternative groups include a $75 million estimated amount for post operational monitoring based on a minimum cost of $500,000 per year for a 100-year active institutional control period (DOE 2002d), and a maximum estimated cost of $750,000 per year depending on number of wells and monitoring requirements. See Volume I Section 3.6 Table 3.21.

Comments

E-0043/009, EM-0217/009, EM-0218/009, L-0056/009, LM-0017/009, LM-0018/009

The Hanford Only waste volumes should account for all waste currently at the Hanford Site, including but not limited to: 1) high-level tank wastes; 2) spent reactor cores (Navy and otherwise); 3) wastes in the PUREX tunnels; 4) waste in closed buildings; 5) wastes in the soils of Hanford; 6) wastes in the groundwater of Hanford; 7) wastes in the sediment of Hanford; 8) wastes in the biota of Hanford; and 9) all other sources of waste within the limits of Hanford. Any and all analysis based on a Hanford Only waste volume that does not include all the waste currently at the Hanford Site is inaccurate and incomplete. After accounting for all waste at Hanford, DOE should use the revised Hanford Only waste volume in the analysis.

E-0043/022, EM-0217/022, EM-0218/022, L-0056/022, LM-0017/022, LM-0018/022

GAP requests that DOE immediately create an accurate inventory of all nuclear waste currently stored and disposed of at the Hanford site.

E-0047/011

[The HSW EIS fails to assess:] Related waste disposal activities outside the Project Hanford Management Contractor (e.g., ERDF).

E-0047/013

[The HSWEIS fails to assess:] Total cumulative impacts for current and future wastes under the various alternatives.

E-0047/029

The EIS also fails to assess and disclose the long-term impacts from waste buried prior to 1970.

E-0050/005

The HSW EIS lacks an analysis of cumulative risk that takes into account all of the existing waste at the site and how the importation of new waste would impact the treatment and storage of waste at Hanford. A cumulative risk analysis needs to be performed that considers long-term impacts to groundwater, the ecosystem, public health, and the Columbia River.

E-0055/020

Tiering off of the WMPEIS, this EIS was legally required to consider the entire spectrum of Waste Management Program wastes at Hanford and the addition of ER [environmental restoration] program and offsite wastes to the Hanford Waste Management Programs' wastes:

The revised draft HSW EIS fails to consider the impacts of the following wastes, and the cumulative impacts from these wastes:

1. Previously leaked tank waste,
2. Residual waste DOE proposes to leave in tanks,
3. Wastes in related ancillary equipment and piping,
4. Hazardous or mixed wastes buried in the Low-Level Burial Grounds, and releases from the burial grounds
5. Waste currently uncharacterized and stored in the PUREX tunnels,
6. Wastes from dismantling and disposing of various facilities, and
7. Wastes from dismantling the vitrification and treatment plants.
8. U.S. Ecology low-level waste disposal facility.
9. U.S. Navy compartments;
10. Possible wastes associated with processing and disposal of the cesium and strontium capsules; and,
11. Transuranic wastes (TRU) proposed to be imported; and, TRU "stored" or already buried on site.

F-0003/003

No comprehensive analysis of the existing transuranic waste situation and documentation of what is there, including leakage in groundwater in soils.

Cumulative Impacts

F-0019/003

I support the need for an analysis of cumulative risk of all existing waste, not just selected risks.

F-0029/003

Also, there is not an analysis of pre-1972 wastes currently contaminating the Hanford site.

F-0030/004

What about an analysis of the pre 1972 wastes?

L-0014/006, L-0022/006

The issue of the pre-1970 TRU wastes must be addressed. Unless it can be clearly shown that these wastes are not now or in the future hazardous to the public, they must be removed, repackaged and properly disposed of. The current draft EIS does not address this issue.

L-0033/002

[This EIS must be revised to fully evaluate and share with the public] a disclosure of impacts of past and continued waste disposal at Hanford (The Existing Condition)[.]

L-0039/004

This draft EIS does not address all existing Hanford wastes, nor does it integrate the assessment of the Environmental Restoration wastes with the tank wastes.

L-0039/005

Residual waste DOE proposes to leave in tanks [is not adequately analyzed in this EIS.]

L-0039/006

Leaked tank wastes [are not adequately analyzed in this EIS.]

L-0039/007

Wastes in related ancillary equipment and piping [are not adequately analyzed in this EIS.]

L-0039/010

Waste currently uncharacterized and stored in the PUREX tunnels [is not adequately analyzed in this EIS.]

L-0039/015

Additionally, DOE should analyze the potential worst-case impacts from overlapping releases. Future releases from these disposals, which exceed regulatory limits, will trigger additional cleanup requirements under the Resource Conservation and Recovery Act (RCRA) and/or the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

L-0039/021

A comprehensive EIS, integrating all impacts from both Hanford and offsite waste, is required before offsite importation decisions can be made.

L-0041/008

The HSW-EIS does not take a comprehensive look at all the Hanford origin waste that is now and will continue to impact the Hanford environs. The HSW-EIS excludes from analysis any residual tank waste following cleanup of the Hanford tanks (tank heels), leaked waste from the tanks, waste in the PUREX tunnels, and other pertinent wastes. DOE is obligated under the CEQ regulations to include impacts from these wastes in the HSW-EIS. In addition, DOE indicates that future site-wide or project level NEPA reviews will be necessary. These additional analyses should be conducted now, as a part of the HSW-EIS, so that we can fully determine the impacts of all waste activities at Hanford.

L-0044/082

S14 Figure S.6 also fails to convey the total residual burden at Hanford by excluding pre-1964 DOE wastes and ERDF.

E-0049/006, L-0048/006

The revised EIS does not account for all waste at Hanford, and thus does not fully analyze the cumulative impacts of past or future waste disposal activities. In order to support a Record of Decision the revised EIS must – at a minimum – include the entire existing and proposed waste inventory.

E-0049/009, L-0048/009

The Board is troubled that all scenarios show unacceptable future risk to Native Americans. While we agree that it is virtually impossible to accurately predict impacts 10,000 years in the future, the fact that DOE's own analyses show detrimental impacts should lead DOE to reconsider its proposed actions.

L-0052/004

Cumulative Affects. It is difficult for ERWM to get a relatively clear view from this document of the totality of the potential threats to treaty resources (in particular, water). We read and hear about many sources of contamination such as waste management waste; environmental restoration waste; on-site and off-site waste volumes which vary; transuranic (TRU) waste; addition of immobilized low activity waste (ILAW); the existing contamination plumes in the vadose zone and groundwater; the canyons; the remains of the tanks and tank residue; and pre-1970 waste burials with inadequate records for proper characterization, to name a few. It remains unclear how truly comprehensive these analyses of cumulative affects are, in spite of the monumental effort by DOE to deal with impacts across the site.

L-0054/010

Third, the cumulative impacts analysis is fundamentally flawed because it does not account for past releases from single-shell tanks, pre-1970 TRU waste and other waste streams.

L-0055/001

Although this draft does provide more important information than the last draft of the HSWEIS the facilities described in this decision document do not reflect a complete analysis or the best options for storage of nuclear waste at the Hanford Nuclear Reservation.

L-0055/002

DOE should meet its commitment to quantify and address the cumulative impact of all radioactive and chemical waste at the Hanford site and should not limit this analysis to such a narrow scope without this consideration. Issues at Hanford are ultimately cumulative and additive in nature and piecemeal analysis as conducted on all projects at the Hanford Site is inappropriate.

L-0057/003

The cumulative risks are too great for the future of our states and economy.

P-0008/006

ENOUGH HEALTH AND ENVIRONMENTAL RISKS!

P-0016/002

I own property close to the Hanford Reservation and it is a threat to my health[.]

P-0123/001

You [DOE] are putting my community [Hood River, OR] at risk for long term health problems from leakage at the site.

P-0135/003

...peoples lives, jobs, are threatened [by radioactive waste]!

P-0169/002

Please stop contaminating our region!

Cumulative Impacts

THR-0001/006

So, they say they are doing a cumulative impact analysis, or cumulative impact assessment. They aren't. They are doing it piecemeal.

THR-0004/003

The document reviews a portion of the total inventory at Hanford. So one of our comments or series of our comments will be central around please look at the entire inventory so that we understand the whole impact. That's our concern, because there's the pre-'70s waste, there's the tank leaks, there's the residual waste when they are done with some of the environmental restoration cleanup.

THR-0004/004

You need to look at it in the totality to see what is the total risk.

THR-0005/004

Thirdly, the cumulative risk. As a citizen in Oregon, I strongly feel I deserve an analysis to be done on the cumulative risks that have already been done [currently exist] on the Hanford Site.

TLG-0002/003

We don't believe that it's still fully comprehensive in terms of looking at all the impacts from all the historic waste disposal practices that have been going on at Hanford since the early to mid 1940's. We don't believe it takes into account all the different waste streams at Hanford that some of the buried wastes, some of the wastes that will be left in the tanks. And without that, we don't believe there is a comprehensive way to really look at what the impacts are. So without knowing what the impacts have been, we don't believe it's possible to tell what the added increment of impact will be. And we would like to see a more comprehensive, encompassing analysis of what those impacts have been.

TPO-0006/003

There is, apparently, no comprehensive analysis of the impact that groundwater contamination under the tanks might pose in the scheme of all the other contamination that might be eventually caused by solid waste disposals.

TPO-0011/006

The fact that cumulative impacts, again, are not taken into account.

TPO-0017/003

We have to finally address the cumulative risks, the comprehensive groundwater.

TSE-0009/003

And first analyze the cumulative risk from the wastes that are already at Hanford.

TSE-0010/003

Hanford Site manager, Keith Klein, he insists that the new waste imports will not add environmental risks. I disagree[.]

TSE-0011/005

The scope of this EIS is extremely narrow. And as a result, it makes little tiny packages out of a huge problem. But it also allows the DOE to avoid any analysis of what the whole accumulative effect of all this waste is. So we never get a sense of cumulative waste.

TSE-0012/001

The EIS must be amended to address cumulative impacts of burial of hazardous wastes, past, present and future.

TSE-0017/001

...the currently buried wastes leak[.]

Cumulative Impacts

TSE-0031/002

It [the DEIS] does not include most liquid waste.

TSE-0031/006

It [the DEIS] does not include most environmental restoration wastes that are generated as part of the CERCLA process[.]

TSE-0031/007

It [the DEIS] does not include commercial low-level waste destined for U.S. Ecology.

TSE-0031/013

And in order to evaluate the cumulative impacts, we need to understand the cumulative risks, not just the cumulative volumes. How can we calculate cumulative risk when the risk of the current waste at Hanford is not understood?

Response

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. The CERCLA process considers legally applicable Federal, State, and local laws or relevant and appropriate requirements (ARARs). Any decisions reached by DOE on the basis of analysis in the HSW EIS would be implemented in accordance with applicable Federal, State, and local laws and regulations. See Volume II Appendix N, Section N.2.4.

Comments

TPO-0002/005

They aren't looking at all of the waste sites all over the Hanford site and looking at the cumulative impacts to groundwater over time. Their simplistic model that they call, they use the SAC, System Assessment Capability, is like a Volkswagen in 1942.

Response

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

The System Assessment Capability (SAC) is a set of assessment tools developed by DOE that enables its users to model the movement of contaminants from all waste sites at Hanford, through the vadose zone, through the groundwater, and into the Columbia River (DOE-RL 1999b, c; DOE-RL 2000). The HSW EIS uses the SAC to estimate cumulative impacts of contaminants on human health, ecology, and the local cultures and economy.

SAC, has been designed as a stochastic capability with an option to perform deterministic simulations. It uses the groundwater model of the Hanford Site produced and supported by the Groundwater Monitoring Program. DOE agrees that the one-dimensional vadose zone modeling does not capture the complexity needed to model clastic dikes. The current implementation of the one-dimensional model has been history matched to existing conditions. Currently, the groundwater portion of this model implements a three-dimensional conceptual model of the unconfined aquifer. This model has been inverse calibrated to Hanford Site water table measurements from 1944 to present, and uses knowledge of geohydrologic units and field measurements of hydraulic conductivity to condition the model calibration. Future revisions of the SAC will incorporate inverse calibrated alternate conceptual models of the aquifer. As of August 2003, uncertainty in groundwater contaminant migration and fate is represented by the uncertainty in contaminant mobility as reflected in uncertainties in linear sorption isotherm model parameters (for example, distribution coefficients for various contaminants). The HSW EIS provides a conservative analysis commensurate with the purpose of the HSW EIS, which is to bound and compare the consequences of the alternatives. Volume II Appendix L presents a 10,000 year post-closure assessment that was produced using the SAC.

As part of its development, the System Assessment Capability was reviewed by the DOE Integration Project Expert Panel, an eight (8) member panel that provided broad, independent oversight of many Hanford Groundwater/Vadose Zone Integration Project activities. A review of SAC Rev 0. and related groundwater integration issues at Hanford is summarized in the report "Integration Project Expert Panel - Closeout Report for Panel Meeting of September 26-28, 2001" (Integration Project Expert Panel 2001). The HSW EIS uses an updated version of SAC for cumulative groundwater impacts analysis.

Comments

L-0044/114

The discussion of cumulative impacts does not provide sufficient analyses of all wastes and total risks. Absent such analysis, Ecology may not have sufficient information to make regulatory determinations about safe and compliant treatment, storage, and disposal of all Hanford waste.

Response

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

The HSW EIS, as a NEPA document, is not intended to function as, or contain the same information as, a compliance agreement, a permit application, or a management plan under other Hanford regulatory programs. The HSW EIS provides information to support DOE's decision-making process at Hanford, and DOE recognizes that additional specific information will be needed to support future regulatory processes.

Comments

E-0047/012

[The HSW EIS fails to assess:] Tank Farms releases and waste remaining in Single Shell Tanks
Wastes in related ancillary equipment and piping
Cribs with significant inventories of radionuclides
Pre-1970 potential Transuranic (TRU) wastes
Hazardous or mixed wastes buried in the Low-Level Burial Grounds, and releases from the burial grounds
Waste currently uncharacterized and stored in the PUREX tunnels
Wastes from dismantling and disposing of various facilities
Wastes from dismantling the vitrification and treatment plants.
Plans by ORP [Office of River Protection] to treat up to 750,000 gallons of tank waste as TRU mixed waste, eventually generating 20,000 drums (3,000 m3) of mixed TRU waste
The Draft West Valley Waste Management Demonstration Project EIS Alternative B that proposes sending 21,000 m3 total of LLW and MLLW for disposal, and TRU and High Level Waste (HLW) to Hanford for interim storage, are not included.

Response

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

DOE plans to dispose of HLW and spent nuclear fuel from commercial nuclear power and DOE facilities at the Yucca Mountain National Repository being developed under the Nuclear Waste Policy Act. Storage of HLW or spent nuclear fuel is not within the scope of this EIS.

DOE is preparing the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site (68 FR 1052), which will address the potential environmental impacts from retrieving and processing tank wastes. DOE will conduct appropriate environmental review to support future decisions for closing the vitrification plant (i.e., Waste Treatment Plant) and other existing treatment and associated facilities.

Alternative B in the draft West Valley Demonstration Project EIS is not DOE's preferred alternative. Hanford is among a number of large sites being considered for interim storage of TRU waste prior to shipment to WIPP and is one of two DOE sites considered for low-level waste and mixed low-level waste disposal consistent with WM EIS (DOE 1997b) decisions.

Comments

F-0019/005

I call for an EIS study that assess and discloses long term impacts from hazardous waste disposal[.]

Response

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

The HSW EIS includes the impacts of all LLBG previously disposed waste in its evaluations of long-term groundwater impacts in Volume I Section 5.3, Volume I Section 5.11, Volume I Section 5.14, and in Volume II Appendixes F, G, and L. LLBG previously disposed waste includes LLW disposed of since 1962, LLW disposed before and after the regulatory definition of TRU promulgated in 1970, and wastes disposed before and after the application of RCRA hazardous waste management standards to certain Hanford LLW streams in 1987. The HSW EIS impact estimates are based on chemical and radionuclide inventories. Past-buried LLBG wastes will be addressed within the framework for managing RCRA past practice and CERCLA units established under the TPA.

Comments

L-0044/138

Per WAC 197-11-792 Scope, to determine the scope of EIS's, agencies consider three types of actions, including (a)(ii) connected actions (which includes parts of proposals that are closely related) and three forms of impacts, including cumulative impacts (c)(iii). Ecology views the scope of the RHSW EIS to be incomplete because the waste volumes in the Hanford Only waste stream ignore waste disposed in older burial grounds, environmental restoration waste already disposed in the Environmental Restoration Disposal Facility (ERDF), commercial waste disposed of in the U.S. Ecology commercial waste facility adjacent to the Hanford 200 Area, engineered disposal facilities (cribs, ponds, and ditches), and single shell tank releases.

Response

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7):

Cumulative Impacts

"Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

The HSW EIS includes the impacts of all LLBG previously disposed waste in its evaluations of long-term groundwater impacts in Volume I Section 5.3, Volume I Section 5.11, Volume I Section 5.14, and in Volume II Appendixes F, G, and L. LLBG previously disposed waste includes LLW disposed of since 1962, LLW disposed before and after the regulatory definition of TRU promulgated in 1970, and wastes disposed before and after the application of RCRA hazardous waste management standards to certain Hanford LLW streams in 1987. The HSW EIS impact estimates are based on chemical and radionuclide inventories. Past-buried LLBG wastes will be addressed within the framework for managing RCRA past practice and CERCLA units established under the TPA.

DOE believes this HSW EIS complies with applicable NEPA requirements.

Comments

L-0055/026

Figure S.4 and 1.4 breaks down the waste arriving and leaving Hanford. From this figure, it appears that over three times more of MLLW is arriving at Hanford than is already here. Also, more LLW will be arriving at Hanford than is already here. Only through the processing of tank waste, capsules (K basin), and spent nuclear fuel is there any reduction at Hanford. This figure does not account for what has been lost or trapped in the vadose zone and ground water at Hanford. Nor as stated later (Summary, Page S.13) does it include waste from older burial ground, waste disposed of in ERDF [Environmental Restoration Disposal Facility], decommissioned Naval reactor compartments, or commercial waste in the U.S. Ecology facility. Since all of this waste will be arriving at Hanford, they are responsible for treating and disposing of it. This is coming out of Hanford's budget that could instead be spent on cleaning up their current ground water contamination. Hanford DOE should not have their budget limited by accepting, treating, and monitoring this offsite waste.

Response

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

DOE requests funds from Congress based on its cleanup schedules.

Comments

L-0012/003

We have many questions that cannot be answered by the time DOE plans to issue decisions on this EIS. Some of these questions are to be "answered" in the tank closure decisions for which there is no draft EIS yet. How can the decisions from the various documents support each other in a holistic and comprehensive way when the Department continues to approach the issues of nuclear waste in a piecemeal fashion? The impacts of the tank wastes after treatment from whatever technologies you plan to use must be a part of this document. Are we going to bury these wastes on site? Will waste from the tanks and the trenches be permanently buried, will they be retrievable if your assumptions are wrong? We still have no decisions on the final form of the wastes-how can you show us accurate impacts for the short or long term?

L-0041/007

In our August 15, 2002 comment letter, we reiterated a concern about a piecemeal approach to decision –making on Hanford cleanup issues. We asked DOE to address the Council on Environmental Quality (CEQ) regulations to address "connected actions" to prevent minimizing potential environmental consequences by segmenting actions. We further asked DOE to list the analyses deferred by the Waste Management Programmatic Environmental Impact Statement (PEIS) – which selected Hanford as [the] receiving site for waste from other DOE sites – to the draft HSW-EIS. The draft HSW-EIS fails to do either. The revised draft HSW-EIS creates a kind of circular logic that refers to the PEIS to the HSW-EIS and the HSW-EIS back to the PEIS, making a comprehensive analysis impossible.

Response

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS (DOE 1997b) decisions regarding certain TRU waste, LLW, and MLLW streams. Site-specific waste management actions at Hanford involve transportation, treatment and processing of TRU waste and MLLW, disposal of LLW, MLLW and ILAW, and storage of LLW, MLLW, and TRU waste. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

The WM PEIS was a comprehensive evaluation of DOE nationwide waste management. The WM PEIS evaluated a broad suite of alternatives for waste management across the DOE complex, including managing most waste at generator facilities, or consolidating waste management at fewer sites that have existing facilities suitable to accept waste from other facilities. The impacts of those alternatives were compared for a variety of waste volumes at different DOE sites, including larger quantities of waste than are evaluated in the HSW EIS. The general result of the WM PEIS was that radioactive and hazardous wastes generated at a DOE site should be disposed of at that site unless the site was not capable of or not technically able to support those actions. DOE determined there was sufficient information in the WM PEIS to support decisions regarding the sites that were suitable for long-term waste management missions. Those decisions included processing and disposing of Hanford waste at Hanford, and the importation of wastes from other sites that could not adequately handle them. Decisions made as part of the WM PEIS made Hanford available for the disposal of low-level waste and mixed low-level waste from other DOE generators. The initial WM PEIS decisions related to LLW, MLLW, and TRU waste were issued between January 1998 and February 2000.

DOE believes this HSW EIS complies with applicable NEPA requirements.

In response to public comments, DOE has conducted a route- and generator-specific offsite transportation analysis using updated highway routing and 2000 census data. See Volume I Section 5.8 and Volume II Appendix H. The potential impacts identified in the updated evaluation are similar to those presented in the WM PEIS (DOE 1997b) and the WIPP SEIS-II (DOE 1997c), and would not change conclusions or DOE-wide waste management decisions based on those studies.

Comments

L-0055/027

The actual waste is to be stored at Hanford is narrowly described. The "Hanford Only" waste volumes do not include waste disposed of in older burial grounds, environmental restoration waste disposed of in the Environmental Restoration Disposal Facility, decommissioned Naval reactor compartments, or commercial waste disposed of in the US Ecology facility. But these all potentially have impacts to the ground water and eventually the Columbia River. Major potential contamination to the ecology and ground water supply is being ignored. The Tank Waste is ignored, pre-1970 waste is ignored, Carbon Tetrachloride is not addressed, yet the EIS states that (page 3.52) that cumulative impacts from "all wastes intentionally disposed of on the Hanford site since the beginning of operations and waste forecast to be disposed of through cleanup completion". If these other waste types are ignored and the current EIS indicates an impact to the ground water, then it is alarming what could be the impact if these other sources are included.

Response

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As indicated in Volume I Section 5.3, existing groundwater monitoring data does not indicate that releases from the LLBGs have occurred. As indicated in Volume I Section 4.5.3.3, the carbon tetrachloride in the groundwater under Low-Level Waste Management Area 4 is from an upgradient source. Groundwater impacts from Low-Level Waste Management Areas 1, 2, 3, and 4 are discussed in the Hanford Site-Groundwater Monitoring for Fiscal Year 2001 document (Hartman et al. 2002). Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4.

Sampling being conducted as part of the ongoing CERCLA program in the LLW Management Area 4 has indicated the presence of carbon tetrachloride vapors in and near several trenches. During the trench sampling, industrial hygienists conducted repeated air monitoring at the top of the vent risers above trenches—a required health and safety practice for all sampling activities to protect the workers from potentially being exposed during the sampling. After the carbon tetrachloride had been detected in the air at the bottom of the trench, industrial hygienists again monitored the trench to ensure that other workers who entered this area in the burial ground would not be exposed. The measurements for all "organics" in the air above the trench (including carbon tetrachloride and its decay products) showed readings ranging from "not detectable" to 4 ppm—well below the standard set by the Occupational Safety and Health Administration (OSHA) of 10 ppm per day during a 40-hour work week. Samples taken in the "breathing zone" did not show any level of organics. The monitoring at the surface of the trenches indicated that toxic vapors were not emanating from the vent risers. Monitoring above and below the surface continues. Based on monitoring results and activities to be performed, industrial hygienists specify protective measures to be taken to protect workers. Common measures might include protective clothing, respiratory protection, and removal of contaminants from the work area.

Additional sampling for organic compounds, including carbon tetrachloride, in the Low Level Burial Grounds is being conducted as part of the on-going TRU waste retrieval activities. This sampling started October 15, 2003 and is being conducted in accordance with a State of Washington Department of Ecology approved Sampling and Analysis Plan (SAP). Sampling results will be used both for helping reduce risks during retrieval and to provide information for remediation planning.

In response to carbon tetrachloride vapors found in previous vent riser sampling in trench 4 of LLBG 218-W-4C, a vapor extraction system has been installed and started operation November 15, 2003. This system is currently intended to operate until the carbon tetrachloride concentrations are less than or equal to 10 ppmv. This work is being conducted prior to retrieval in order to reduce the likelihood that higher levels of carbon tetrachloride will be encountered during retrieval that could pose a higher risk to workers and slow progress on retrieval.

Retrieval of the suspect transuranic waste from this burial ground has already started and is anticipated to be complete within the next few years, with Trench 4 retrieval completed by the end of 2006. If the retrievably stored waste is the source of the carbon tetrachloride vapors, the completion of this retrieval will eliminate the source of contamination. Additional sampling results from the SAP sampling after the removal of the retrievably stored waste will provide information to assist in determining appropriate actions after the waste is removed.

Comments

E-0043/055, EM-0217/055, EM-0218/055, L-0056/055, LM-0017/055, LM-0018/055

Analysis of high level tanks, K-Basin sludge, reactor components, naval reactor compartments disposal, and existing pre-1970 TRU waste in the burial grounds, PUREX tunnels [should be included in the cumulative impact analysis.]

TPO-0007/002

However, we still have some serious concerns with this document. We don't think it's comprehensive enough. Although it's 3,000 pages long, there are still large volumes of waste that it doesn't analyze. For example, as Doug mentioned, the pre-1970 TRU waste, it doesn't talk about the irretrievable tank heels that will remain once the tank retrievable is done. It doesn't talk about the tanks themselves, which current plans call for disposal in a landfill fashion onsite, nor the ancillary equipment associated with those tanks.

Response

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

DOE is preparing the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site (68 FR 1052), which will address the potential environmental impacts from retrieving and processing tank wastes. DOE will conduct appropriate environmental review to support future decisions for closing the vitrification plant (i.e., Waste Treatment Plant) and other existing treatment and associated facilities.

Comments

E-0043/021, EM-0217/021, EM-0218/021, L-0056/021, LM-0017/021, LM-0018/021

In order to predict cumulative impacts accurately, it is necessary to examine not only the particular waste to be imported, but also the impacts of the new waste when combined with waste already existing at the burial grounds. Therefore, the necessary precursor to an accurate cumulative impact analysis is an understanding of what waste already exists at Hanford. However, there is no such inventory of existing waste at Hanford. The EIS should integrate and consider the cumulative impacts of all Hanford waste decisions.

F-0012/004

Hanford does not even have a real inventory of existing waste or a satisfactory EIS.

L-0019/004, TSE-0002/004

Failure to inventory and classify existing wastes [is a an open issue in the revised draft.]

L-0033/004

[This EIS must be revised to fully evaluate and share with the public] the characterization of all previously buried and newly generated solid-waste at the Hanford Reservation.

L-0044/080

S.9 Figure S.4 does not include environmental restoration waste and contamination left in place outside the burial grounds; therefore it understates the residual burden to be left at Hanford.

L-0044/086

Sec. 1.3.2.3, p. 1.12 Environmental restoration waste and contamination left in place outside the burial grounds is not included. Therefore the residual burden to be left at Hanford is understated.

Cumulative Impacts

L-0044/139

The health impacts presented in the RHSW EIS are understated because they do not include the additional burden that would appear were the facilities not included in the analysis to be added (e.g., old burial grounds, ERDF).

THR-0002/001

And we are really concerned [about this EIS] because, as Greg mentioned, the cumulative risks we feel haven't been analyzed fully. DOE has not prepared a complete inventory and classification of the waste that's at Hanford already. So how can this EIS adequately analyze the risks of adding more waste. We don't know the cumulative risk from what's already in Hanford soil.

TPO-0006/002

There remains no significant analysis of waste from prior to 1970 for transuranic waste. In our mind, pre-1972 is among the least missed -- of the least understood waste at Hanford. And as a result, I think it has significant potential to pose significant threats. And there appears to be no analysis in this document.

TRI-0001/009

We do not find in this EIS an adequate inventory of the wastes in the current burial grounds. A failure to assess the current conditions is a necessary prerequisite before you begin assessing the cumulative impacts of adding more and building new waste disposal facilities.

The performance assessment for the burial grounds doesn't even mention hazardous waste being present.

TSE-0011/006

...knowing what is actually in the ground, as waste, and as contaminants, has not been analyzed.

TSP-0009/001

Regarding cumulative risk, it is I think intuitive as well as legally necessary for there to be a complete inventory of nuclear waste and waste generally at the Hanford Site in order to assess what additional impacts there would be when additional wastes are being added to the existing wastes. I think that it is in the interest of full disclosure that this information needs to be included in the Final EIS.

Response

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

Hazardous chemicals in MLLW have been characterized and documented since the implementation of RCRA at DOE facilities beginning in 1987. MLLW currently in storage, and MLLW that may be received in the future, would be treated to applicable state or federal standards for land disposal. Therefore, disposal of that waste is not expected to present a hazard over the long term because the hazardous constituents would either be destroyed or stabilized by the treatment. Inventories of hazardous materials in stored and forecast waste are either very small, or consist of materials with low mobility. See Volume II Appendixes F and G.

Inventories of hazardous chemicals in waste were not generally maintained by industries in the United States prior to the implementation of RCRA. Consistent with these general practices, inventories of hazardous chemicals in radioactive waste were not required to be determined or documented before the application of RCRA to radioactive mixed waste at DOE facilities in late 1987. Wastes placed in the LLBGs before late 1987 have not been specifically characterized for hazardous chemical content, but they have been evaluated in the EIS alternatives relative to their radionuclide inventories. In addition, preliminary estimates of chemical inventories in this waste have been developed for analysis in the HSW EIS, and a summary of their potential impacts on groundwater has been added to Volume I Section 5.3 and Volume II Appendix G.

In addition, the October 23, 2003 Settlement Agreement contains proposed milestones in the M-91-03-01 Tri-Party Agreement Change Package for retrieval and characterization of suspect TRU waste retrievably stored in the Hanford LLBGs (United States of America and Ecology 2003). As part of that agreement, DOE will manage the retrievably stored LLBG waste under the following assumptions: (1) all retrievably stored suspect TRU waste in the LLBGs is potentially mixed waste; and (2) retrievably stored suspect TRU waste will be managed as mixed waste unless and until it is designated as non-mixed through the WAC 173-303 designation process.

Interactions among different types of waste that could potentially mobilize radionuclides have also been considered as part of the HSW EIS analysis. However, such interactions typically require specific chemical environments or large volumes of liquid as a mobilizing agent, neither of which are known to be present in the solid waste disposal facilities currently in use (see discussion in Volume II Appendix G). Possible effects of this type could be mitigated by selecting candidate disposal sites to avoid placing waste in locations where previous contamination exists.

Waste sites and residual soil contamination remaining at Hanford over the long term, and which are not specifically evaluated as part of the HSW EIS alternatives, have been evaluated previously as part of NEPA or CERCLA reviews. In those studies, the risks associated with older solid waste burials, tank waste residuals and leaks, and contaminated soil sites were found to be very small, even for alternatives that considered stabilization of the waste in place (DOE 1987, DOE and Ecology 1996, Bryce et al. 2002). Further evaluation of tank wastes is anticipated in the "Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single-Shell Tanks at the Hanford Site" (68 FR 1052). The cumulative groundwater impacts analysis in the HSW EIS also includes those wastes, as described in Volume I Section 5.14 and Volume II Appendix L.

DOE plans to characterize pre-1970 inactive burial grounds and contaminated soil sites, as well as the active LLBGs considered in the HSW EIS alternatives, under the RCRA past practice or CERCLA processes to determine whether further remedial action would be required before the facilities are closed. As part of that process, the long-term risks from these wastes would either be confirmed to be minimal, or the waste would be remediated by removal, stabilization, or other remedial actions to reduce its potential hazard. In all cases, the impacts from these previously disposed wastes would be the same for all alternative groups considered in the HSW EIS, and would not affect the comparisons of impacts among the alternatives or the decisions made regarding disposal of waste received in the future.

DOE believes this HSW EIS complies with applicable NEPA requirements.

Comments

L-0044/046

CRD, p. 3.80 Original comment #16 stated, in part, "The exclusion of pre-1970 TRU waste from analysis is inappropriate." The original comment was focused on the LLBG. DOE's response was basically that waste disposed of prior to 1970 will be addressed via CERCLA. This is of concern because, although LLBG is part of a much larger CERCLA site, it is also a RCRA TSD and must meet the regulatory requirements for operation and/or closure under WAC 173-303. DOE's response also says cumulative impacts from pre-1970 wastes are addressed in the revised HSW-EIS, and reference Sections 3.0 & 5.0 and App L. However, review of these sections reaffirms that waste disposed of prior to 1987 (when RCRA first applied to mixed waste at Hanford) did not receive the characterization that is required by Hanford and, as such, limited information exists and uncertainties are great.

Response

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

Hazardous chemicals in MLLW have been characterized and documented since the implementation of RCRA at DOE facilities beginning in 1987. MLLW currently in storage, and MLLW that may be received in the future, would be treated to applicable state or federal standards for land disposal. Therefore, disposal of that waste is not expected to present a hazard over the long term because the hazardous constituents would either be destroyed or stabilized by the treatment. Inventories of hazardous materials in stored and forecast waste are either very small, or consist of materials with low mobility. See Volume II Appendixes F and G.

Inventories of hazardous chemicals in waste were not generally maintained by industries in the United States prior to the implementation of RCRA. Consistent with these general practices, inventories of hazardous chemicals in radioactive waste were not required to be determined or documented before the application of RCRA to radioactive mixed waste at DOE facilities in late 1987. Wastes placed in the LLBGs before late 1987 have not been specifically characterized for hazardous chemical content, but they have been evaluated in the EIS alternatives relative to their radionuclide inventories. In addition, preliminary estimates of chemical inventories in this waste have been developed for analysis in the HSW EIS, and a summary of their potential impacts on groundwater has been added to Volume I Section 5.3 and Volume II Appendix G.

In addition, the October 23, 2003 Settlement Agreement contains proposed milestones in the M-91-03-01 Tri-Party Agreement Change Package for retrieval and characterization of suspect TRU waste retrievably stored in the Hanford LLBGs (United States of America and Ecology 2003). As part of that agreement, DOE will manage the retrievably stored LLBG waste under the following assumptions: (1) all retrievably stored suspect TRU waste in the LLBGs is potentially mixed waste; and (2) retrievably stored suspect TRU waste will be managed as mixed waste unless and until it is designated as non-mixed through the WAC 173-303 designation process.

Interactions among different types of waste that could potentially mobilize radionuclides have also been considered as part of the HSW EIS analysis. However, such interactions typically require specific chemical environments or large volumes of liquid as a mobilizing agent, neither of which are known to be present in the solid waste disposal facilities currently in use (see discussion in Volume II Appendix G). Possible effects of this type could be mitigated by selecting candidate disposal sites to avoid placing waste in locations where previous contamination exists.

Waste sites and residual soil contamination remaining at Hanford over the long term, and which are not specifically evaluated as part of the HSW EIS alternatives, have been evaluated previously as part of NEPA or CERCLA reviews. In those studies, the risks associated with older solid waste burials, tank waste residuals and leaks, and contaminated soil sites were found to be very small, even for alternatives that considered stabilization of the waste in place (DOE 1987, DOE and Ecology 1996, Bryce et al. 2002). Further evaluation of tank wastes is anticipated in the "Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single-Shell Tanks at the Hanford Site" (68 FR 1052). The cumulative groundwater impacts analysis in the HSW EIS also includes those wastes, as described in Volume I Section 5.14 and Volume II Appendix L.

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TPA Milestone M-15-00C requires all 200 Area, non-tank farm, pre-record of decision site investigation activities to be completed by December 31, 2008. Site characterization information generated from TPA remedial investigation and LLBG RCRA permitting activities has been used in development of the HSW EIS.

Comments

L-0041/048

DOE needs to develop a comprehensive analysis of the total mass of radioactive and hazardous materials that have already been disposed into the 200-Area subsurface in order to appropriately assess the impact of the additional 33.8 million curies of waste the revised EIS proposes disposing into the subsurface. The mass of material disposed into the Environmental Restoration Disposal Facility, left as residual material, and disposed into the U.S. Ecology Site create a total impact that has not been evaluated. Further, estimating the impact of waste disposal proposed by this EIS, without considering the additions of other wastes from ongoing programs, does not fully anticipate future effects. By understanding the impact proposed, appropriate engineering and mitigation actions can be designed, planned and taken that would minimize overall impacts of Hanford Operations.

Response

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

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In addition, the October 23, 2003 Settlement Agreement contains proposed milestones in the M-91-03-01 Tri-Party Agreement Change Package for retrieval and characterization of suspect TRU waste retrievably stored in the Hanford LLBGs (United States of America and Ecology 2003). As part of that agreement, DOE will manage the retrievably stored LLBG waste under the following assumptions: (1) all retrievably stored suspect TRU waste in the LLBGs is potentially mixed waste; and (2) retrievably stored suspect TRU waste will be managed as mixed waste unless and until it is designated as non-mixed through the WAC 173-303 designation process.

Interactions among different types of waste that could potentially mobilize radionuclides have also been considered as part of the HSW EIS analysis. However, such interactions typically require specific chemical environments or large volumes of liquid as a mobilizing agent, neither of which are known to be present in the solid waste disposal facilities currently in use (see discussion in Volume II Appendix G). Possible effects of this type could be mitigated by selecting candidate disposal sites to avoid placing waste in locations where previous contamination exists.

Waste sites and residual soil contamination remaining at Hanford over the long term, and which are not specifically evaluated as part of the HSW EIS alternatives, have been evaluated previously as part of NEPA or CERCLA reviews. In those studies, the risks associated with older solid waste burials, tank waste residuals and leaks, and contaminated soil sites were found to be very small, even for alternatives that considered stabilization of the waste in place (DOE 1987, DOE and Ecology 1996, Bryce et al. 2002). Further evaluation of tank wastes is anticipated in the "Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single-Shell Tanks at the Hanford Site" (68 FR 1052). The cumulative groundwater impacts analysis in the HSW EIS also includes those wastes, as described in Volume I Section 5.14 and Volume II Appendix L.

DOE plans to characterize pre-1970 inactive burial grounds and contaminated soil sites, as well as the active LLBGs considered in the HSW EIS alternatives, under the RCRA past practice or CERCLA processes to determine whether further remedial action would be required before the facilities are closed. As part of that process, the long-term risks from these wastes would either be confirmed to be minimal, or the waste would be remediated by removal, stabilization, or other remedial actions to reduce its potential hazard. In all cases, the impacts from these previously disposed wastes would be the same for all alternative groups considered in the HSW EIS, and would not affect the comparisons of impacts among the alternatives or the decisions made regarding disposal of waste received in the future.

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW.

Comments

L-0055/005

There are uncertainties and controversial issues that are described but largely unaddressed such as actual and projected waste volumes currently on site as well as from off site sources, waste treatment facilities and total project waste and final disposition, fate and transport of contaminants, traffic estimates, human and ecological risk and economics amongst many others remain unresolved.

Response

The HSW EIS uses best available data for estimating inventories of hazardous and radioactive wastes. These data are obtained from information management systems maintained at Hanford and other DOE sites. Most of the waste will be generated by environmental restoration activities, and there is uncertainty about the amounts that will be generated. Areas of uncertainty are discussed in Volume I Section 3.5.

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated releases and levels of groundwater contamination. As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater at 1 km from the disposal facilities are expected to be below the benchmark drinking water standards. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

Comments

L-0044/117

Ecology notes that the inventory of waste streams addressed by the RHSW [revised draft HSW] EIS is not complete. Wastes generated by cleanup under Comprehensive Environmental Response, Compensation, and Liabilities (CERCLA) actions that are disposed in the Environmental Restoration Disposal Facility (ERDF) are included only in a cumulative impacts analysis. Tank farm releases and residuals left in tanks appear only in the cumulative analyses, as do wastes in engineered disposal facilities, and pre-1970 potential TRU wastes. With these omissions, the document cannot be said to have fully evaluated waste management practices at the Hanford Site.

Response

The scope of the HSW EIS is discussed in Volume I, Section 1.7. Other past, present, and reasonably foreseeable actions at the Hanford Site are discussed as part of the cumulative impacts in Volume I Section 5.14.

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

The HSW EIS uses best available data for estimating inventories of hazardous and radioactive wastes. These data are obtained from information management systems maintained at Hanford and other DOE sites. Most of the waste will be generated by environmental restoration activities, and there is uncertainty about the amounts that will be generated. Areas of uncertainty are discussed in Volume I Section 3.5.

The HSW EIS includes the impacts of all LLBG previously disposed waste in its evaluations of long-term groundwater impacts in Volume I Section 5.3, Volume I Section 5.11, Volume I Section 5.14, and in Volume II Appendixes F, G, and L. LLBG previously disposed waste includes LLW disposed of since 1962, LLW disposed before and after the regulatory definition of TRU promulgated in 1970, and wastes disposed before and after the application of RCRA hazardous waste management standards to certain Hanford LLW streams in 1987. The HSW EIS impact estimates are based on chemical and radionuclide inventories. Past-buried LLBG wastes will be addressed within the framework for managing RCRA past practice and CERCLA units established under the TPA.

Comments

L-0017/004

The assertation that Hanford must 'do its part' since Hanford waste will be going to the Waste Isolation Pilot Plant (WIPP) in New Mexico and Yucca Mountain in Nevada is grossly misleading. WIPP and Yucca Mountain are clean facilities specifically designed to store radioactive wastes. Hanford is the most contaminated site in the nation. To suggest these three sites are somehow equal as recipients for radioactive waste makes no sense and is insulting to the people of the Northwest.

P-0006/001

But the reality is that for now anyway, there is nuclear waste. To add this to an already seriously contaminated site and endangered region is not acceptable. We need to spread the waste around---so all regions are contaminated equally.

P-0116/001

Hanford is already the most polluted place with radioactivity in the land. Why must we in this state also receive everybody else's radioactive waste?

TSE-0017/006

Several sites in many states would end up being cleaned, by moving this waste to Hanford, and that is really good for votes, because you have seven, eight happy states, and one very angry state.

Response

DOE's radioactive waste will continue to be disposed of in several states around the country where there are existing DOE and commercial disposal facilities. See Volume I, Figure 1.2.

Comments

THR-0016/001

My perception is that dam near every bit of agency money comes from taxpayers. Not from industry. And my perception is that for the most part, agencies now tend to run interference for industry. In the past we have paid industry by way of taxpayers' money and they have made huge profits at the Hanford Site. Now we are paying some of the very same corporations money to clean up this site, or other associated organizations, private corporations. And it strikes me that agency people need to get it really into their heads that we, the taxpayers, should be the bosses, not the corporate people.

TPO-0014/001

And so I just wonder, with the debt that we've got built up in this country, where are the resources going to come from to clean up anything?

Response

DOE's funding is provided by Congress, and from year-to-year has remained fairly constant. There are a number of cleanup activities ongoing at Hanford or being contemplated. Many of these cleanup activities require environmental review under applicable laws (e.g., NEPA, RCRA, CERCLA) and hence the need for public input. Public input often shapes the design and implementation of cleanup at Hanford. In addition, DOE is continually trying to make the most effective use of its cleanup dollars by developing (with input and guidance from its regulatory partners and public interest groups and individuals) new cleanup methods and approaches.

Comments

L-0055/010

Under the current plan Hanford will send its high-level waste (HLW) and spent nuclear fuel (SNF) to a national geologic repository at Yucca Mountain. What if this repository is filled with commercial and waste from other producers? Does Hanford have contingency plans on where this waste will be deposited? There is not a definite time on when this waste could or would be shipped to Yucca Mountain.

Response

DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel.

Comments

TPO-0002/003

But if you think about what they're trying to do and why they're so interested in doing one thing, as you said, sir, bringing more waste in, is because they have a directive that's out of headquarters that says they have to close 40 percent of the complex by 2006.

Response

The U.S. Department of Energy's (DOE's) cleanup efforts involve many sites nationwide. Part of those efforts include consolidating waste disposal in the interests of human and environmental safety, security, and reduced costs. DOE believes that Hanford, as an arid site, is an appropriate location for disposal of LLW and MLLW that is protective of human health and the environment.

The HSW EIS discusses the relationship of Hanford's waste management activities to those across the DOE complex in Volume I Section 1.3 and Volume II Appendix N.

Comments

L-0054/006

In addition, these studies [US Centers for Disease Control and EPA as discussed in the previous comment] indicate the need to remove chemically hazardous components subject to RCRA, such as MLLW, given the proximity of the 200 Area to the Columbia River, which is a drinking water source for several million people in the Northwest.

Response

MLLW will be treated to meet applicable RCRA and State standards prior to disposal.

Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. The CERCLA process considers legally applicable Federal, State, and local laws or relevant and appropriate requirements (ARARs). Any decisions reached by DOE on the basis of analysis in the HSW EIS would be implemented in accordance with applicable Federal, State, and local laws and regulations. See Volume II Appendix N, Section N.2.4.

Comments

P-0135/001

I lived in Richland, WA for 2 years, taught kids in a local school - I was shocked and dismayed at the number of ill, seriously affected unhealthy children and adults living there, well-educated intelligent, sick people. Please stop this waste dump!

Response

The DOE takes very seriously its responsibility to protect and preserve public health and the environment.

Comments

TSE-0024/005

And in regard to this groundwater contamination, I think [of] the word commitment. I think that I personally believe that this groundwater is more valuable than the plutonium that the DOE can produce, and also the salmon in the river, is also more valuable than all of the plutonium that you have.

Response

The DOE takes very seriously its responsibility to protect and preserve public health and the environment.

Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. The CERCLA process considers legally applicable Federal, State, and local laws or relevant and appropriate requirements (ARARs). Any decisions reached by DOE on the basis of analysis in the HSW EIS would be implemented in accordance with applicable Federal, State, and local laws and regulations. See Volume II Appendix N, Section N.2.4.

Some additional wastes will be generated as part of the cleanup of Hanford Site and other DOE sites. However, plutonium production, the source of most of the waste created, has stopped at Hanford. TRU waste, high-level waste, and spent nuclear fuel will be sent to underground repositories in other states that have been designed to safely contain the waste.

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

Comments

TPO-0014/005

I think that's [the prevention of a serious, horrible permanent disaster and the destruction of a water system and the ecosystem] as obvious to anyone here as it is to the DOE, because they have all the facts and they know these things too.

TPO-0020/002

I mean, we'll see down the line, in another 10, 20 years they'll maybe dig them [waste] back up and we'll have to do something else.

TPO-0023/001

Are these people aware that in 1948 DOE deliberately started releasing stuff on the people? They released double the amount that Chernobyl released, you know. And this is a large area. I happened to be working over there in '57. I got -- well, anyway, that whole area is contaminated. And beta radiation is just as deadly as gamma or alpha. So, I mean, this stuff doesn't go away. It's in our food chain, it's everything. That's why we got double the cancer rate than we did a few years ago is because of it.

Response

The DOE takes very seriously its responsibility to protect and preserve public health and the environment.

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4. See Volume III Section 2.0, Item 6 of the CRD for more examples of cleanup at Hanford.

DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

Comments

L-0014/001, L-0022/001

The primary issue to be addressed in this EIS is "will all wastes at Hanford be managed properly and safely?" The current draft of the EIS does not provide convincing evidence in response to this question.

L-0014/004, L-0022/004

DOE must adopt and follow policies to treat and dispose of all wastes in accordance with regulatory requirements. Unlined trenches must not be utilized for the future disposal of any wastes.

Response

The DOE takes very seriously its responsibility to protect and preserve public health and the environment.

Federal RCRA Subtitle C and related state hazardous waste management regulations require that radioactive mixed waste land disposal units meet minimum technical standards to prevent the release of hazardous substances. The standards include a system of multiple liners to prevent leakage into groundwater, a leachate collection system, groundwater monitoring wells, a multi-layer cap to prevent infiltration of rain and snow, stringent waste treatment standards, and a program of monitoring, inspection, and reporting during the period of operation and after closure. These standards will apply to all new mixed waste disposal units evaluated in the HSW EIS. Volume I Section 2.2.3 discusses disposal facilities and their environmental protection features.

The preferred alternative as described in Volume I Section 3.7 is to dispose of low level waste in newly constructed lined disposal facilities as soon as they are available. For purposes of analysis the HSW EIS assumes this would occur by 2007. MLLW is currently being, and will continue to be, disposed of in lined facilities.

However, the use of unlined trenches for disposal of low level waste is an established, legal, and environmentally protective method of low level waste disposal at both DOE and commercial facilities. As such, it is a reasonable alternative, under CEQ regulations, and must be analyzed. The HSW EIS considers a wide range of alternatives for disposal of low level waste in both lined and unlined facilities. Lined trench alternatives include leak detection and leachate collection capabilities. In addition, groundwater monitoring would be done in compliance with applicable RCRA and State hazardous waste, TPA, and DOE requirements to validate the performance of the disposal facilities.

Volume I Section 6 identifies the major statutes, permits, compliance agreements, and regulatory requirements followed in conducting operations at Hanford Site. Statutes include AEA, CERCLA, RCRA and the State of Washington Hazardous Waste Management Act. Volume I Section 6.3 discusses the TPA. Volume I Section 6.4 discusses the Dangerous Waste Management permit. Volume I Section 6.19 provides a summary of existing and potential permits (including state approved permits where state decision-making will be necessary) required to construct and operate treatment, storage, and disposal facilities related to the HSW EIS alternatives. Volume I Section 6 has been updated and revised in response to comments in the final HSW EIS.

Comments

E-0009/002

Can the public safely assume government agencies will appropriately represent and protect their interests in long term health and the viability of Washington state?

I would like to think this is the case, but at this point I SERIOUSLY doubt the people's interests are being counted (even if they have a chance to be "heard"), especially when "inconvenient" to big business short-term profits, and energy industry elites that have apparently paid off our "democratically elected" administration and Congress.

E-0026/002

You [US DOE] have a responsibility that goes beyond your job description to ensure that Hanford is cleaned up.

E-0051/008

Pushing the preferred alternative of the HSW EIS will further erode the public trust and damage the environment.

F-0011/001

DOE IS NOT TO be trusted!!!

F-0012/005

DOE's credibility has been compromised - its time to re-earn it.

F-0017/002

You [Mr. Collins / US DOE] need to act like a responsible and caring human being, a moral human being and do your job with "Integrity!"

F-0018/002

One of the big problems between DOE and the public is lack of trust - one might think the need for haste is driven by politics - not science.

L-0004/001

Continued violation of the 15 year old Tri-Party Agreement, lack of funding, budget secrecy, allowing cleanup priorities to be determined by profits to contractors, rather than those committed to real cleanup: these are only a few of many indications that public trust is indeed being placed secondary to interests that are short-sighted, self-serving, and in the case of the enormous potential for environmental disaster, downright dangerous to public health and safety.

L-0034/007

Based on history, DOE has lost much credibility for meeting established deadlines, upholding legally binding agreements, and addressing serious public concerns.

P-0034/001

How can we trust the Dept. of Energy to properly clean up and protect Hanford in the future if it has not done so in the past?

P-0045/002

People assume they will fix problems as they emerge (which is fine in many fields) but so many problems have "emerged" at Hanford credibility is shot as carrying capacity is exceeded.

P-0098/001

Federal conduct re: nuclear waste has been unethical, irresponsible and criminal.

DOE

THR-0002/008

And so if they are already significantly deficient, [low level burial ground monitoring networks and programs] I wouldn't trust the Department of Energy to bring in more waste and promise to monitor this waste and keep the waste from entering the soil and groundwater.

THR-0007/001

There is a story about how the Oregon Trail went to California and Oregon, they said the people that could read went to the Northwest. And I hope we still can use that to convince the Department of Energy to use the most extreme care, the most extreme measures. I mean, sure, it's going to cost a lot of money.

TLG-0009/008

During the budget hearings, a DOE official said that one of the biggest problems his Department faced was credibility. But when the DOE acts as if this decision has already been made, it's bound to have credibility problems. When the DOE proposes a plan that the Washington Department of Ecology believes will leave waste in the tanks, it's bound to have credibility problems. When the DOE proposes a plan that renames tank waste so it can be pumped on to trucks, it's bound to have credibility problems. When the DOE refuses to extend a routine request to extend the comment deadline, it's bound to have credibility problems. When the DOE lets contracts that don't allow Ecology and the EPA to monitor progress on cleanup, it's bound to have credibility problems. When the DOE reaches an agreement on transuranic waste shipments and breaks it within months, it's bound to have credibility problems. When the DOE takes actions that can be fairly interpreted as attempts to weaken or break the Tri-Party Agreement, it's bound to have credibility problems.

TPO-0002/001

… from the public perspective, what you have to think of, this [the EIS] is a shell game.

TPO-0008/006

We, the taxpayers, are concerned about accountability. Where does accountability stop in this process? We've got the EPA, the Department of Ecology in Washington State, and the Oregon Departments of Energy, and then there's the U.S. Congress. … So where does the safety of the citizens living in the area, affected by Hanford, come to its rightful place in the chain of accountability?

TPO-0010/001

Should we trust a government agency that is so shortsighted? Why is this occurring now? Why wasn't a plan developed before the need to dispose of the waste?

TPO-0018/002

I think that I speak for a great many people here tonight when I say that we really can't trust the Department of Energy. And I'm not talking about you two, I'm talking about the guys in Washington, D.C., and the Bush administration.

TPO-0026/001

And it strikes me that we continue to have a crisis of trust here.

TSE-0017/007

So, the DOE needs to now take responsibility for the actions that undeniably will cause long-term problems and have caused long-term problems as a result of these things.

TSP-0002/002

We have already seen that the DOE cannot be trusted to clean up the Hanford Site in a timely manner and that known leaks are going unattended. If we can't trust DOE to store waste safely, there is no reason to think that it can be trusted to transport the waste safely.

TSP-0003/003

I want responsible ethics and behavior out of our government policies and especially in this case, in regards to

Hanford.

TSP-0007/004

I think it is clear that the DOE at Hanford has done an inadequate, an incompetent job in doing the job that they were charged to do. For all I know, the hundreds of millions of dollars have not been enough. All I know is they are not doing what they said they were going to do. The credibility of the DOE at Hanford has to be really, really low.

TSP-0013/001

And to me, as a citizen, reading the newspaper, you have no trust with me. There has been no credibility in what the DOE has said. It's changing its mind all the time. It's revising its figures all the time. It's reneging on promises all the time. There has been no good faith at all that you have shown, either in that history or in these sort of pathetic, impotent energy proposals.

It would seem to me as a citizen that the mission of the Department of Energy would be basically to keep the citizens safe from those -- from the tasks that the Department of Energy accomplishes, that their underlining mission would be to keep the citizens safe in the same way that all government -- mean, why do we need government? We only need government to protect citizens from outside danger basically. And in this role I find the DOE performing abysmally. In fact, really, more than anything else, it is a threat the American people have about energy.

TSP-0013/002

The process of this meeting bothers me a lot. I thought your presentation was very terse, brief, evasive, with very little data really given to people, very little background information given to people, very little facts given to people. Allowing only one question of people who spontaneously ask questions. I don't know why there was that control. Getting ready to grasp the microphone, to rush people in the process. All this really bothered me. I found the answers shallow, glib. Not knowing the half-life of substances when you should have come armed with facts and knowledge, and been able to elucidate people, rather than the opposite.

Response

DOE is responsible for the cleanup of dozens of sites around the country, and DOE takes very seriously its responsibility to protect and preserve the environment. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel.

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations.

Radioactive waste management practices at Hanford are regulated by the DOE according to the requirements of the AEA and the DOE system of implementing directives. Certain wastes and waste management practices at Hanford are also regulated by the U. S. Environmental Protection Agency and the Washington State Department of Ecology. Volume I Section 6 identifies the major statutes, permits, compliance agreements, and regulatory requirements followed in conducting operations at Hanford Site. Statutes include AEA, CERCLA, RCRA and the State of Washington Hazardous Waste Management Act. Volume I Section 6.3 discusses the TPA. Volume I Section 6.4 discussed the Dangerous Waste Management permit. Volume I Section 6.19 provides a summary of existing and potential permits (including state approved permits where

DOE

state decision-making will be necessary) required to construct and operate treatment, storage, and disposal facilities related to the HSW EIS alternatives. Public involvement, as part of NEPA reviews, permit applications, and other regulatory programs, is an essential component of DOE's ongoing cleanup initiatives and is considered in DOE's decision-making processes.

Comments

L-0055/021

It was quite apparent that for an Environmental Impact Statement, there was lacking an ecological evaluation. This should be a major component that includes endangered and threatened species. Performing culturally surveys prior to construction is not mitigation. Most of the list of mitigated resources in not "mitigation" based on completion or implementation of projects but represent project management elements that mitigate project challenges. The impact of this project on cultural resources is devastating and irreversible.

The issues of risk associated with human health are alarming however very little is truly understood about the long term impacts of radioactive pollution on ecological resources. Aside from a paucity of ecological data that is limited to the geographic scope of the proposed facility ecological risk issues are another glaring uncertainty in the analysis.

Response

Biological and ecological resources (vegetation, wildlife, aquatic ecology, and threatened and endangered species) potentially impacted by the proposed actions are assessed in Volume II Appendix I and summarized in Volume I Section 4.6. Wildlife and ecological resource impacts are summarized in Volume I Section 5.5.

DOE manages cultural, archeological, ecological, biological, and natural resources under a series of area and resource management and mitigation plans. See Volume I Section 5.18.8 for a list of these plans. Resource and resource impacts are monitored routinely and as unique events and activities occur.

Potential cultural resource impacts are discussed in in Volume I Section 5.7. Mitigation measures to avoid losses of cultural resources that may be found during construction are discussed in Volume I Section 5.18.2.

Comments

L-0050/007

Page 4.74, Microbiotic Crust. WDFW appreciates the additional information on the potential impacts to microbiotic crust from the proposed actions. DOE should, to the extent possible, research microbiotic crust restoration, since it plays an important role in shrub steppe ecosystem functioning and in the success of mitigation projects at the Hanford site.

Response

DOE manages Hanford biological and ecological resources in accordance with the Biological Resource Management Plan (BRMaP; DOE-RL 2001) and the Biological Resource Mitigation Strategy (BRMiS; DOE-RL 2003).

Comments

L-0061/005

Section 7 of the Endangered Species Act (Act) of 1973, as amended, requires Federal Agencies to consult with the U.S. Fish and Wildlife Service (Service) if their actions may affect a federally listed threatened or endangered species. Section 9 of the Act prohibits the "take" (e.g., harm, harassment, pursue, injure, kill) of federally listed wildlife species. Take can only be permitted pursuant to the pertinent language and provisions in Section 7 and Section 10(a) or through a special rule under Section 4(d) of the Act. Informal consultation may be used to exchange information and resolve conflicts with respect to listed species prior to a written request for formal request for consultation.

For this project, the species list that you include is accurate; however, the Federal action agency under section 7(a)(2) of the Act is required to determine if the project will have no affect or may affect listed species. The DEIS contains a general description of endangered species in section 4.6.4 of the Affected Environment discussion, but there is no effect analysis provided. We [United States Department of the Interior] suggest that you complete an effect analysis to be in compliance with the Act.

Response

Presence alone of threatened or endangered species or critical habitat does not necessitate formal consultation under the Endangered Species Act. The U.S Fish and Wildlife Service (FWS) letter of April 23, 2002, (see Volume II Appendix I) states that "...if a listed species is likely to be affected by the project, the involved Federal agency should request Section 7 consultation…." According to the FWS Endangered Species Consultation Handbook, formal consultation is necessary 1) after the action agency determines that the proposed action may affect listed species or critical habitat, or 2) National Marine Fisheries Service (NMFS) or FWS does not concur with the action agency's finding that the proposed action is not likely to adversely affect the listed species or critical habitat. There are no threatened or endangered species or critical habitat in any of the terrestrial habitats to be disturbed under any of the alternatives in this HSW EIS (see Volume II Appendix I). Thus, because no threatened or endangered species or critical habitat are likely to be adversely affected, there is no basis for initiating formal consultation with either NMFS or FWS.

The ecological impact analysis contained in the HSW EIS is consistent with the requirements of NEPA. It is also consistent with the methods, characteristics, and controls associated with a composite analysis as described by the Columbia River Comprehensive Impact Assessment (CRCIA) team. The analysis modules included in the System Assessment Capability (SAC) parallel those identified by CRCIA and were developed through work group meetings that included regulator and stakeholder participation. Several key modules were adopted directly from the CRCIA including the module used to calculate human health impacts (the HUMAN code) and the module used to calculate impacts to ecological species (the ECEM code).

Volume II Appendix I provides information about potential impacts to terrestrial and aquatic ecological resources that may result from implementation of HSW EIS alternatives. Potential impacts to terrestrial resources were evaluated in the near term (i.e., during waste management operations and under current conditions). Potential impacts would result primarily from surface disturbances associated with excavation and disposal activities. Potential impacts to Columbia River riparian and aquatic resources could occur in the long term, i.e., up to 10,000 years following the conclusion of waste management operations. These would be primarily the result of the eventual migration of radionuclides and other hazardous chemicals through the vadose zone to groundwater and on to the Columbia River. Biological and ecological resources (vegetation, wildlife, aquatic ecology, and threatened and endangered species) potentially impacted by the proposed actions are assessed in Volume II Appendix I and summarized in Volume I Section 4.6. Wildlife and ecological resource impacts are summarized in Volume I Section 5.5.

DOE manages Hanford biological and ecological resources in accordance with the Biological Resource Management Plan (BRMaP; DOE-RL 2001) and the Biological Resource Mitigation Strategy (BRMiS; DOE-

RL 2003). See Volume I Section 5.18.8 for discussion of resource management and impact mitigation plans.

Comments

L-0044/031

CRD, p. 3.89 (Re: Comment #68) Although USDOE concludes that the adverse impact to wildlife from noise (due to blasting operations) would be negligible, it is difficult to evaluate effects from this stressor, as effects may be subtle and indirect.

Response

DOE believes the analysis contained in the EIS is consistent with the requirements of NEPA. Ecological impacts are presented in Volume I Section 5.5 and Volume II Appendix I.

Comments

E-0047/009

DOE has failed to gather the baseline data necessary to understand the existing effects on ecological receptors and systems from past and continuing contamination at Hanford. NEPA in some instances requires the collection of original data and information where such information is critical for the public and/or decision makers to understand the effects of a given action. DOE has continuously failed to gather data about how existing contamination is affecting key ecological receptors. The lack of such information fundamentally undermines the required cumulative effects analysis since the effects of past and present actions on ecological receptors and processes are unknown.

Question # 14 - What data has DOE gathered on the effects to salmonids of contamination caused by existing plumes in the Columbia River? Has DOE taken any samples of salmonids to test for concentrations of all known contaminants? If not, why not?

Question # 15- Does DOE acknowledge that MTCA requires these types of studies to assess the effects of existing contamination on ecological receptors? Please explain.

Response

DOE believes the analysis contained in the EIS is consistent with the requirements of NEPA. Ecological impacts are presented in Volume I Section 5.5 and Volume II Appendix I.

The human exposure scenarios described in Volume II Appendix F consider direct and indirect use of the Columbia River water and biota (e.g., swimming, consumption of fish). For those radiological and non-radiological contaminants that will reach the Columbia River bioaccumulation of contaminants and resulting impacts to non-human biota are also expected to be small. See Volume I Sections 5.5 and 5.11, and Volume II Appendix F and Appendix I.

The EPA Columbia River Basin Fish Contaminants Survey 1996-1998 (EPA 2002) was a study of organic, metal, and radionuclide concentrations in 208 fish tissue samples collected from 24 locations on the Columbia, Snake, Yakima, Clearwater, Klickitat, Deschutes, Willamette and other rivers that drain the Columbia River Basin. Locations included the Hanford Reach of the Columbia River, artificial ponds on the Hanford Site, and the upper Snake River. Cancer risks were estimated for consumption of fish that were contaminated with radionuclides. These risks were small relative to the estimated risks associated with radiation from naturally occurring background sources, to which everyone is exposed. The levels of radionuclides in fish tissue from the Hanford Reach of the Columbia River and the ponds on the Hanford Site were similar to levels in fish from the Snake River. These estimates of risks were not combined with the potential risks from other chemicals, such as PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and a limited number of pesticides. The potential cancer risks from consuming fish collected from Hanford Reach and the artificial ponds on the Hanford Site were similar to cancer risks in fish collected from the upper Snake River. EPA reported that the Yakima River and the Hanford Reach of the Columbia River tended to have higher concentrations of organic chemicals than other study sites. EPA also reported that the chemicals and or chemical classes that contributed the most to cancer risk for most of the resident fish were PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and a limited number of pesticides. For most of the anadromous fish, the chemicals that contributed the most to cancer risk were PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and arsenic. These chemicals occur in the Columbia River as a result of agricultural and industrial operations (pulp and paper plants, for example) and are very unlikely to be of Hanford origin. These chemicals would not exist in wastes proposed for future disposal at Hanford, or, if initially present, would be treated to reduce their mobility and toxicity to meet applicable standards prior to disposal.

DOE maintains an extensive radiological and hazardous chemical monitoring network for groundwater, surface water, air, and biological resources. The results of these analyses are summarized in the annual Hanford Site Environmental Report (Poston et al. 2002) and the annual Groundwater Monitoring Report (Hartman et al. 2002).

Comments

L-0039/013

This draft EIS does not conduct the required ecosystems analysis. Washington State's Model Toxics Control Act (MTCA) details a specific road map for ecological evaluations. It is unfortunate DOE chose not to use this road map. The Columbia River is vitally important to the region. The analyses performed should include a detailed analysis of the impacts in and to the river and its ecosystem, as well as to the other interconnected ecosystems.

Response

DOE believes the analysis contained in the EIS is consistent with the requirements of NEPA. Ecological impacts are presented in Volume I Section 5.5 and Volume II Appendix I.

Volume II Appendix I provides information about potential impacts to terrestrial and aquatic ecological resources that may result from implementation of HSW EIS alternatives. Potential impacts to terrestrial resources were evaluated in the near term (i.e., during waste management operations and under current conditions). Potential impacts would result primarily from surface disturbances associated with excavation and disposal activities. Potential impacts to Columbia River riparian and aquatic resources could occur in the long term, i.e., up to 10,000 years following the conclusion of waste management operations. These would be primarily the result of the eventual migration of radionuclides and other hazardous chemicals through the vadose zone to groundwater and on to the Columbia River.

Comments

L-0050/014

Page 5.88, the last paragraph summarizes the ecological risk assessment completed for the aquatic and riparian biota for the Columbia River. WDFW considers this risk assessment invalid since there was no coordination between DOE and the Hanford Natural Resource Trustees, and that it failed to take into account other nonradionuclide chemicals. CERCLA, Section 104(b)(2) requires DOE to coordinate with the Natural Resource Trustees regarding ecological risk assessment, as part of CERCLA.

Response

DOE believes the analysis contained in the EIS is consistent with the requirements of NEPA. Ecological impacts are presented in Volume I Section 5.5 and Volume II Appendix I.

The CERCLA risk assessment process, which includes other ecological risk assessment requirements, is implemented pursuant to the TPA in conjunction with the State of Washington and EPA.

Comments

L-0050/012

Page 5.75, fourth paragraph, states "removal of sagebrush within the new HSW disposal facility near the PUREX Plant would likely have a small impact on populations of these species within the Columbia Basin." The first paragraph, same page states, "ground disturbance during the nesting season…could destroy eggs and young and temporarily displace nesting individuals into other areas of the Hanford site." If an adequate cumulative impacts analysis on shrub steppe habitat and species on Central Hanford was completed, it would help answer the following question: What other areas of "suitable habitat" would birds utilize?

TSE-0029/003

In addition, [the DEIS states that] if the mature sage-steppe habitat needs to be removed to construct a solid waste management facility, we [DOE] could mitigate the habitat loss by revegetating. I have been doing a lot of work on native vegetation. They've got a lot of work to do if they think they're going to revegetate shrub-steppe. And protecting other parcels of land, or protecting other parcels. In other words, we [DOE] are going to screw this place, but we're going to be real nice, we're not going to screw that place, you know. If that's mitigation, it just doesn't fly.

Response

Major areas of the Hanford Site have been set aside for natural resource preservation. See Volume I Section 4.2. Over 300 square miles of the Hanford Site have been included in the Hanford Reach National Monument. Many other portions of the Hanford Site will also remain undisturbed.

Comments

L-0044/023

Vol. I, Sec. 4.6; Sec. 5.5;Sec. 5.5.6, p. 5.81: The description of the affected environment and impacts to ecological resources ignores the fragmentation of habitat that results in direct impacts to species diversity and does not address ecological relationships that may be affected by the alternatives. Habitat is judged to be unsuitable or unaffected based in large part on effects of the 24 Command Fire of 2000, with no attempt to integrate additional impacts from proposed actions in this EIS. Analyses of the impacts of proposed actions are not complete for certain species (e.g., loggerhead shrike) and environmental impacts (e.g., adverse noise-based impacts). The discussion of new to science species does not give sufficient information to determine what impacts the proposed alternatives might have. Ecology does not view the evaluation of ecological impacts to plants and animals to be sufficient because of these deficiencies. An eco-system analysis should be added to the Final EIS.

The State Department of Fish and Wildlife will provide specific comments regarding these issues. Ecology will consider deficiencies to be addressed when the eco-system analysis is completed satisfactorily and comments from F&WL are addressed in the Final EIS.

L-0050/010

Page 5.75, first paragraph. According to our WDFW PHS Database, additional wildlife potentially impacted by disturbance to the 200 East and 200 West LLBG's includes loggerhead shrikes, burrowing owl and Swainson's hawk. The nesting season for ground nesting birds should be extended from March through August (Vander Hagen, personal communication).

L-0050/013

Page 5.76, last paragraph, impacts to elk from the Area C construction. Construction activity would be most disruptive to the elk herd during the wintertime, a period when the elk are most commonly found near the pit. WDFW recommends that blasting and other heavy construction activity take place outside the period of December through March. Construction activity may displace elk onto roads and other undesirable locations such as private property. If water or mineral (salt) are exposed as a result of expansion of the borrow pit it could also attract elk to the site. WDFW recommends actions to prevent the exposure of water or salt that would attract elk. If exposure does occur, the site should be protected from elk. Lastly, DOE should establish escape routes for elk in the event one falls into the pit.

L-0050/016

Page I.21-24. [This] section states, "disturbance of the needle-and-thread grass/cheatgrass community would be mitigated via the setting aside and protection of an element occurrence of the sagebrush/needle and thread grass community located away from Area C. Ample element occurrences of this community type (i.e. sagebrush/needle and thread grass community types) currently exists elsewhere in the 600 Area of the Hanford Site to satisfy this size constraint." According to the "Final Hanford Comprehensive Land-Use Plan Environmental Impact Assessment", much of these "element occurrences" are located in habitat designated as Conservation (mining). What measures will DOE prescribe in the interim to protect these habitats from future development, so they will have ecological value for mitigation options?

L-0050/017

WDFW remains concerned over the lack of commitment from DOE for mitigation for the continued loss of shrub steppe habitat in the Low Level Burial Ground's (LLBGs) in the 200 Area West and East, due to the efforts of vegetation control (herbicide application) as indicated in section 5.5.1 and Appendix I. We disagree with the following statement, "…continued use of these LLBGs, or new disturbance of the extant plant communities within them via expansion of the disposal area, would not result in the loss of any State of Washington designated priority habitat." The WDFW mitigation policy goal is to maintain the functions and values of fish and wildlife habitat in the state, and we strive to protect the productive capacity and opportunities reasonably expected of a site in the future. In the long-term, WDFW shall seek a net gain in productive capacity of habitat through restoration, creation and enhancement. The EIS tends to rely excessively on the effects of the 24 Command Fire as a means to devalue habitat. Regardless of the condition of the shrub steppe habitat, it is still considered a WDFW priority habitat, and therefore compensatory mitigation is recommended, whether it is for total loss of habitat in the 200 Area or continued loss due to herbicide application.

Response

DOE manages cultural, archeological, ecological, biological, and natural resources under a series of area and resource management and mitigation plans. See Volume I Section 5.18.8 for a list of these plans. Resource and resource impacts are monitored routinely and as unique events and activities occur.

Major areas of the Hanford Site have been set aside for natural resource preservation. See Volume I Section 4.2. Over 300 square miles of the Hanford Site have been included in the Hanford Reach National Monument. Many other portions of the Hanford Site will also remain undisturbed.

Potential mitigation measures for addressing ecological impacts are described in Volume I Section 5.18.3, the Biological Resources Management Plan (BRMaP, DOE-RL 2001), and the Biological Resources Mitigation Strategy (BRMiS, DOE-RL 2003).

Comments

THR-0003/002

Also the elk populations. There is a real large elk population around Hanford Reach area that we aren't able to manage right now because of the questions around contamination of the elk. And I wonder if that meat is huntable at this point, is [the meat] edible, ... Fish and Wildlife could allow hunting in that area to manage the herds so that we wouldn't have to damage to the ecosystem.

Response

This meat is edible as indicated by the Hanford Site Environmental Report for Calendar Year 2001 (Poston et al. 2002) and elk are currently hunted offsite. Hunting is precluded on the Fitzner/Eberhardt Arid Lands

Ecology (ALE) Reserve for security and ecological protection reasons.

Comments

L-0044/030

Appendix I (Re: Comment # 63) Although the pocket mouse was not evaluated, 57 terrestrial and aquatic receptors were assessed with the ECEM (Table I.8). However, EHQs are presented for only a handful of ecological receptors.

Response

The results presented in the Ecological Risk Analysis represent the single receptor of those evaluated that was at maximum risk for each alternative group and time period. See Volume II Appendix I Section I.3.4.

Comments

L-0050/008

Page 4.75, Biodiversity, second paragraph. This section contradicts the discussion in Appendix I. WDFW agrees with the comment on page 4.75, "many places on the Hanford site are relatively free of non native species and are extensive enough to retain characteristic populations of shrub-steppe plants and animals that are absent or scarce in other areas. Because of its location, the site provides important connectivity with other undeveloped portions of the ecoregion." While page I.26, first paragraph, last sentence, states, "the 24 Command Fire removed most of the adjacent shrub-steppe, interrupting the connectivity of these areas with other undeveloped portions of the ecoregion."

Response

Both statements are accurate and need to be read in context with surrounding paragraphs.

Comments

E-0026/005

The EIS states it uses the CRCIA yet it is not in alignment with the minimum requirements of CRCIA.

E-0047/028

The EIS states it uses the CRCIA (Columbia River Comprehensive Impact Assessment) requirements. It does not, as it is not in alignment with the minimum requirements of CRCIA.

L-0016/016

Very few species spend their entire earthly career 'endangered': therefore the fact that there are no (known) endangered species on the site is not to say there will never be, or that the witch's brew stored there won't threaten now-common species.

L-0044/125

SAC in the HSW-EIS ignores terrestrial ecological pathways. This pathway is important for the burial grounds and needs to be incorporated.

Response

The ecological impact analysis contained in the HSW EIS is consistent with the requirements of NEPA. It is also consistent with the methods, characteristics, and controls associated with a composite analysis as described by the Columbia River Comprehensive Impact Assessment (CRCIA) team. The analysis modules included in the System Assessment Capability (SAC) parallel those identified by CRCIA and were developed through work group meetings that included regulator and stakeholder participation. Several key modules were adopted directly from the CRCIA including the module used to calculate human health impacts (the HUMAN code) and the module used to calculate impacts to ecological species (the ECEM code).

Ecological

Volume II Appendix I provides information about potential impacts to terrestrial and aquatic ecological resources that may result from implementation of HSW EIS alternatives. Potential impacts to terrestrial resources were evaluated in the near term (i.e., during waste management operations and under current conditions). Potential impacts would result primarily from surface disturbances associated with excavation and disposal activities. Potential impacts to Columbia River riparian and aquatic resources could occur in the long term, i.e., up to 10,000 years following the conclusion of waste management operations. These would be primarily the result of the eventual migration of radionuclides and other hazardous chemicals through the vadose zone to groundwater and on to the Columbia River. Biological and ecological resources (vegetation, wildlife, aquatic ecology, and threatened and endangered species) potentially impacted by the proposed actions are assessed in Volume II Appendix I and summarized in Volume I Section 4.6. Wildlife and ecological resource impacts are summarized in Volume I Section 5.5.

DOE manages Hanford biological and ecological resources in accordance with the Biological Resource Management Plan (BRMaP; DOE-RL 2001) and the Biological Resource Mitigation Strategy (BRMiS; DOE-RL 2003). See Volume I Section 5.18.8 for discussion of resource management and impact mitigation plans.

Comments

E-0043/034, EM-0217/034, EM-0218/034, L-0056/034, LM-0017/034, LM-0018/034

The EIS has not assessed short and long-term ecological impacts. It should analyze and discuss impact on fish, including salmon, as well as for other endangered species and the rest of the ecosystem. Merely listing the species present at the site is not analysis. Further, the conditions have not been updated since the Hanford fire. Also, Shrub- steppe habitat is an ecological resource. Since all present alternatives presents an ecological resource impact to Shrub-steppe habitat, additional alternatives that do not present this impact, or lower this impact, should be quantitatively analyzed.

E-0047/030

Fails to assess and disclose the short and long-term ecological impacts. Complete ecosystems must be assessed not just a few selected species.

E-0055/027

We are unable to find an ecological evaluation in the HSW EIS. Washington State's Model Toxics Control Act (MTCA) details a specific road map for ecological evaluations. This road map should have been used and was not. The EIS does not assess the sustainability of the ecosystems, nor of endangered species. The technical model used (SAC) does not include a terrestrial ecosystem impact component. Those modules were not included in the development of SAC, and as result, no evaluation is possible using SAC. The HSW EIS does not analyze the impacts from all burial grounds, or the impacts of contaminated groundwater on the hyporheic and riparian zones of the Columbia River, nor the impacts in the river on Salmon and other species.

E-0049/008, L-0048/008

The revised EIS should include an analysis of the threat to endangered and threatened species in the area and fully evaluate the ecological impacts of the actions proposed by DOE.

L-0050/001

The Revised Draft EIS fails to adequately evaluate the impacts of proposed actions on state and federally listed species, candidate species, and species new to science. The state has 18 listed species of concern associated with shrub steppe habitat that are not evaluated within this document.

L-0050/002

This document continues to devalue the importance of The Nature Conservancy's (TNC) biological inventory on the Hanford site. DOE's response to our original comments on the first draft of the EIS indicates that TNC's work is cited extensively within the EIS. Yet, the EIS fails to take this information further. [What] are the impacts from actions proposed going to be on these species? As quoted in TNC's document "From a conservation standpoint, the Hanford Site is a vital and perhaps the single most important link in preserving and sustaining the diverse plants and animals of the Columbia Basin Ecoregion" (TNC 1998). The National Biological Division of the US Geological Survey lists native shrub and grassland steppe in Washington and Oregon as Endangered because of an 85-98% decline (Noss et al. 1995).

L-0050/018

WDFW disagrees with the statement "although new construction would result in temporary habitat loss in these areas, its loss would likely have no long-term effect on ecoregional biodiversity" (I.26). The cumulative impacts section within this EIS largely omits a thorough analysis of continued shrub steppe fragmentation in the Hanford area. The breakup of formerly contiguous habitats can have detrimental effects on species occurrence and population dynamics. Extensive surveys in Washington suggest that sage sparrows are most likely to occur in blocks of shrub-steppe>2,470 acres (Vander Hagen, personal communication). As remnant habitat becomes smaller and more fragmented, it is under greater influence of the surrounding landscape and more susceptible to external influences, be they predators, nest parasites, and potential competitors, or the wind-blown seeds of exotic species (Weins et al. 1985).

Response

The ecological impact analysis contained in the HSW EIS is consistent with the requirements of NEPA. It is also consistent with the methods, characteristics, and controls associated with a composite analysis as described by the Columbia River Comprehensive Impact Assessment (CRCIA) team. The analysis modules included in the System Assessment Capability (SAC) parallel those identified by CRCIA and were developed through work group meetings that included regulator and stakeholder participation. Several key modules were adopted directly from the CRCIA including the module used to calculate human health impacts (the HUMAN code) and the module used to calculate impacts to ecological species (the ECEM code).

Volume II Appendix I provides information about potential impacts to terrestrial and aquatic ecological resources that may result from implementation of HSW EIS alternatives. Potential impacts to terrestrial resources were evaluated in the near term (i.e., during waste management operations and under current conditions). Potential impacts would result primarily from surface disturbances associated with excavation and disposal activities. Potential impacts to Columbia River riparian and aquatic resources could occur in the long term, i.e., up to 10,000 years following the conclusion of waste management operations. These would be primarily the result of the eventual migration of radionuclides and other hazardous chemicals through the vadose zone to groundwater and on to the Columbia River. Biological and ecological resources (vegetation, wildlife, aquatic ecology, and threatened and endangered species) potentially impacted by the proposed actions are assessed in Volume II Appendix I and summarized in Volume I Section 4.6. Wildlife and ecological resource impacts are summarized in Volume I Section 5.5.

DOE manages Hanford biological and ecological resources in accordance with the Biological Resource Management Plan (BRMaP; DOE-RL 2001) and the Biological Resource Mitigation Strategy (BRMiS; DOE-RL 2003). See Volume I Section 5.18.8 for discussion of resource management and impact mitigation plans.

Potential mitigation measures for addressing ecological impacts are described in Volume I Section 5.18.3, the Biological Resources Management Plan (BRMaP, DOE-RL 2001), and the Biological Resources Mitigation Strategy (BRMiS, DOE-RL 2003).

No plants or mammals on the federal list of threatened and endangered wildlife and plants (50 CFR 17) are known to occur on the Hanford Site. However, the bald eagle and two species of fish (steelhead and spring-run chinook salmon), currently found on the federal list of threatened and endangered species, are present on the Hanford Site, or in the Hanford Reach of the Columbia River, on a regular basis. Surveys of the 200 East and 200 West Areas (Sackschewsky 2002) and Area C (Sackschewsky 2003) revealed no federal or state threatened or endangered species (see Volume II Appendix I). Federally listed threatened, endangered, candidate species (50 CFR 17), and species of concern (http://www.wa.gov/wdfw/wlm/diversty/soc/adv_search.htm) and threatened and endangered species listed by Washington State (Washington Natural Heritage Program 2002) identified on the Hanford Site are shown in

Ecological

Volume I Table 4.12. Several candidate species of plants and animals are under consideration for formal listing by the federal government and Washington State. See Volume I Section 4.6.4 and Volume II Appendix I.

Comments

L-0050/015

Page I.20, first paragraph. This section states the absence of immature sagebrush in Area C, is indicative of shrub steppe "not currently recovering", therefore replacement habitat is not indicated. WDFW disagrees with this assumption. The absence of immature sagebrush does not imply non-recovery. Many things like a high preponderance of exotic annual grasses and forbs are a much stronger indication of a non-recovering habitat. A better indicator of recovering would be the presence of a diverse perennial native grasses, forbs and shrub community adapted to the site (Benson, personal communication).

Response

The discussion in the revised draft indicates: "this habitat would be subject to mitigation via avoidance and impact minimization" in the following sentence.

Comments

L-0050/009

Page 4.74, Table 4.15. Birds of Conservation Concern should also include [both the] sage thrasher and grasshopper sparrow (USFWS 2002). Additionally, an analysis of population trends using the Breeding Bird Survey (BBS) identified 8 shrub-steppe associated species that are declining in the interior Columbia River Basin (including Brewer's sparrow, lark sparrow, loggerhead shrike, and western meadowlark). (Saab and Rich, 1997).

Response

Surveys were also conducted in Spring 2003. Results of these surveys are presented in Volume II Appendix I.

Comments

L-0054/015

Finally, USDOE failed to address environmental injustices associated with the proposed action, which disproportionately impacts the culture of the Yakama Nation's people and their subsistence life-way. No other population is as severely impacted as Native Americans by this proposed action.

Response

Environmental justice is concerned with assessment of disproportionate distribution of adverse impacts of an action among minority and low-income populations that is substantially greater than that experienced by the rest of the population. Adverse impacts are defined as negative changes to the existing conditions in the natural environment (for example, land, air, water, wildlife, vegetation) or in the human environment (for example, employment, health, land use). Executive Order 12898 further directed federal agencies to consider effects to "populations with differential patterns of subsistence consumption of fish and wildlife". (DOE 1997a).

The results of the environmental justice analysis are presented in Volume I Section 5.13. Cultural impacts are presented in Volume I Section 5.7 and Volume II Appendix K. Ecological impacts are presented in Volume I Section 5.5 and Volume II Appendix I. Aesthetic and scenic resources are presented in Volume I Section 5.12. Cumulative impacts are presented in Volume I Section 5.14. Human health impacts are presented in Volume I Section 5.11 and Volume II Appendix F.

Comments

L-0033/006

Revise the analysis to state the contamination to the soil at the edge of the storage trenches[.]

Response

All contaminated areas may be susceptible to contamination migration and are surveyed at least annually to document the current radiological status. Contaminated soil and/or vegetation is removed if possible. Surface contamination is discussed in Volume I Section 4.2.2. Details regarding surface contamination are documented in the Hanford Site Environmental Report 2001 (Poston et al. 2002).

Comments

L-0044/060

The groundwater quality description associated with LLWMA 3 states: "EPA, Ecology, and DOE have an integrated groundwater monitoring well network for the Central Plateau. This includes new wells to be installed for the LLBGs." The statement is not correct. At present, there is no "integrated groundwater monitoring well network for the Central Plateau" which addresses the LLBG groundwater monitoring network and program deficiencies.

TPO-0015/007

Also, if we're creating half a million year waste, we need half a million years of monitoring. We made this mess, we need to monitor it; we need to make it safe and store it safely. We don't need to just move it around and move it around and move it around.

Response

DOE maintains an extensive radiological and hazardous chemical monitoring network for groundwater, surface water, air, and biological resources. The results of these analyses are summarized in the annual Hanford Site Environmental Report (Poston et al. 2002) and the annual Groundwater Monitoring Report (Hartman et al. 2002).

Volume I Section 4.5.3.3 has been revised to provide additional information on groundwater monitoring.

Comments

E-0014/002

Moreover, we have cousins, who grew up downwind of Hanford during the green run, dying of thyroid cancer

P-0171/001

So we must be careful of nuclear waste or whatever.

Response

DOE maintains extensive programs to protect the environment and limit releases of radionuclides to levels consistent with public health and safety.

Comments

L-0041/034

None of the alternatives considered includes a surface barrier capable of containing a three-year maximum rainfall without releasing water to the subsurface. The Hanford Prototype Barrier is able to contain such events. The modified Resource Conservation and Recovery Act (RCRA) C barrier has less water holding capacity and is not able to contain these events. This potentially increases the likelihood that the barrier will become saturated and release relatively large amounts of water to the subsurface.

L-0041/061

Following establishment of siting criteria, and investigation of potential sites, DOE should construct geo-technical test pads that represent proposed capping and lining systems to verify their constructability and performance in the Hanford environment. It has been previously noted that the modified RCRA Type "C" cover is inadequate to store the moisture volume that would infiltrate from a 5-year storm. This inadequacy drives the need to develop a robust cover that can withstand the anticipated meteorological variabilities of the Hanford site. Establishing and testing the proposed cover at the field scale should be a key "go, no-go" decision for the permitting of a MLLW or citing a LLW disposal facility due to the numerical model's dependence upon 0.01 cm/year of infiltration through the vadose zone. Additionally, the waste cover design should include specific consideration for drainage of excess water to controlled points that preclude it impacting wastes. Such drainage systems might include deep drains into the subsurface to route water past all waste disposals.

Response

Both the Hanford barrier and the modified RCRA Subtitle C barrier contain an asphalt layer that would divert water to the sides of the barrier in the event of a large rainfall event. The Prototype Barrier Treatability Test Report (DOE-RL 1999a) indicates the following regarding a 0.15-m Asphaltic Concrete Coated with Fluid-Applied Asphalt: Essentially no drainage of water through the barrier silt-loam layers was observed under ambient and extreme (3 times normal precipitation including 1,000-year storms) precipitation conditions. The upper silt-loam layers and capillary barrier functioned to effectively store precipitation for subsequent removal by evapotranspiration, thereby preventing drainage. As expected, drainage did occur for the gravel and riprap side slopes, but was effectively diverted by the sloped asphalt layer. No change in water content or drainage was observed under the asphalt layer except at its very edge.

Comments

F-0015/005, TSE-0014/005

Accidents, fires and earthquakes will release plutonium, chemical, and radioactive wastes[.]

THR-0003/003

Another concern I have is fire, as far as this radioactive waste is concerned, what are the fire hazards. I have no idea at this point.

Response

The impacts of reasonably foreseeable accidents, including fires and earthquakes, are discussed in Volume I Section 5.11. The DOE defines "design basis" as the set of requirements that bound the design of systems, structures, and components within its facilities. Design requirements include consideration of safety, efficiency, reliability, and maintainability. Some aspects of the design basis are important to safety, although others are not. Design basis accidents (DBAs) are used in DOE safety analyses to provide the design parameters for release barriers and mitigating systems. The major categories of DBAs are internally initiated operational accidents (e.g., fires, explosions, spills, criticality); natural phenomena events for the site (e.g., earthquakes, tornadoes) that could affect the facility; and externally initiated, man-made events such as airplane crashes, transportation accidents, adjacent facility events, etc., that can either cause releases at the facility under examination or have a major impact on facility operations. The DOE also evaluates "beyond"

DBAs to provide additional perspective. The insight from beyond DBA analyses has the potential for identifying additional facility features that could prevent or reduce severe beyond DBA consequences. In evaluations of beyond DBAs, it is understood that as frequencies become very low, little or no meaningful insight is attained. Operational beyond DBAs are operational accidents with more severe conditions or equipment failures than are estimated for the corresponding DBA. Natural phenomena beyond DBAs are defined by the frequency of the natural phenomenon event itself (i.e., frequency of occurrence less than DBA frequency of occurrence). Beyond DBAs are not evaluated for external events.

Comments

L-0033/008

...install legal groundwater monitoring and leachate collection[.]

L-0055/014

This analysis is in part incomplete without a better analysis [of] subsurface hydrologic characteristics to determine the best location for these disposal cells. Instead the current analysis in the HSWEIS justifies a weaker less protective design because of in part already existing ground water contamination and uncertainties associated with climatic assumptions. This is troubling in that DOE has only relatively recently began open discussions of options for ground water remediation.

L-0055/028

The proposed facilities are inadequately designed to prevent the release into the soil and ground water and are not designed for contingencies to allow for identification, retrieval, and removal. Without these attributes incorporated into the design of all alternatives this action essentially identifies that certain resources at the Hanford site are sacrificed as irretrievable and the effects of the decision are irreversible.

L-0057/001

I find it irresponsible for my governmental agencies to use my taxes to bury hazardous chemical and radioactive wastes - in unlined trenches - near a major waterway.

TPO-0024/002

Throw this EIS out. It's a joke. This stuff has to be contained...When we can leave the stuff where it is, take the time to really find out how to treat it and contain it, to characterize it, to have it be retrievable if it's leaking somewhere. Do it right.

Response

Federal RCRA Subtitle C and related state hazardous waste management regulations require that radioactive mixed waste land disposal units meet minimum technical standards to prevent the release of hazardous substances. The standards include a system of multiple liners to prevent leakage into groundwater, a leachate collection system, groundwater monitoring wells, a multi-layer cap to prevent infiltration of rain and snow, stringent waste treatment standards, and a program of monitoring, inspection, and reporting during the period of operation and after closure. These standards will apply to all new mixed waste disposal units evaluated in the HSW EIS. Volume I Section 2.2.3 discusses disposal facilities and their environmental protection features.

The preferred alternative as described in Volume I Section 3.7 is to dispose of low level waste in newly constructed lined disposal facilities as soon as they are available. For purposes of analysis the HSW EIS assumes this would occur by 2007. MLLW is currently being, and will continue to be, disposed of in lined facilities.

However, the use of unlined trenches for disposal of low level waste is an established, legal, and environmentally protective method of low level waste disposal at both DOE and commercial facilities. As such, it is a reasonable alternative, under CEQ regulations, and must be analyzed. The HSW EIS considers a wide range of alternatives for disposal of low level waste in both lined and unlined facilities. Lined trench alternatives include leak detection and leachate collection capabilities. In addition, groundwater monitoring would be done in compliance with applicable RCRA and State hazardous waste, TPA, and DOE requirements to validate the performance of the disposal facilities.

Groundwater monitoring is conducted according to TPA requirements, the Hanford Dangerous Waste Management permit, and DOE Orders. Groundwater monitoring will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations.

Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. The CERCLA process considers legally applicable Federal, State, and local laws or relevant and appropriate requirements (ARARs). Any decisions reached by DOE on the basis of analysis in the HSW EIS would be implemented in accordance with applicable Federal, State, and local laws and regulations. See Volume II Appendix N, Section N.2.4.

Comments

L-0044/093

Sec. 2.2.2, pp.2.16 ff The status of the Proposed Modified Treatment Facility: Mobile TRU Processing Facility (Box, p. 2.19) vis-à-vis the EIS is confusing. Other boxed items in the section are included in the analysis, but apparently the APLs are not?

Response

The "Advanced Process Lines" as discussed in the text box on Volume I Section 2 page 2.19 is synonymous with the term "Mobile TRU Processing Facilities." APLs are analyzed as part of Alternative Group B. The text has been revised to more clearly indicate this.

Comments

TPO-0015/004

Regarding this EIS, a 60-year liner is a joke, you know. And that's before the earthquake.

TPO-0015/006

The caps on the trenches also are a joke. They are dangerous cover-ups. Let's call them what they are. And the waste should be classified and retrievable if they start leaking.

Response

Liners and Caps (barriers) are established components of the RCRA hazardous waste disposal program and CERCLA/MTCA cleanup programs. Liners are relied upon primarily during the operational time period. Caps are designed to provide long term protection after closure.

Comments

TSE-0027/008

The problems of liners and caps are legendary and they are discussed in the DEIS. Water in and around the trenches need to be collected and treated.

Response

Liners and Caps (barriers) are established components of the RCRA hazardous waste disposal program and CERCLA/MTCA cleanup programs. Liners are relied upon primarily during the operational time period. Caps are designed to provide long term protection after closure.

The HSW EIS barrier performance analysis takes into account degradation of the modified RCRA Subtitle C barrier. No guidance is available for specifying barrier performance after the design life. However, it is likely that this specific barrier will perform as designed far beyond its design life. The modified RCRA Subtitle C barrier (see Volume I Section 2.2 for description of this barrier) has a design life of 500 years in the absence of any active institutional controls or maintenance 100 years after closure. The starting infiltration rate used in the release modeling begins at 0.01 cm/yr, after which the assumed rate increases in five steps over 500 years after the start of cover degradation (See Volume II Figure G.3). After 500 years of degradation, the infiltration rate used in the release modeling is assumed to be equivalent to the rate used to represent recharge for the natural surrounding environment (0.5 cm/yr). This rate was used during the remaining 9,000 years of this assessment. Groundwater impacts based on these assumptions are in Volume I Section 5.3 and Volume II Appendix G. A sensitivity analysis was also performed that assumed the cap would be maintained beyond 100 years after closure. Groundwater impacts from this sensitivity analysis are in Volume II Appendix G Section G.4.

Comments

E-0012/006

[Stop] burying radioactive waste in unlined soil trenches - period.

E-0014/001

Both the Department of Energy and its various contractors have shown themselves unwilling or unable to prevent nuclear waste leaking into the soil and thence into the Columbia River.

E-0014/004

We also understand this nuclear waste will be put in 'unlined trenches'. That's a fancy term for digging a hole and pouring it in! It would be illegal for us to do that with household waste. Again, we don't think the government should be allowed to do it.

E-0043/013, EM-0217/013, EM-0218/013, L-0056/013, LM-0017/013, LM-0018/013

All action alternatives continue disposing MLLW in unlined trenches until they are completely filled before even beginning construction of new disposal facilities. The continued use of unlined trenches cannot reasonably be considered as an option since disposing of MLLW in unlined trenches is illegal.

E-0043/054, EM-0217/054, EM-0218/054, L-0056/054, LM-0017/054, LM-0018/054

The disposal of MLLW in unlined trenches should cease immediately. Alternatives that assume no further disposal in unlined trenches are needed. Unlined trenches are a major contributing source of pollution to the Hanford Reach. One could not legally dispose of kitchen garbage in unlined trenches.

E-0048/004

When disposal trenches will be lined and monitored is not clearly specified. No more radioactive waste should be put into unlined trenches. The current EIS would allow unlined trenches to continue.

E-0050/009

Although the EIS contains alternatives that provide for lining and monitoring burial trenches, it provides no timeline for implementing these actions. Burial of waste in unlined trenches should be stopped as soon as possible, by the end of 2003 at the very latest.

E-0055/001

You and I can not dump our kitchen garbage in unlined soil trenches, it is illegal. Our local governments can not dump our municipal garbage in unlined soil trenches, it is illegal. USDOE must immediately stop dumping deadly radioactive wastes – which it has frequently allowed to illegally contain hazardous and toxic wastes – in Hanford's massive unlined trenches. These trenches are typically over 1,000 feet long. They are contaminating ground water and will continue to do so. They contain wastes with unknown hazardous substances, subjecting the burial grounds to state and federal hazardous waste laws. Yet, USDOE has illegally expanded trenches and added new ones since state law forbade expanding or building new unlined soil disposal trenches over a decade ago.

Facilities

We call for USDOE to end dumping in unlined trenches by December, 31, 2003. It can and must be done. USDOE proposes, on the contrary, to keep using unlined soil trenches indefinitely and to formally designate Hanford as a national radioactive waste dump after issuing a final version of this EIS.

E-0055/016

Heart of America Northwest Research Center has embarked on an extensive, detailed "cross-site comparison of USDOE's low-level waste landfills and alternatives", which conclusively shows that, amongst USDOE's landfill alternatives, the least environmental impact occurs if USDOE's offsite Environmental Restoration Program wastes are disposed in a lined, regulated landfill in Utah. That landfill, in Clive, Utah, operated by "Envirocare of Utah", has never released waste, has leachate collection systems and both ground water and soil column (vadose zone) monitoring that far exceed USDOE's low-level burial grounds, and is not located above drinkable ground water. Disposal charges at the Envirocare site include, as a permit condition, the costs of long-term monitoring and closure.

F-0002/003

Ban unlined trenches of waste at Hanford[.]

F-0011/005

Burying nuclear waste in unlined trenches anywhere, particularly next to the Columbia River is a horrifyingly dangerous idea which DOE refuses to recognize.

F-0014/001

Unlined trenches for radioactive waste is an unsound idea with frightening environmental effects, particularly considering the longevity of radioactive compounds.

F-0021/004

To that end, dumping waste in unlined trenches is unacceptable[.]

F-0022/004

[I want to see in the EIS a] study of the effects for not lining the dump sites according to the highest standards of safety that we in and around the Hanford facility deserve and demand!

F-0025/005

There are no plans in place to line and monitor the trenches.

F-0027/002

...all waste [trenches] should be LINED. We believe this is a PRIORITY!

F-0029/002

However, the current EIS is inadequate. It does not give a commitment to end the DOE's use of unlined trenches to store radioactive wastes (which the DOE is currently doing despite the fact this is illegal and goes against the commitment of DOE staff to end this practice).

F-0030/002

Where are the guarantees to NOT use unlined trenches?

L-0007/002

I understand that the plan even proposes dumping this new waste into unlined trenches; if this is true, the irresponsibility of such a proposal is truly spectacular.

L-0017/005

The continued use of unlined burial grounds for radioactive waste is unacceptable. We recommend that the use of unlined trenches cease by the end of 2003.

Facilities

L-0018/003, TSE-0001/003

This Draft EIS fails to clarify one major uncertainty; the date at which the Department of Energy will stop the unacceptable practice of dumping radioactive wastes in unlined soil trenches. I am working with my colleagues in Congress to require the burial of all new radioactive wastes in lined facilities, and I encourage the DOE to implement such a requirement at the earliest date possible.

Lined landfills with leachate collection and monitoring would prevent the leakage and contamination of groundwater that has been documented by Washington State to have occurred at Hanford's Low-Level Burial Grounds while they remain open. This is why all other landfills in our state and nation are required to have liners, leachate collection and monitoring. I believe that the same standard should be met by the U.S. Department of Energy.

Based on press accounts I have seen and statements by DOE officials, it is my understanding that while the Department recognizes the importance of putting all wastes in lined facilities, this Draft EIS does not contemplate doing so until years into the future. I believe this is unacceptable. In today's day and age, there is no reason we should be dumping radioactive wastes in unlined landfills, particularly at Hanford where history has demonstrated that what we put in the ground often ends up in the Columbia River.

L-0018/005, TSE-0001/005

In addition to protecting the Columbia River and the public from possible harmful exposure to radiation, insisting on lined facilities will also save taxpayers dollars. There is no question that we will eventually dig up all wastes in unlined soil trenches and transfer them to more stable lined facilities. Making the modest and clearly needed investment now will save taxpayer dollars in the long term.

L-0019/003, TSE-0002/003

Lack of a timeline to cease burial in unlined trenches [is a an open issue in the revised draft.]

L-0021/005, TSE-0015/005

There are 1,400 waste sites at Hanford, typified by rusty barrels and unlined trenches. It would be illegal for me to store my household garbage in such a manner, yet the Department of Energy continually ignores the law and stores extremely radioactive wastes directly on the ground. Already, an estimated one million gallons of high-level radioactive waste have leaked into the soil. Plumes of contaminants have reached the groundwater. Since USDOE will not voluntarily even consider stopping its dumping of waste in unlined soil trenches this year, we are pleased that Representative Inslee and others are introducing legislation to accomplish this long overdue compliance with standards.

L-0027/002

Unlined trenches provide no protection from soil and groundwater contamination. Contaminated groundwater would flow into the Columbia River for thousands of years! Birth defects and cancer would be our legacy to countless future generations in the Columbia Basin and beyond.

L-0030/004

The waste dump at Hanford must be made safe with proper lining and further dumping must not occur.

L-0033/007

...line the trenches[.]

L-0033/011

DOE has a legal responsibility to treat contaminated soils at Hanford by 2018, but proposes to bury waste in unlined trenches through at least 2046. Once again, your credibility is suspect.

L-0035/005

...shut down the unlined god-awful trenches.

Facilities

L-0037/003

Also stop burying radioactive wastes in unlined trenches immediately.

L-0041/018

In the HSW-EIS, DOE's preferred alternative includes waste disposal in lined trenches. Oregon supports the use of lined trenches and encourages DOE to discontinue any further disposal of LLW in unlined trenches.

L-0051/002

[I am asking you and DOE] not to bury waste in unlined trenches there [Hanford].

L-0051/004

Then about the unlined soil trenches; its hard to believe this is still being done, even for the short-term. It doesn't seem to be in line with DOE's promises to clean up Hanford. Apparently there is some provision in DOE's Solid Waste EIS revision to line these trenches by the end of this year; this seems like the very least that could be done.

L-0057/006

Please develop a timeline for the alternatives to line and monitor the burial trenches.

P-0023/003

[Please] end Radioactive waste disposal in unlined soil ditches.

P-0029/001

I am concerned that radioactive material already at Hanford is not being adequately contained. I am concerned that material is leaching into the Columbia River and ground water.

P-0033/002

We must end Radioactive waste DISPOSAL IN UNLINED SOIL DITCHES.

P-0075/002

End radioactive waste disposal in unlined soil ditches.

P-0101/001

How can you possibly even consider putting radioactive waste in unlined pits - especially so near the Columbia river!!!!!!!

P-0101/002

You [the federal government] are betraying the public [with unlined pits that are UNSAFE].

P-0109/002

Please end all radioactive waste disposal in unlined soil ditches!

P-0127/002

I understand waste is going into unlined tanks/trenches. Please stop this practice.

P-0148/001

I request you immediately stop burying radioactive waste in unlined soil trenches.

P-0149/002

Please also line the inadequate burial trenches during this current year! 2003.

THR-0002/002

Number two, disposal practices. DOE, the Solid Waste EIS proposes to continue dumping low-level waste in unlined dirt ditches. And that's the way DOE has been doing it for the last 40, 50 years.

Facilities

THR-0002/003

DOE does not have a plan in this EIS to line and monitor all the burial grounds at Hanford, which should be in this EIS.

THR-0005/006

Why is the mixed low-level waste disposal going into a trench? The plan is that[?]

TLG-0008/001

The idea of lining the trenches is certainly a big advance, especially from professional scientists. It seems to at least indicate that we've left the primitive stages behind. It seems to me that given the geology of that part of the world, it really is one of the solutions. So thank you for that.

TPO-0019/002

Despite the Department of Energy's revisions, I still have concerns regarding the use of unlined soil trenches for unspecified periods of time.

TPO-0020/001

And people say the Hanford area, I don't know if many people know across the river, right across the river, at White Bluffs, that's where Chief Joseph hid. And that's all Native American. And that whole land, all that area in there was the Native American ceded grounds. I mean, they used to go do their gathering there. I mean, I hear "Just put it -- dig the trenches. Put the stuff in the lined trenches." And it's business as usual.

TRI-0001/007

Under the new alternatives sadly the revised draft predicts an increase in waste import to one million cubic feet a year, which is approximately enough to cover a football field 65 feet deep per year. And we do not have any commitment made at the outset of this EIS, which we expected to see clearly made, that the Department of Energy would end dumping in unlined burial grounds as soon as feasible. Instead we have alternatives as just mentioned in the question period that extends the timeline for continuing to use these illegal burial grounds.

TSE-0003/008, TSE-0004/008, TSE-0005/008, TSE-0006/008, TSE-0007/008

Line all the low-level waste grounds. Ensure they are safe for all time[.]

TSE-0009/002

I request that you withdraw this EIS and that you shut down the unlined soil trenches, stop dumping in unlinec trenches, period.

TSE-0010/006

The unlined soil ditches cannot be a destination for radioactive waste. Real leachate collection must be in place now.

TSE-0013/001

I first would like to concur with Congressman Inslee's read statement and his interest in prohibiting any more waste put in unlined trenches.

TSE-0019/002

And the Department of Energy also needs to shut down the unlined burial grounds at Hanford immediately.

TSE-0026/002

Lined landfills, groundwater monitoring and leachate collection are clearly the minimum necessary to begin to cope with the existing contamination, let alone any additional waste.

TSE-0030/004

And of course the use of unlined burial grounds is unacceptable, and that should be halted by the end of this year.

Facilities

TSP-0003/004

It's obviously absurd to have unlined trenches. It's absurd to be dumping waste at all.

TSP-0011/003

I did also, I was impressed by the fire last summer. 400 yards. And we are being told that we can have modern unlined ditches? It's absurd.

Response

The preferred alternative as described in Volume I Section 3.7 is to dispose of low level waste in newly constructed lined disposal facilities as soon as they are available. For purposes of analysis the HSW EIS assumes this would occur by 2007. MLLW is currently being, and will continue to be, disposed of in lined facilities.

However, the use of unlined trenches for disposal of low level waste is an established, legal, and environmentally protective method of low level waste disposal at both DOE and commercial facilities. As such, it is a reasonable alternative, under CEQ regulations, and must be analyzed. The HSW EIS considers a wide range of alternatives for disposal of low level waste in both lined and unlined facilities. Lined trench alternatives include leak detection and leachate collection capabilities. In addition, groundwater monitoring would be done in compliance with applicable RCRA and State hazardous waste, TPA, and DOE requirements to validate the performance of the disposal facilities.

Comments

L-0041/056

In the preferred alternative, as described on page 3-60 [of the revised draft HSW EIS], Oregon concurs that all future facilities must meet more stringent design standards than the present unlined LLW design standards. Oregon suggests that DOE incorporate various components to provide redundant features to sequester contaminants. These components include:

a) Meet RCRA Land Disposal Restrictions, meet Universal Treatment Standards, treat to immobilize waste, and reduce the source terms.

b) Disposal features should include reactive barriers within the liner system, providing sequestering agents (zeolites, phosphates, or proprietary agents) in the cushion layer. Additionally, DOE should consider providing bulk treatments to reduce the leachability of the buried waste. The leachate collection system should include a leak detection system to determine the source of the leachate to indicate potential leak source and to suggest potential solutions.

c) Closure features should include modified cap designs to provide engineered failure components to enhance future performance in the event of failure. These features could include aggregates that decompose to clays, amendments that mobilize and react with deeper materials, use of self-healing natural materials, and air-voids to inhibit deep root growth.

d) Monitoring requirements should be clearly established in the ROD to define essential components for monitoring the vadose zone and aquifer beneath each disposal site. Monitoring should incorporate a full range of potential technologies, including sensors that would be installed during construction such as time domain reflectometry waveguides, neutron probes, and electrical resistivity tomography pairs. Groundwater wells should be constructed using both single and multiple screening levels to allow for vertical segregation.

Response

Federal RCRA Subtitle C and related state hazardous waste management regulations require that radioactive and hazardous mixed waste land disposal units meet minimum technical standards to prevent releases. The standards include a system of multiple liners to prevent leakage into groundwater, a leachate collection system, groundwater monitoring wells, a multi-layer cap to prevent infiltration of rain and snow, stringent waste treatment standards, and a program of monitoring, inspection, and reporting during the period of operation and after closure. These standards will apply to all new mixed waste disposal units evaluated in the HSW EIS. The RCRA Subtitle C regulations are not applicable to radioactive wastes that do not exhibit hazardous waste characteristics or contain listed hazardous waste, and RCRA standards are not applicable to LLW land disposal units. Although disposal of low level waste in unlined trenches is an established, legal, and environmentally protective disposal method, the preferred alternative includes the use of Hanford LLW disposal unit designs that have essentially the same engineering controls as RCRA mixed waste disposal units (liners, leachate collection, and caps). Volume I Section 2.2.3 discusses disposal facilities and their environmental protection features as evaluated in this EIS. As permitting and design work on the selective alternative is conducted, DOE may consider enhancing these facility designs. For example, permeable reactive barriers are discussed in Volume II Appendix D Section D.4.

Comments

TSP-0012/002

30 year liners for millions of years of by-product. That's just asinine. Excuse my language. But how can anybody possibly think that a 30 year liner is going to do any good?

Response

The purpose of a liner is to minimize the waste getting to the groundwater while the trench is open. Once the trench is closed, groundwater mitigation is provided by a cap consisting of various layers of materials that is designed to minimize the amount of infiltration and intrusion.

Comments

L-0044/095

CRD, p. 3.87 Original comment #51 stresses the need to look at T Plant as a TSD and to identify what mods to T Plant are anticipated. DOE's response refers the reader to Section 2.2.2; however, that sections doesn't provide much in detail.

Response

Further details on T Plant modifications can be found in the Technical Information Document (FH 2003). Design, at this time, is at a preconceptual stage. Conceptual modifications are primarily in-canyon installation of equipment.

Comments

E-0043/065, EM-0217/065, EM-0218/065, L-0056/065, LM-0017/065, LM-0018/065

What are soil fixants and what are the potential short and long-term hazards and/or risks associated with fixants? What specific fixants is DOE considering? Any hazards and/or risks associated with fixants should be included within this HSW EIS.

Response

DOE expects to use soil fixants to minimize dust generated during construction activities, waste disposal, and final closure activities. Soil fixants used to accomplish these tasks are expected to be water or other non-regulated substances suitable for spray application. Prior to initiating work, manufacturer's descriptive literature describing product components and application instructions shall be submitted for approval and must meet technical specifications for earthwork and excavated material handling at the Hanford Site.

Comments

L-0055/063

DOE's preferred alternative is the disposal of LLW, MLLW, and ILAW in a single, lined facility at the Central Plateau. If all of these wastes are in one trench, this may interfere with retrieval operations. It would be difficult to retrieve one type of waste and not disturb the others once the site is buried. It would also be difficult to determine where leakage or compromised containers are located. Could leakage or a degraded container located next to others have an influence on adjacent waste types? The CTUIR believes the "lined" trench is a good option but this disposal in a lined, retrievable process should be accelerated.

Response

During final design a combined-use disposal facility could be configured in numerous ways. Different waste types could be disposed of in separate cells within a combined-use disposal facility, or different waste types could be disposed of in the same cell (commingled). Little interaction between the different waste types is anticipated because MLLW, LAW, and the melters would meet applicable regulatory requirements for disposal. In addition, all waste types would need to meet the waste acceptance criteria for that disposal facility. The separate cells could be permitted under RCRA where appropriate, or the entire facility could be operated under a single regulatory program (See Volume I Sections 3.1.5 and 3.1.6).

Comments

E-0035/001

What I have read about the dumping of 70,000 truckloads of radioactive and hazardous waste in unlined soil trenches at Hanford concerns me deeply. Of special concern is a lack of possible alternatives with associated cost and benefits analysis. I am already concerned about the potential ground water contamination of the Columbia River from the existing conditions at Hanford. The current waste plan raises the possibility of this potential problem of contamination almost to a certainty, maybe not in my lifetime, maybe not in yours, but surely during my children or their children's lives.

Response

The HSW EIS considers a wide range of alternatives for disposal of low level waste in both lined and unlined facilities. Lined trench alternatives include leak detection and leachate collection capabilities. In addition, groundwater monitoring would be done in compliance with applicable RCRA and State hazardous waste, TPA, and DOE requirements to validate the performance of the disposal facilities. The preferred alternative is to dispose of low level waste in newly constructed lined disposal facilities as soon as they are available. For purposes of analysis the HSW EIS assumes this would occur by 2007. MLLW is currently being, and will continue to be, disposed of in lined facilities. The EIS includes discussion of the cumulative effects of past, present, and reasonably foreseeable actions. See Volume I Section 5.14 and Volume II Appendix L.

The HSW EIS estimates that up to 33,900 shipments of LLW, MLLW, and TRU waste could be shipped to Hanford if the upper bound waste volumes are realized. The actual number of shipments is expected to be less than this.

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

Comments

L-0014/009, L-0022/009

The potential disposal of low level and mixed waste in the chemical processing canyons is supported, provided that engineering studies and environmental analyses support the validity of this concept.

Response

Information about the canyon facility disposal initiative can be found in Volume I Section 3.2.3.

Comments

L-0041/059

DOE should consider siting new waste disposal facilities in areas that already contain vadose zone contamination. The clean excavated surface soils can be stockpiled for future caps use. The contaminated soils can be segregated into lightly contaminated soils for daily cover and more contaminated soils requiring remediation and stabilization. A strategy that uses contaminated areas will help minimize long-term impacts on the environment.

Response

Use of contaminated soil may involve problems with worker safety and containment of radioactive contamination. Some new waste disposal facilities analyzed in this EIS, would be sited in other areas of the industrial-exclusive zone, set forth in the Hanford Comprehensive Land Use Plan EIS.

Comments

L-0044/129

The RHSW EIS does not include analyses of significant adverse environmental impacts that may result from operation of facilities needed for characterization, processing, treating, and storing TRU and TRU-M.

L-0055/061

Key facilities necessary to treat waste have not been built and interim storage is a crucial management option often reflected in this decision document. Some of the most important topics have been incorporated into sections on controversial issues or uncertainties.

Response

The completion of this HSW EIS is one of the major steps needed in obtaining the required processing and certification capabilities for RH TRU waste. The impact of storing, processing, and certifying TRU waste (including mixed TRU waste) is analyzed in the HSW EIS. See Volume I Section 5 and associated Volume II appendices.

An expanded discussion of uncertainties associated with the HSW EIS impact analyses is included in Volume I Section 3.5.

Comments

L-0034/004

USDOE says the imported RH TRU will eventually be shipped to the Waste Isolation Pilot Plant (WIPP) in New Mexico. However, the SWEIS notes that the capacity to process, certify, and ship RH TRU to WIPP is not available anywhere, and would require new facilities and processing operations at Hanford. It also notes that DOE's hazardous waste permit for WIPP, issued by the state of New Mexico Environment Department, currently authorizes neither the disposal of RH TRU nor TRU commingled with PCBs.

Facilities

TSP-0006/002

I feel that the EIS does not adequately consider proper facilities, buildings, and being in place. The liners for the ditches, they are not ready, and they have already started, have been transferring in the transuranic waste.

Response

The completion of this HSW EIS is one of the major steps needed in obtaining the required processing and certification capabilities for RH TRU waste. The impact of storing, processing, and certifying TRU waste (including mixed TRU waste) is analyzed in the HSW EIS. See Volume I Section 5 and associated Volume II appendices.

EPA authorization to dispose of RH-TRU waste at WIPP is pending. Approval of the permit by New Mexico Environment Department is expected in the FY 2006 timeframe.

EPA has granted WIPP authorization to dispose of polychlorinated biphenyls (PCBs). In March 2002, WIPP applied for changes to its permit to allow it to dispose of waste containing PCBs. Approval of the permit revision by the New Mexico Environment Department is pending. Based on the assumption that the changes will be accepted, PCB treatment would not be required. See Volume I, Section 2.1.3.

These TRU wastes are not expected to be stored onsite for an extended period of time. However, they are expected to be stored above ground at the Central Waste Complex and T Plant and (in the case of remote handled, non-mixed TRU waste) underground in concrete boxes so that they will have no contact with the soil. The storage of these wastes will be monitored in compliance with applicable RCRA, State of Washington dangerous waste regulations, and/or DOE requirements.

Comments

L-0014/008, L-0022/008

Funding must be provided for the cost of facilities to perform these functions [importation of TRU wastes from other DOE sites for repackaging, certification, and storage prior to shipment offsite for disposal] and the related operational costs.

L-0014/010, L-0022/010

If new or expanded facilities for the repacking and certification of both low level and mixed wastes are needed at Hanford, they should be provided as expeditiously as possible. Provisions must be made in DOE planning for long-term stewardship of the site through some process other than annual appropriations, such as trust funds, tipping fees, or other sources of protected funding.

Response

Volume I Section 2.2 describes existing and proposed facilities for each alternative group. Consolidated cost estimates for the continued operation of existing facilities, the modification of existing facilities, construction of new facilities, and operation of the new or modified facilities are summarized in Volume I Table 3.21.

DOE requests funds from Congress based on its cleanup schedules.

Comments

TSP-0016/002

But I would just like the Department of Energy to think about cumulative risk and think about that Hanford is the most contaminated site, and I think we have taken our just and more than equitable share of the waste, and there's going to be huge impacts to my children and grandchildren, and I think that the DOE needs to take that into consideration and leave the waste that it wants to bring here in other places, safe and contained, but not risk more communities along the way by transporting it to Hanford.

Response

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4. See Volume III Section 2.0, Item 6 of the CRD for more examples of cleanup at Hanford.

DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS (DOE 1997b) decisions regarding certain TRU waste, LLW, and MLLW streams. Site-specific waste management actions at Hanford involve transportation,

General

treatment and processing of TRU waste and MLLW, disposal of LLW, MLLW and ILAW, and storage of LLW, MLLW, and TRU waste. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

The WM PEIS was a comprehensive evaluation of DOE nationwide waste management. The WM PEIS evaluated a broad suite of alternatives for waste management across the DOE complex, including managing most waste at generator facilities, or consolidating waste management at fewer sites that have existing facilities suitable to accept waste from other facilities. The impacts of those alternatives were compared for a variety of waste volumes at different DOE sites, including larger quantities of waste than are evaluated in the HSW EIS. The general result of the WM PEIS was that radioactive and hazardous wastes generated at a DOE site should be disposed of at that site unless the site was not capable of or not technically able to support those actions. DOE determined there was sufficient information in the WM PEIS to support decisions regarding the sites that were suitable for long-term waste management missions. Those decisions included processing and disposing of Hanford waste at Hanford, and the importation of wastes from other sites that could not adequately handle them. Decisions made as part of the WM PEIS made Hanford available for the disposal of low-level waste and mixed low-level waste from other DOE generators. The initial WM PEIS decisions related to LLW, MLLW, and TRU waste were issued between January 1998 and February 2000.

DOE's radioactive waste will continue to be disposed of in several states around the country where there are existing DOE and commercial disposal facilities. See Volume I, Figure 1.2.

In response to public comments, DOE has conducted a route- and generator-specific offsite transportation analysis using updated highway routing and 2000 census data. See Volume I Section 5.8 and Volume II Appendix H. The potential impacts identified in the updated evaluation are similar to those presented in the WM PEIS (DOE 1997b) and the WIPP SEIS-II (DOE 1997c), and would not change conclusions or DOE-wide waste management decisions based on those studies.

The total amount of radioactivity expected to leave Hanford is much greater than the amount of radioactivity expected to come to Hanford. About 400 MCi of radioactivity are currently onsite. About 375 MCi are expected to be shipped to the Waste Isolation Pilot Plant in New Mexico, the geologic repository for spent nuclear fuel and high-level waste proposed for Yucca Mountain in Nevada, and other places. Less than 10 MCi would be expected to come to Hanford even if all the offsite waste evaluated in this HSW EIS were to come to Hanford. See Volume I Section 1 Figure 1.4.

Comments

E-0055/004

USDOE tries to say the impacts to groundwater are not very bad from the landfills by:

1) modeling the impact to groundwater at a point far outside the fence line or away from the edge of the burial grounds - this is an illegal change in the point of compliance as advocated by the Bush Administration to relax standards;

2) failing to include the cumulative impact of the existing burial grounds, and USDOE's plan to do NOTHING to clean them up and clean up the groundwater under them, while modeling the impact of adding more waste in new mega trenches;

3) failing to close the unlined LLW burial grounds by the end of this year, to start the cleanup of the contamination spreading from these illegal burial grounds - and, allowing dumping in unlined trenches to continue at an accelerated pace for several years!

4) failing to install legally adequate groundwater and soil column monitoring around the burial grounds - which would require installation of over 120 new monitoring wells (USDOE uses the lack of data to crazily claim no impact, and then say this proves there won't be an impact from the new trenches. Most of the monitoring wells do not reach groundwater any more, and more go dry every year. You can't monitor groundwater without the well reaching the groundwater); using a model for contamination that leaves out some of the most mobile and dangerous radionuclides, and totally ignoring the hazardous wastes and their role mobilizing other contamination as solvents (these wastes include the powerful solvents that USDOE uses and used for Plutonium processing. Of course, they are really good at mobilizing Plutonium and other radionuclides in soil as well, which USDOE ignores. In fact, USDOE pretends that it has a good track record of keeping hazardous waste out of the Low-Level Burial Grounds);

5) failing to apply Washington State's standards for groundwater and for protection of public health from toxic waste sites, instead USDOE claims its new mega trenches and existing burial grounds are safe by substituting much weaker standards that allow for many times more cancer deaths than Washington state standards allow for landfills and toxic waste dumps;

6) ignoring the poisonous and carcinogenic Carbon Tetrachloride spreading from existing burial grounds, with release of vapors that are at levels which can be fatal. Carbon tetrachloride is present in the air in at least one of the Low-Level Burial Ground trenches, in an operating burial ground with open trenches just a few yards away, at levels that are nearly twice the lowest air concentrations known to be fatal to humans and 176 times the OSHA Permissible Exposure Limit for workers. USDOE fails to even propose to look for related chemicals that were disposed in the same places. USDOE ignores this in modeling impacts from its new massive mega trenches, as well as failing to disclose and consider the impacts from its existing trenches.

Response

The results of past activities and groundwater monitoring data cannot be used to predict future impacts of LLBG disposal activities. Models have been used in the HSW EIS evaluations to estimate potential future groundwater impacts.

The maximum point of impact from multiple and widely dispersed sources may not necessarily be directly underneath the Low Level Burial Grounds or at the Low Level Burial Ground boundary. To model the groundwater impacts from multiple and widely dispersed disposal units over long periods of time, a 1-km point of analysis location was deemed to be more appropriate and representative than a regulatory point of compliance well location, for purposes of NEPA analysis. The point of analysis approach is considered technically appropriate for a NEPA evaluation of groundwater impacts over the long-term (10,000 years) time period analyzed. The 1-km point of analysis is not intended to represent the proposed locations for actual monitoring wells that would be used during the operational and closure time period. Groundwater impacts at the facility boundary (about 100 meters) have been added to the impacts identified for the preferred alternative and are discussed qualitatively for the other alternatives. A discussion of the differences between the 1-km point of analysis and the disposal facility boundary is provided in Volume I Section 5.3 and Volume II Appendix G.

General

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

The preferred alternative as described in Volume I Section 3.7 is to dispose of low level waste in newly constructed lined disposal facilities as soon as they are available. For purposes of analysis the HSW EIS assumes this would occur by 2007. MLLW is currently being, and will continue to be, disposed of in lined facilities.

However, the use of unlined trenches for disposal of low level waste is an established, legal, and environmentally protective method of low level waste disposal at both DOE and commercial facilities. As such, it is a reasonable alternative, under CEQ regulations, and must be analyzed. The HSW EIS considers a wide range of alternatives for disposal of low level waste in both lined and unlined facilities. Lined trench alternatives include leak detection and leachate collection capabilities. In addition, groundwater monitoring would be done in compliance with applicable RCRA and State hazardous waste, TPA, and DOE requirements to validate the performance of the disposal facilities.

Groundwater monitoring is conducted according to TPA requirements, the Hanford Dangerous Waste Management permit, and DOE Orders. Groundwater monitoring will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations.

Hazardous chemicals in MLLW have been characterized and documented since the implementation of RCRA at DOE facilities beginning in 1987. MLLW currently in storage, and MLLW that may be received in the future, would be treated to applicable state or federal standards for land disposal. Therefore, disposal of that waste is not expected to present a hazard over the long term because the hazardous constituents would either be destroyed or stabilized by the treatment. Inventories of hazardous materials in stored and forecast waste are either very small, or consist of materials with low mobility. See Volume II Appendixes F and G.

Inventories of hazardous chemicals in waste were not generally maintained by industries in the United States prior to the implementation of RCRA. Consistent with these general practices, inventories of hazardous chemicals in radioactive waste were not required to be determined or documented before the application of RCRA to radioactive mixed waste at DOE facilities in late 1987. Wastes placed in the LLBGs before late 1987 have not been specifically characterized for hazardous chemical content, but they have been evaluated in the EIS alternatives relative to their radionuclide inventories. In addition, preliminary estimates of chemical inventories in this waste have been developed for analysis in the HSW EIS, and a summary of their potential impacts on groundwater has been added to Volume I Section 5.3 and Volume II Appendix G.

In addition, the October 23, 2003 Settlement Agreement contains proposed milestones in the M-91-03-01 Tri-Party Agreement Change Package for retrieval and characterization of suspect TRU waste retrievably stored in the Hanford LLBGs (United States of America and Ecology 2003). As part of that agreement, DOE will manage the retrievably stored LLBG waste under the following assumptions: (1) all retrievably stored suspect TRU waste in the LLBGs is potentially mixed waste; and (2) retrievably stored suspect TRU waste will be managed as mixed waste unless and until it is designated as non-mixed through the WAC 173-303 designation process.

Interactions among different types of waste that could potentially mobilize radionuclides have also been considered as part of the HSW EIS analysis. However, such interactions typically require specific chemical environments or large volumes of liquid as a mobilizing agent, neither of which are known to be present in the solid waste disposal facilities currently in use (see discussion in Volume II Appendix G). Possible effects of this type could be mitigated by selecting candidate disposal sites to avoid placing waste in locations where previous contamination exists.

Waste sites and residual soil contamination remaining at Hanford over the long term, and which are not specifically evaluated as part of the HSW EIS alternatives, have been evaluated previously as part of NEPA or CERCLA reviews. In those studies, the risks associated with older solid waste burials, tank waste residuals and leaks, and contaminated soil sites were found to be very small, even for alternatives that considered stabilization of the waste in place (DOE 1987, DOE and Ecology 1996, Bryce et al. 2002). Further evaluation of tank wastes is anticipated in the "Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single-Shell Tanks at the Hanford Site" (68 FR 1052). The cumulative groundwater impacts analysis in the HSW EIS also includes those wastes, as described in Volume I Section 5.14 and Volume II Appendix L.

DOE plans to characterize pre-1970 inactive burial grounds and contaminated soil sites, as well as the active LLBGs considered in the HSW EIS alternatives, under the RCRA past practice or CERCLA processes to determine whether further remedial action would be required before the facilities are closed. As part of that process, the long-term risks from these wastes would either be confirmed to be minimal, or the waste would be remediated by removal, stabilization, or other remedial actions to reduce its potential hazard. In all cases, the impacts from these previously disposed wastes would be the same for all alternative groups considered in the HSW EIS, and would not affect the comparisons of impacts among the alternatives or the decisions made regarding disposal of waste received in the future.

It should be noted that the long-term impact analyses presented in the EIS are based upon conservative assumptions including loss of institutional control, barrier (cap) failure, and no continuing maintenance. CERCLA and MTCA standards and other comparative benchmarks used in the EIS are based upon different assumptions such as continuing institutional control and maintenance of barriers. When these types of assumptions are applied to the disposal action evaluated in the HSW EIS the long-term impacts are substantially reduced. The HSW EIS has been revised in response to comments concerning the overly conservative nature of the EIS evaluations, to provide perspective on long-term performance when assumptions of continuing human ability to maintain barriers and controls are utilized. See for example, discussion of assumption of intact barriers, Volume I Section 5.3.5 and Volume II Appendix G Section G.4.

TPA Milestone M-15-00C requires all 200 Area, non-tank farm, pre-record of decision site investigation activities to be completed by December 31, 2008. Site characterization information generated from TPA remedial investigation and LLBG RCRA permitting activities has been used in development of the HSW EIS.

As indicated in Volume I Section 5.3, existing groundwater monitoring data does not indicate that releases from the LLBGs have occurred. As indicated in Volume I Section 4.5.3.3, the carbon tetrachloride in the groundwater under Low-Level Waste Management Area 4 is from an upgradient source. Groundwater impacts from Low-Level Waste Management Areas 1, 2, 3, and 4 are discussed in the Hanford Site-Groundwater Monitoring for Fiscal Year 2001 document (Hartman et al. 2002). Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4.

Sampling being conducted as part of the ongoing CERCLA program in the LLW Management Area 4 has indicated the presence of carbon tetrachloride vapors in and near several trenches. During the trench sampling, industrial hygienists conducted repeated air monitoring at the top of the vent risers above trenches—a required health and safety practice for all sampling activities to protect the workers from potentially being exposed during the sampling. After the carbon tetrachloride had been detected in the air at the bottom of the trench, industrial hygienists again monitored the trench to ensure that other workers who entered this area in the burial ground would not be exposed. The measurements for all "organics" in the air above the trench (including carbon tetrachloride and its decay products) showed readings ranging from "not detectable" to 4 ppm—well below the standard set by the Occupational Safety and Health Administration (OSHA) of 10 ppm per day during a 40-hour work week. Samples taken in the "breathing zone" did not show any level of organics. The monitoring at the surface of the trenches indicated that toxic vapors were not emanating from the vent risers. Monitoring above and below the surface continues. Based on monitoring results and activities to be performed, industrial hygienists specify protective measures to be taken to protect workers. Common measures might include protective clothing, respiratory protection, and removal of contaminants from the work area.

Additional sampling for organic compounds, including carbon tetrachloride, in the Low Level Burial Grounds is being conducted as part of the on-going TRU waste retrieval activities. This sampling started October 15, 2003 and is being conducted in accordance with a State of Washington Department of Ecology approved Sampling and Analysis Plan (SAP). Sampling results will be used both for helping reduce risks during retrieval and to provide information for remediation planning.

In response to carbon tetrachloride vapors found in previous vent riser sampling in trench 4 of LLBG 218-W-4C, a vapor extraction system has been installed and started operation November 15, 2003. This system is currently intended to operate until the carbon tetrachloride concentrations are less than or equal to 10 ppmv. This work is being conducted prior to retrieval in order to reduce the likelihood that higher levels of carbon tetrachloride will be encountered during retrieval that could pose a higher risk to workers and slow progress on retrieval.

Retrieval of the suspect transuranic waste from this burial ground has already started and is anticipated to be complete within the next few years, with Trench 4 retrieval completed by the end of 2006. If the retrievably stored waste is the source of the carbon tetrachloride vapors, the completion of this retrieval will eliminate the source of contamination. Additional sampling results from the SAP sampling after the removal of the retrievably stored waste will provide information to assist in determining appropriate actions after the waste is removed.

Comments

E-0047/006

Washington State law clearly requires that DOE protect groundwater and existing contamination resulting from past DOE actions hardly excuses from state law requiring cleanup of groundwater at Hanford to protect the most sensitive uses. The draft EIS fails to acknowledge or disclose the potential violations of state law that would result from the different management actions being considered and must comply with NEPA.

Question # 6 - Is it DOE's position that the Hanford site is currently in compliance with State standards related to ground water and surface water? Please explain.

Question #7- Is existing contamination at Hanford causing any exceedances of state or federal water quality standards for ground water or surface water? If so where?

Question # 8 - What is DOE's position on the legal requirements that it must meet in order to comply with Washington State law relating to the protection of groundwater?

The analysis in the draft EIS fails to recognize the serious lack of information and uncertainties that DOE has regarding the effect and fate of existing and potential future groundwater contamination at Hanford.

Question # 9- What is DOE's current position regarding the mobility of Uranium in ground water? Does DOE recognize that its previous assertions that Uranium is not mobile in groundwater as articulated in various 300 area cleanup decisions [are] incorrect in light of current data contradicting this assertion? If not, please explain. If so, please explain how this new information is reflected in the draft EIS.

The analysis in the draft EIS is also flawed because it fails to assess the effects of proposed actions on groundwater directly below planned management areas or disposal sites. Consistent with NEPA, DOE must consider all of the effects to ground water not merely the potential effects a kilometer or more away. Specifically, DOE must disclose whether there is the potential for various management options to violate state or federal law as a result of potential contamination.

Question # 10- What would the effects of various alternatives be on the groundwater immediately below and surrounding proposed waste disposal and management sites? Why is this information not considered or disclosed in the draft EIS?

E-0047/020

Washington Administrative Code 173-340 requires groundwater be restored to the highest beneficial standards, which it defines as meeting drinking water standards. It further clarifies an aquifer is considered a drinking water source unless it meets a set of criteria which the Hanford aquifer does not meet.

Response

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

As a result of additional mitigation measures incorporated into the action alternatives, the impact of the proposed action on groundwater at the 1-km line of analysis would be below benchmark drinking water standards. The discussion of Irreversible and Irretrievable Commitments of Resources in Volume I Section 5.15 has been revised in this EIS.

Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. The CERCLA process considers legally applicable Federal, State, and local laws or relevant and appropriate requirements (ARARs). Any decisions reached by DOE on the basis of analysis in the HSW EIS would be implemented in accordance with applicable Federal, State, and local laws and regulations. See Volume II Appendix N, Section N.2.4.

The maximum point of impact from multiple and widely dispersed sources may not necessarily be directly underneath the Low Level Burial Grounds or at the Low Level Burial Ground boundary. To model the groundwater impacts from multiple and widely dispersed disposal units over long periods of time, a 1-km point of analysis location was deemed to be more appropriate and representative than a regulatory point of compliance well location, for purposes of NEPA analysis. The point of analysis approach is considered technically appropriate for a NEPA evaluation of groundwater impacts over the long-term (10,000 years) time period analyzed. The 1-km point of analysis is not intended to represent the proposed locations for actual monitoring wells that would be used during the operational and closure time period. Groundwater impacts at the facility boundary (about 100 meters) have been added to the impacts identified for the preferred alternative and are discussed qualitatively for the other alternatives. A discussion of the differences between the 1-km point of analysis and the disposal facility boundary is provided in Volume I Section 5.3 and Volume II Appendix G.

Information on uranium mobility can be found in Volume II Appendix G.

It should be noted that the long-term impact analyses presented in the EIS are based upon conservative assumptions including loss of institutional control, barrier (cap) failure, and no continuing maintenance. CERCLA and MTCA standards and other comparative benchmarks used in the EIS are based upon different assumptions such as continuing institutional control and maintenance of barriers. When these types of assumptions are applied to the disposal action evaluated in the HSW EIS the long-term impacts are substantially reduced. The HSW EIS has been revised in response to comments concerning the overly conservative nature of the EIS evaluations, to provide perspective on long-term performance when assumptions of continuing human ability to maintain barriers and controls are utilized. See for example, discussion of assumption of intact barriers, Volume I Section 5.3.5 and Volume II Appendix G Section G.4.

Volume I Section 4.5 discusses hydrology, surface water, and groundwater quality. Additional information can be found in the Hanford Site Environmental Report 2001 (Poston et al. 2002) and the Hanford Site National Environmental Policy Act (NEPA) Characterization document (Neitzel 2002).

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated releases and levels of groundwater contamination. As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater at 1 km from the disposal facilities are expected to be below the benchmark drinking water standards. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

Comments

L-0054/012

Fifth, the SW EIS fails to consider a reasonable range of alternatives for certain waste streams, such as MLLW, that explored off-site disposal.

General

Response

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS decisions regarding certain TRU, LLW, and MLLW streams. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

Comparisons of low-level waste (LLW) and mixed low-level waste (MLLW) disposal at various DOE sites have been presented in the WM PEIS (DOE 1997b) and in various site-specific NEPA documents.

Comments

L-0044/116

In summary, we believe the Revised Draft HSW-EIS provides an improved level of information. Additional information and clarity is needed if the Final HSW-EIS is to comply with NEPA, fully define mitigation measures, and effectively inform the handling of waste that is currently at Hanford or expected to be generated in the cleanup of Hanford. Additional information is needed to address the cumulative impacts and appropriate treatment capabilities needed to process non-Hanford waste.

Response

The HSW EIS provides important environmental information to assist DOE in making decisions about site-specific storage, treatment, and disposal actions at Hanford.

The HSW EIS summarizes its analyses in seven (7) sections in a first volume. The supporting technical detail is presented in fifteen (15) appendixes in a second volume. The Comment Response Document makes up the third and fourth volumes of the HSW EIS.

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated releases and levels of groundwater contamination. As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater at 1 km from the disposal facilities are expected to be below the benchmark drinking water standards. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

DOE believes this HSW EIS complies with applicable NEPA requirements.

Comments

E-0043/063, EM-0217/063, EM-0218/063, L-0056/063, LM-0017/063, LM-0018/063

1) The HSW EIS analyzes the disposal of mixed low-level waste (MLLW) without a prior decision by the State of Washington to dispose of MLLW at Hanford. As per the Resource Conservation and Recovery Act (RCRA), the State of Washington has jurisdiction over the disposal of MLLW because of its hazardous waste properties. Thus, the HSW EIS should be limited to evaluating only the short-term storage and treatment of MLLW, not the disposal of MLLW. GAP urges the State of Washington to refuse to permit the DOE increase the volume of MLLW disposed of at Hanford beyond what was decided for Hanford cleanup;

2) The EIS should compare disposal of LLW/MLLW at different sites;

3) The EIS should compare disposal of Hanford-only versus off-site waste;

4) The EIS' scope should include all previously buried and newly generated solid waste;

5) The EIS should assess the difference in impacts between disposal of low and high volumes of waste;

6) The EIS should address the hazardous waste component of

i. The quantity of waste that will remain at Hanford,
ii. The quantity of waste that Hanford will export,
iii. The quantity of new waste that Hanford will accept;

7) The EIS should analyze the lack of plans to retrieve or mitigate the impacts from TRU waste buried before 1970;

8) The EIS should analyze the impacts of hazardous waste buried with various forms of radioactive waste (e.g. lead shielding);

9) The EIS should analyze the decision to move one-half of the waste out of the Central Waste Complex; and

10) The EIS should include liquid effluent retention [treatment] facility waste contributions from the waste treatment plant.

Response

Federal RCRA Subtitle C and related state hazardous waste management regulations require that radioactive mixed waste land disposal units meet minimum technical standards to prevent the release of hazardous substances. The standards include a system of multiple liners to prevent leakage into groundwater, a leachate collection system, groundwater monitoring wells, a multi-layer cap to prevent infiltration of rain and snow, stringent waste treatment standards, and a program of monitoring, inspection, and reporting during the period of operation and after closure. These standards will apply to all new mixed waste disposal units evaluated in the HSW EIS. Volume I Section 2.2.3 discusses disposal facilities and their environmental protection features.

DOE is permitted under RCRA interim status authorization to dispose of MLLW at Hanford. The text has been revised to indicate that DOE is working with Ecology to determine the extent of LLBG coverage in the final status permit. Appropriate investigation of waste disposed in the LLBGs prior to 1987 would be made in accordance with applicable CERCLA or RCRA requirements.

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS (DOE 1997b) decisions regarding certain TRU waste, LLW, and MLLW streams. Site-specific waste management actions at Hanford involve transportation, treatment and processing of TRU waste and MLLW, disposal of LLW, MLLW and ILAW, and storage of LLW, MLLW, and TRU waste. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

The WM PEIS was a comprehensive evaluation of DOE nationwide waste management. The WM PEIS evaluated a broad suite of alternatives for waste management across the DOE complex, including managing most waste at generator facilities, or consolidating waste management at fewer sites that have existing facilities suitable to accept waste from other facilities. The impacts of those alternatives were compared for a variety of waste volumes at different DOE sites, including larger quantities of waste than are evaluated in the HSW EIS. The general result of the WM PEIS was that radioactive and hazardous wastes generated at a DOE site should be disposed of at that site unless the site was not capable of or not technically able to support those actions. DOE determined there was sufficient information in the WM PEIS to support decisions regarding the sites that were suitable for long-term waste management missions. Those decisions included processing and disposing of Hanford waste at Hanford, and the importation of wastes from other sites that could not adequately handle them. Decisions made as part of the WM PEIS made Hanford available for the disposal of low-level waste and mixed low-level waste from other DOE generators. The initial WM PEIS decisions related to LLW, MLLW, and TRU waste were issued between January 1998 and February 2000.

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

The HSW EIS includes the impacts of all LLBG previously disposed waste in its evaluations of long-term groundwater impacts in Volume I Section 5.3, Volume I Section 5.11, Volume I Section 5.14, and in Volume II Appendixes F, G, and L. LLBG previously disposed waste includes LLW disposed of since 1962, LLW disposed before and after the regulatory definition of TRU promulgated in 1970, and wastes disposed before and after the application of RCRA hazardous waste management standards to certain Hanford LLW streams in 1987. The HSW EIS impact estimates are based on chemical and radionuclide inventories. Past-buried LLBG wastes will be addressed within the framework for managing RCRA past practice and CERCLA units

General

established under the TPA.

DOE is preparing the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site (68 FR 1052), which will address the potential environmental impacts from retrieving and processing tank wastes. DOE will conduct appropriate environmental review to support future decisions for closing the vitrification plant (i.e., Waste Treatment Plant) and other existing treatment and associated facilities.

The decision to ship the 183-H waste ("one-half of the waste out of the Central Waste Complex") to ERDF for disposal was made through the CERCLA process.

Comments

L-0041/057

Oregon expects the DOE to use a "defense-in-depth" design philosophy when planning for the disposal of waste at Hanford. This means that each major component of the waste disposal system, including the waste form and containers themselves, will be designed with defense-in-depth as a primary criterion and the integrated system will also use defense-in-depth principles in its design. Following are some specific expectations and recommendations for future operations of solid waste disposal facilities at Hanford:

a) Ensure that selected alternatives comply with prevailing state and federal regulations for the disposal of hazardous and radioactive waste. When conflicts arise, apply the more stringent regulation due to the uncertainty associated with risk assessment and numerical modeling of contaminants. For example, DOE has indicated that radiological dose (25 mrem/yr.) will be exceeded in the future. EPA requirements are more stringent and based on a risk threshold of 3 x 10-4. This risk level corresponds to about 15 mrem/yr. Therefore, DOE should include redundancy factors in the design of facility to meet this tighter performance threshold.

b) Conduct landfill-siting studies to determine the meso-scale physical structure of the waste site including the vadose zone. Conduct direct hydrological testing to verify the placement of vadose and groundwater monitoring wells. Establish a consistent infiltration value. The EIS and key supporting documents used different infiltration rates that vary over several orders of magnitude. (0.01cm to 0.50 mm/yr.). Actual infiltration in disturbed areas has been observed to be as high as 50-100 cm/yr. Problems with operational design have aggravated this further by creating slopes that drive water into contaminated areas, such as the T tank farm. This results in local inundation and flooding which is not easily modeled with a fixed infiltration rate approach.

c) Incorporate redundant elements into landfill design such as reactive layers, geosynthetic and clay liners, and soil amendments in the cushion to provide defense-in-depth against the leaching and transport of contaminants. Capillary break barriers should be incorporated into the design.

d) Modify daily cover materials to provide additional contaminant adsorption sites by blending apatite or similar materials to sequester the contaminants.

e) Conduct site specific numerical fate and transport modeling to demonstrate impact on the environment, including the vadose and saturated zone directly beneath the waste site. The Representative Elemental Volume used in the modeling should be matched to the density of information collected. The model must reflect the level of aquifer mixing that occurs based upon detailed field information collected during the sites hydraulic test.

f) Evaluate each contaminant's partitioning coefficient (Kd) in soils taken directly from the proposed site, recognizing the waste form chemistry may effect the mobility of contaminant.

g) Construct a section of the proposed final cover to verify the 0.01 cm/yr. infiltration rate incorporated into the EIS. The proposed final cover should also be used to verify the establishment and subsequent durability of the proposed plant community.

h) Install soil moisture monitors into the waste form, cushion, and below the liner system to monitor changes in soil moisture in response to construction and eventual closure of the landfill cells.

i) Develop a landfill-filling plan that is based upon waste compatibility issues and baseline projections of annual waste stream volumes and mass. The filling plan should be related to the operations and maintenance plan. During operations, management of leachate will be a primary concern.

j) Develop a preliminary closure and monitoring plan, to meet the substantive requirements of the Model Toxics Control Act.

k) Present all plans and documents to stakeholders prior to construction.

l) Gather information necessary to complete the Natural Resource Damage Assessment for the 200 Area prior to construction of the first landfill cell. Much of the 200 area seems to be slated for long term disposal of radioactive and hazardous waste. This action eliminates future use of the existing habitat and establishes a requirement for long term actions to manage the disposal site. Quantifying injury to natural resources under CERCLA must be completed prior to construction of waste sites so that compensatory mitigation can be determined. Additionally, by assessing damage prior to construction, appropriate mitigation actions can be incorporated into design and implementation plans, thereby improving project efficiency and minimizing impacts.

m) Develop performance criteria for:
- -site, including a large scale infiltration test
- -vadose and groundwater monitoring system
- -liner system, including construction quality assurance
- -leachate collection system
- -cushion system
- -waste form
- -daily cover material
- -dust suppression and water treatment
- -final grading material
- -cap system

Response

As a result of additional mitigation measures incorporated into the action alternatives, the impact of the proposed action on groundwater at the 1-km line of analysis would be below benchmark drinking water standards. The discussion of Irreversible and Irretrievable Commitments of Resources in Volume I Section 5.15 has been revised in this EIS.

It should be noted that the long-term impact analyses presented in the EIS are based upon conservative assumptions including loss of institutional control, barrier (cap) failure, and no continuing maintenance. CERCLA and MTCA standards and other comparative benchmarks used in the EIS are based upon different assumptions such as continuing institutional control and maintenance of barriers. When these types of assumptions are applied to the disposal action evaluated in the HSW EIS the long-term impacts are substantially reduced. The HSW EIS has been revised in response to comments concerning the overly conservative nature of the EIS evaluations, to provide perspective on long-term performance when assumptions of continuing human ability to maintain barriers and controls are utilized. See for example, discussion of assumption of intact barriers, Volume I Section 5.3.5 and Volume II Appendix G Section G.4.

DOE and NRC regulated LLW disposal facilities are subject to the 25 mrem per year standard in DOE Order 435.1 (DOE 2001b) and 10 CFR 61, respectively. The Washington State Department of Health has adopted the NRC standard. EPA has not promulgated a 15 mrem per year standard.

DOE believes this HSW EIS complies with applicable NEPA requirements.

Volume I Section 6 identifies the major statutes, permits, compliance agreements, and regulatory requirements followed in conducting operations at Hanford Site. Statutes include AEA, CERCLA, RCRA and the State of Washington Hazardous Waste Management Act. Volume I Section 6.3 discusses the TPA. Volume I Section 6.4 discusses the Dangerous Waste Management permit. Volume I Section 6.19 provides a summary of existing and potential permits (including state approved permits where state decision-making will be necessary) required to construct and operate treatment, storage, and disposal facilities related to the HSW EIS alternatives. Volume I Section 6 has been updated and revised in response to comments in the final HSW EIS.

The HSW EIS uses the best available data, computer modeling, assumptions, and related methods to produce estimates of reasonably foreseeable environmental impacts. The modeling approach was consistently applied to each alternative, and it provided information that allowed comparison of the alternatives.

Comments

P-0077/001

70,000 Truckloads of nuclear waste should not be transported to Hanford. The danger from leakage is already extreme. What is there already needs to be cleaned up. The serious problem that currently exists will only be exacerbated by additional waste. Contamination of the Columbia River is much too great a risk to take.

Response

The HSW EIS estimates that up to 33,900 shipments of LLW, MLLW, and TRU waste could be shipped to Hanford if the upper bound waste volumes are realized. The actual number of shipments is expected to be less than this.

The Hanford Only waste volume has been evaluated in all action alternatives and the No Action Alternative to provide a better comparison with the impacts of adding offsite waste. The incremental impacts of offsite waste are the differences between the Lower and Upper Bound Volumes and the Hanford Only impacts for a given alternative.

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

The HSW EIS evaluates several alternatives for the storage, treatment, and processing of waste from onsite and offsite generators. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

Comments

THR-0008/003

What's going to happen two, three generations from now? The people who depend on the river for cultural resources, what happens to them? I'm talking about the Tribes. This is a waiting form of genocide[.]

TSE-0029/002

But on page S.37 of this summary, I just wanted to point out a couple of weasel words about mitigation here. Weasel words are like we could take, or might occur, or potential mitigation, or we could mitigate. And this is in relation to how they are going to treat the tribal cultural resources that they find, they are going to determine appropriate management actions with the tribe.

Response

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW.

DOE does not and will not rely solely on long-term stewardship to protect people and the environment. As indicated in the DOE sponsored report "Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites" (National Research Council 2000), "contaminant reduction is preferred to contaminant isolation and the imposition of stewardship measures." Contaminant reduction is a large part of the ongoing cleanup efforts at Hanford. Most of the analyses in the HSW EIS are based on the assumption that long-term institutional controls would no longer be in effect 100 years after closure (about 2150 AD). Long-term groundwater impacts and subsequent human health impacts were determined based on the assumption that caps would degrade and eventually provide no protection (see Volume I Sections 5.3 and 5.11 and Volume II Appendices F and G). In addition, "intruder scenarios" are analyzed to determine the impacts of gaining access to the site (i.e., no institutional controls) and digging or drilling into waste sites. See Volume I Section 5.11.2.2 and Volume II Appendix F Section F.3. Further information on DOE's long-term stewardship activities can be found in the DOE Long-Term Stewardship Study (DOE 2001a). The discussions of long-term stewardship in Volume I Sections 2.2.7 and 5.18 of the HSW EIS have been revised in response to comments.

TPA Milestone M-15-00C requires all 200 Area, non-tank farm, pre-record of decision site investigation activities to be completed by December 31, 2008. Site characterization information generated from TPA remedial investigation and LLBG RCRA permitting activities has been used in development of the HSW EIS.

An expanded discussion of potential mitigation measures is in Volume I Section 5.18.

DOE is cognizant of the concerns of Native Americans and others that operations at Hanford, including those discussed in this HSW EIS, could potentially adversely impact Native Americans and their lifestyle. This HSW EIS includes discussion of potential impacts to cultural resources in Volume I Section 5.7, aesthetic and scenic resources in Volume I Section 5.12, and environmental justice in Volume I Section 5.13.

Comments

L-0030/003

I believe that radioactive waste and chemical waste should be stored in the State from which it originates, and probably encased in glass.

L-0051/003

Instead of this plan [to transport waste to Hanford], could the waste just be left at the various sites where it currently is? I'm supposing that those sites are contaminated and in need of clean-up anyway; why not make it as safe as possible (vitrify it?) and clean up the sites, using money saved from not having to transport it?

L-0058/002

The waste should be given back to its producers for disposal.

P-0106/001

I oppose centralized location of waste. It should be stored and made safe at its source. Why should others, who received no benefit from creation of the waste, be made to suffer the possible consequences of its storage? IF places are safe for production, they are safe for disposal and storage.

P-0170/001

Why are we in Washington State taking other states' nuclear waste? We are already the nations most contaminated waste site - shipping 70,000 truckloads of radioactive and chemical waste isn't going to help -

THR-0010/004

I can't even believe it, that we are here discussing that the government wants to send more nuclear waste to Hanford.

TPO-0026/003

It's fairly clear that we don't really have a clear and comprehensive plan of how we're going to deal with the waste across the set of complexes.

General

TSE-0013/003

You know, does it seem right if you have most of the nation's nuclear waste in this location, does it make sense, if you don't know exactly what you have in this huge legacy of nuclear waste, it's not accurately characterized, it is in unlined trenches. A very potent and pertinent question is, how can you possibly have the luxury of talking about, for political reasons or other reasons, of relieving wastes from other sites? It's not we are not willing to do our share, it's not in our backyard. It is about the health and safety of human beings and the environment to get a handle on what you have, handle on what we have, enough to satisfy at least some of us in the public.

Response

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS (DOE 1997b) decisions regarding certain TRU waste, LLW, and MLLW streams. Site-specific waste management actions at Hanford involve transportation, treatment and processing of TRU waste and MLLW, disposal of LLW, MLLW and ILAW, and storage of LLW, MLLW, and TRU waste. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

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Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

The HSW EIS estimates that up to 33,900 shipments of LLW, MLLW, and TRU waste could be shipped to Hanford if the upper bound waste volumes are realized. The actual number of shipments is expected to be less than this.

DOE's radioactive waste will continue to be disposed of in several states around the country where there are existing DOE and commercial disposal facilities. See Volume I, Figure 1.2.

Comments

E-0013/001

Please understand how opposed people are to the trucking of dangerous waste to Hanford. We are vehemently against this unwise, unsafe, and unprecedented dumping. If the waste itself were not horrific enough, the careless pit dumping of it in proximity to the Columbia is beyond on sense of reason or integrity.

Response

The HSW EIS considers a wide range of alternatives for disposal of low level waste in both lined and unlined facilities. Lined trench alternatives include leak detection and leachate collection capabilities. In addition, groundwater monitoring would be done in compliance with applicable RCRA and State hazardous waste, TPA, and DOE requirements to validate the performance of the disposal facilities. The preferred alternative is to dispose of low level waste in newly constructed lined disposal facilities as soon as they are available. For purposes of analysis the HSW EIS assumes this would occur by 2007. MLLW is currently being, and will continue to be, disposed of in lined facilities. The EIS includes discussion of the cumulative effects of past, present, and reasonably foreseeable actions. See Volume I Section 5.14 and Volume II Appendix L.

The Hanford Only waste volume has been evaluated in all action alternatives and the No Action Alternative to provide a better comparison with the impacts of adding offsite waste. The incremental impacts of offsite waste are the differences between the Lower and Upper Bound Volumes and the Hanford Only impacts for a given alternative.

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

Comments

E-0019/006, L-0026/006

The draft HSW-EIS should be revised using data developed for the Tank Retrieval and Closure Environmental Impact Statement

L-0052/013

As such [because of the addition of ILAW] we have concerns about how this EIS will interact with the tank closure EIS to be reviewed in the fall.

Response

The HSW EIS uses best available data for estimating inventories of hazardous and radioactive wastes. These data are obtained from information management systems maintained at Hanford and other DOE sites. The Office of River Protection has contributed data to these information management systems.

The scope of the HSW EIS is to evaluate the potential environmental impacts of ongoing activities of the Hanford Solid Waste Program and to evaluate implementation of alternatives consistent with the WM PEIS. The HSW EIS evaluates reasonably foreseeable treatment, storage, and disposal facilities and activities for LLW, MLLW, and TRU waste. It also evaluates disposal of ILAW in a form that has performance characteristics equivalent to borosilicate glass.

The Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of

Single-Shell Tanks at the Hanford Site (68 FR 1052) will analyze other tank waste activities.

Comments

L-0044/102

In the same EIS, Ecology noted that Alternative B proposes trans-shipments of TRU and HLW waste from West Valley to Hanford for storage prior to disposal at WIPP and the geologic repository respectively. Ecology could not determine if the RHSW EIS included those wastes or what impacts storage of the wastes might have on storage of Hanford wastes. Ecology requests that the USDOE add the volumes to those already in the RHSW EIS and analyze the impacts of storage of those wastes.

Response

Volume I Section 1.5 and Volume II Appendix C have been revised to clarify this.

DOE plans to dispose of HLW and spent nuclear fuel from commercial nuclear power and DOE facilities at the Yucca Mountain National Repository being developed under the Nuclear Waste Policy Act. Storage of HLW or spent nuclear fuel is not within the scope of this EIS.

Groundwater

Comments

E-0026/006

The EIS fails to assess and disclose the impacts to groundwater under the waste site.

F-0019/004

I call for an EIS study [that] assess and discloses the short and long-term impacts to groundwater directly under the waste site.

Response

The groundwater beneath the 200 East and 200 West Areas has been contaminated with radionuclides and non-radioactive chemicals because of waste management activities during past Hanford Site operations. Existing groundwater contamination is largely the result of past liquid disposal practices, leakage from liquid waste storage tanks, and other liquid spills. An estimated 80 square miles of plumes that exceed the benchmark MCLs now exists underneath the Hanford Site. These plumes resulted from the release of an estimated 450 billion gallons of liquid effluent since 1944, 346 billion gallons of which were released in the 200 East and 200 West areas. DOE has ended the types of untreated waste discharges and management activities that caused the contamination, and is taking actions to prevent additional releases from Hanford facilities.

Existing groundwater monitoring data do not indicate that releases from LLBGs have occurred. Groundwater impacts from Low-Level Waste Management Areas 1, 2, 3, and 4 are discussed in Sections 2.8 and 2.9 of the Hanford Site-Groundwater Monitoring for Fiscal Year 2001 document (Hartman et al. 2002), which characterizes the eight LLBGs in question. Based on results of fence line monitoring of the WMAs, the current interpretation is that there is no evidence the specific WMAs in question have contributed to contaminants found in groundwater underlying these areas. Volume I Section 5.3, Volume II Appendix G, and Volume II Appendix L evaluate the potential for contaminants from the LLBGs to reach the groundwater in the future.

The maximum point of impact from multiple and widely dispersed sources may not necessarily be directly underneath the Low Level Burial Grounds or at the Low Level Burial Ground boundary. To model the groundwater impacts from multiple and widely dispersed disposal units over long periods of time, a 1-km point of analysis location was deemed to be more appropriate and representative than a regulatory point of compliance well location, for purposes of NEPA analysis. The point of analysis approach is considered technically appropriate for a NEPA evaluation of groundwater impacts over the long-term (10,000 years) time period analyzed. The 1-km point of analysis is not intended to represent the proposed locations for actual monitoring wells that would be used during the operational and closure time period. Groundwater impacts at the facility boundary (about 100 meters) have been added to the impacts identified for the preferred alternative and are discussed qualitatively for the other alternatives. A discussion of the differences between the 1-km point of analysis and the disposal facility boundary is provided in Volume I Section 5.3 and Volume II Appendix G.

Comments

E-0043/044, EM-0217/044, EM-0218/044, L-0056/044, LM-0017/044, LM-0018/044

Hanford already struggles to deal with the mountains and oceans of high-level nuclear waste in the weapons complex. It has the largest volume of contaminated soils. It has the largest volume of contaminated groundwater. Over the past 50 years, some 440 billion gallons of contaminated liquids were directly disposed in the ground - enough to create a poisonous lake the size of Manhattan 120 feet deep. This alone makes Hanford the most contaminated zone in the Western Hemisphere. Hanford has the largest volume of buried transuranic wastes - long-lived deadly wastes including plutonium, a speck of which is considered lethal if inhaled.

Groundwater

Response

The groundwater beneath the 200 East and 200 West Areas has been contaminated with radionuclides and non-radioactive chemicals because of waste management activities during past Hanford Site operations. Existing groundwater contamination is largely the result of past liquid disposal practices, leakage from liquid waste storage tanks, and other liquid spills. An estimated 80 square miles of plumes that exceed the benchmark MCLs now exists underneath the Hanford Site. These plumes resulted from the release of an estimated 450 billion gallons of liquid effluent since 1944, 346 billion gallons of which were released in the 200 East and 200 West areas. DOE has ended the types of untreated waste discharges and management activities that caused the contamination, and is taking actions to prevent additional releases from Hanford facilities.

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4. See Volume III Section 2.0, Item 6 of the CRD for more examples of cleanup at Hanford.

DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

Comments

P-0068/001

Hanford is still leaking nuclear waste - No more should be allowed to be stored there.

Response

The groundwater beneath the 200 East and 200 West Areas has been contaminated with radionuclides and non-radioactive chemicals because of waste management activities during past Hanford Site operations. Existing groundwater contamination is largely the result of past liquid disposal practices, leakage from liquid waste storage tanks, and other liquid spills. An estimated 80 square miles of plumes that exceed the benchmark MCLs now exists underneath the Hanford Site. These plumes resulted from the release of an estimated 450 billion gallons of liquid effluent since 1944, 346 billion gallons of which were released in the 200 East and 200 West areas. DOE has ended the types of untreated waste discharges and management activities that caused the contamination, and is taking actions to prevent additional releases from Hanford facilities.

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

Comments

F-0002/004

Must have ground water monitoring in all Hanford disposal areas[.]

F-0014/002

The lack of attention given to groundwater and the monitoring of groundwater also make this SWEIS inadequate.

L-0019/005, TSE-0002/005

Lack of adequate groundwater monitoring [is a an open issue in the revised draft.]

L-0041/027

The revised EIS indicates two general groundwater flow patterns that may exist in the future once the operational discharges decay and their physical influence no longer affects flow streamlines. To resolve these two divergent views of the future, DOE should establish a three-dimensional aquifer characterization program that adds as many monitoring wells as necessary. This characterization activity should include field scale siting studies combined with a large scale infiltration test to verify that the monitoring wells are functioning properly.

L-0041/060

Monitoring should occur prior to, during and following operation of waste disposal facilities. Long term monitoring should include leachate monitoring, shallow and deep vadose zone monitoring, and groundwater monitoring. Each facility's design should include key monitoring points that incorporate cutting-edge approaches for moisture movement.

L-0044/002

The current groundwater monitoring system does not achieve RCRA regulatory compliance.

L-0044/003

At the Hanford Site, there is a huge deficiency in the number of wells required for the detection, delineation and assessment of releases at a number of LL Waste Management Areas (LLMA's). These issues were described in Ecology's Notices of Deficiency (NOD's) transmitted for the Low Level Burial Grounds permit application.

L-0044/008

As a land-based TSD [treatment, storage, and/or disposal], the entire LLBG [low-level burial ground] unit is currently subject to groundwater monitoring requirements of WAC 173-303-400 (interim status). Upon permit issuance and closure plan approval, the LLBG's will be subject to final groundwater monitoring standards.

L-0044/058

Comment # 89 and Water Quality description for LLBG [low-level burial ground] Vol. Sec. 4.5.3.3 (Re: Comment # 89) The response states: "Current results from the RCRA compliant groundwater monitoring have not identified any groundwater impacts from the LLBGs." Washington State Department of Ecology has not made a determination that the groundwater monitoring at the LLBGs is compliant. Statements that indicate or imply that the LLBG groundwater monitoring program is compliant should be deleted.

Groundwater

THR-0002/007

Current groundwater monitoring around the burial grounds is not adequate to meet regulatory requirements. And this is another statement from the Department of Ecology in Washington. They have concluded that the low-level burial ground monitoring networks and programs are significantly deficient.

THR-0009/005

Let's not reach the groundwater with our measurement devices, let's go downstream far enough because of the large volume of the river the instruments don't pick it up and say it's okay.

TPO-0017/004

We have to have more [groundwater] monitoring.

TRI-0001/015

There is no adequate description and timeline which needs to be included as a commitment in this EIS and for any action to fully and adequately monitor the groundwater around the existing burial grounds.

TSE-0009/004

And of course to implement the legally adequate groundwater monitoring system that has been discussed earlier this evening.

TSE-0010/007

Effective groundwater monitoring also must be put in place now.

TSE-0010/008

The DOE has a lot of power right now. They can stop dumping radioactive waste in unlined trenches. They can do it this year.

TSE-0012/005

Do not ignore or minimize the impacts to the groundwater.

TSE-0017/002

...groundwater monitoring wells are insufficient[.]

TSE-0023/001

Clean water is a scarce resource. It is even scarcer than oil, according to some reports from national agencies. Water, not oil, is what we will be fighting wars over in the future. So this plan to add more uncharacterized waste to inadequately monitored, unlined trenches, and to fix it in maybe five years from now, it is not just immoral and illegal, it is a national security risk

TSE-0030/005

The groundwater monitoring is grossly inadequate, in fact, and in this EIS.

TSE-0034/001

...it seems to me that with all the scientists we have, we ought to be able to figure out a way to keep the groundwater from becoming more contaminated. That doesn't seem to me like that's rocket science.

TSP-0009/002

Regarding the Columbia River, there needs to be adequate baseline monitoring of groundwater contamination. And currently there is not adequate baseline monitoring. More than just NEPA.

Response

Groundwater monitoring is conducted according to TPA requirements, the Hanford Dangerous Waste Management permit, and DOE Orders. Groundwater monitoring will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations.

Groundwater

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

See the revised discussion on Groundwater Monitoring in Volume I Section 4.5.3.3.

In 2001 alone, samples were collected from 735 groundwater monitoring wells to determine the distribution and movement of existing radiological and chemical constituents in Hanford Site groundwater, and to identify and characterize potential and emerging groundwater contamination problems. Samples were analyzed for about 40 different radionuclide constituents and about 290 different chemical constituents. Airborne radionuclide samples were collected at 45 continuously operating samplers: 24 on the Hanford Site, 11 near the site perimeter, 8 in nearby communities, and 2 in distant communities. Nine stations were community-operated environmental surveillance stations managed and operated by local school teachers as part of an ongoing DOE-sponsored program to promote public awareness of Hanford Site environmental monitoring programs.

Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. The CERCLA process considers legally applicable Federal, State, and local laws or relevant and appropriate requirements (ARARs). Any decisions reached by DOE on the basis of analysis in the HSW EIS would be implemented in accordance with applicable Federal, State, and local laws and regulations. See Volume II Appendix N, Section N.2.4.

Comments

L-0041/045

The analysis of future site risks – as the foundation for decision making – contains significant uncertainty. For example, the revised EIS presents two distinctly different groundwater flow paths. Reliable information about groundwater flow beneath the Hanford site and specifically the 200 area must be obtained before an analysis of impacts can be conducted with confidence. Prior to finalizing this EIS, DOE should install new groundwater monitoring wells. Further, DOE should allow time to collect data to project future groundwater elevations that would indicate future flow paths.

Response

Groundwater monitoring is conducted according to TPA requirements, the Hanford Dangerous Waste Management permit, and DOE Orders. Groundwater monitoring will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations.

DOE believes this HSW EIS complies with applicable NEPA requirements.

Comments

L-0013/002

Also important is that Hanford area needs ground water detection devices and impervious ground protection covers in critical areas.

Response

Groundwater monitoring is conducted according to TPA requirements, the Hanford Dangerous Waste Management permit, and DOE Orders. Groundwater monitoring will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations.

See the revised discussion on Groundwater Monitoring in Volume I Section 4.5.3.3.

Federal RCRA Subtitle C and related state hazardous waste management regulations require that radioactive mixed waste land disposal units meet minimum technical standards to prevent the release of hazardous substances. The standards include a system of multiple liners to prevent leakage into groundwater, a leachate collection system, groundwater monitoring wells, a multi-layer cap to prevent infiltration of rain and snow, stringent waste treatment standards, and a program of monitoring, inspection, and reporting during the period of operation and after closure. These standards will apply to all new mixed waste disposal units evaluated in the HSW EIS. Volume I Section 2.2.3 discusses disposal facilities and their environmental protection features.

The preferred alternative as described in Volume I Section 3.7 is to dispose of low level waste in newly constructed lined disposal facilities as soon as they are available. For purposes of analysis the HSW EIS assumes this would occur by 2007. MLLW is currently being, and will continue to be, disposed of in lined facilities.

However, the use of unlined trenches for disposal of low level waste is an established, legal, and environmentally protective method of low level waste disposal at both DOE and commercial facilities. As such, it is a reasonable alternative, under CEQ regulations, and must be analyzed. The HSW EIS considers a wide range of alternatives for disposal of low level waste in both lined and unlined facilities. Lined trench alternatives include leak detection and leachate collection capabilities. In addition, groundwater monitoring would be done in compliance with applicable RCRA and State hazardous waste, TPA, and DOE requirements to validate the performance of the disposal facilities.

Comments

THR-0002/009

Some of the monitoring wells right now do not reach groundwater, and this is the analysis that DOE is using in the EIS. They are using this lack of data from groundwater wells that don't reach groundwater to claim that there won't be any impact from the DOE waste at Hanford. And we disagree.

Response

Groundwater monitoring is conducted according to TPA requirements, the Hanford Dangerous Waste Management permit, and DOE Orders. Groundwater monitoring will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations.

See the revised discussion on Groundwater Monitoring in Volume I Section 4.5.3.3.

The long term groundwater impacts presented in the HSW EIS are not premised on the fact that contaminants from the low level burial grounds have not reached groundwater. In any event, the conclusions in the model do not depend upon data from monitoring wells which are no longer operative. Data from over 1000 operating wells are included in the modeling process.

Comments

F-0020/003

The priority must be to clean up what is there especially the groundwater.

L-0055/045

DOE's Initiative 6 in the Performance Management Plan is for ground water cleanup and protection. Unfortunately, this initiative will leave contamination in the ground water and in the vadose zone which will be available to continue to contaminate the ground water under the DOE site.

Groundwater

L-0055/062

To store this waste without preplanning contingency to retrieve and retreat stored in the future when new technologies do arise seems short sighted and too focused on a small savings to a problem that will have a much costlier impact later in time. To have made a commitment to address groundwater in the Performance Management Plan without giving that decision an opportunity to develop a more detailed strategy for ground water remediation in the 200 Areas to influence sitting of this solid waste facility also seems a premature decision.

P-0085/002

I understand you don't plan to clean-up this groundwater for 150 years?

THR-0001/001

There's no plans to clean it [groundwater contamination] up. In their analysis they never assumed that it would ever be cleaned up. And they just say to you in the future and everybody else in the future generations, you can't drink it, you can't use it.

Response

Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. The CERCLA process considers legally applicable Federal, State, and local laws or relevant and appropriate requirements (ARARs). Any decisions reached by DOE on the basis of analysis in the HSW EIS would be implemented in accordance with applicable Federal, State, and local laws and regulations. See Volume II Appendix N, Section N.2.4.

TPA Milestone M-15-00C requires all 200 Area, non-tank farm, pre-record of decision site investigation activities to be completed by December 31, 2008. Site characterization information generated from TPA remedial investigation and LLBG RCRA permitting activities has been used in development of the HSW EIS.

Comments

E-0026/004

No analysis of long term impacts to groundwater, the ecosystem, public health or the Columbia River [is in the EIS]

Response

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

Volume II Appendix G describes the analysis used to calculate concentrations of key contaminants that could potentially reach the groundwater from LLBG disposal units. The analysis also assesses the impacts to accessible surface water resources (the Columbia River) from contaminated groundwater. Concentrations of key contaminants are compared to drinking water standards as a benchmark against which water quality may be assessed. The calculations also provide the basis for estimates of potential human health risk and ecological risk for comparison among the alternative groups. Volume II Appendix G also discusses waste forms, release models, and how they were applied in modeling groundwater transport.

Volume II Appendix I provides information about potential impacts to terrestrial and aquatic ecological resources that may result from implementation of HSW EIS alternatives. Potential impacts to terrestrial resources were evaluated in the near term (i.e., during waste management operations and under current conditions). Potential impacts would result primarily from surface disturbances associated with excavation and disposal activities. Potential impacts to Columbia River riparian and aquatic resources could occur in the long term, i.e., up to 10,000 years following the conclusion of waste management operations. These would be primarily the result of the eventual migration of radionuclides and other hazardous chemicals through the vadose zone to groundwater and on to the Columbia River.

Volume II Appendix F describes the methods used to evaluate health impacts of the HSW EIS alternative groups. Volume II Appendix F describes normal impact assessment methods, accident assessment impact methods, intruder impact assessment methods, and long-term impacts from waterborne pathways.

Comments

L-0044/121

The HSW EIS must include various plume maps based on the USDOE's predictive studies and corresponding risk/impact maps (in two dimensions) for easier understanding on a site wide basis.

Response

The HSW EIS includes graphic figures showing groundwater contaminant concentrations over a 10,000-year time period in Volume I, Section 5.3 and Section 5.14 and Volume II, Appendix G and Appendix L.

Comments

L-0044/011

The EIS does not display the data related to risk adequately; risk analysis and discussion are not tied directly to specific alternatives. In addition to discussing the mrem groundwater dose impact of each alternative, the ground water concentrations should be displayed for each alternative and the risk as displayed by incidental latent cancer risk (ILCR) should be discussed for each alternative. This sort of analysis and discussion should include ILCR contour maps generated for each alternative for various times in the next 10,000 years. The reader should be able to a get a sense of how much of the land area will have an impact near, at or above health standards for how long. These data should be provided in groundwater concentration plume maps and ILCR contour maps (see the TWRS EIS). Additionally, a table should be developed that discusses the alterative and the ILCR peak levels and the number of related fatalities.

L-0044/015

Groundwater concentration plume maps should be provided for each of the alternative[s] for the peak impacts. ILCR [incidential cancer risk] contour maps showing concentrations for each alternative and the peak concentration times should also be included. ILCF should be calculated for each alternatives. Data should be displayed in the same style as the TWRS EIS.

Response

The HSW EIS includes graphic figures showing groundwater contaminant concentrations over a 10,000-year time period in Volume I, Section 5.3 and Section 5.14 and Volume II, Appendix G and Appendix L.

The HSW EIS comparison of human health and safety impacts among the alternatives is expressed in terms of worker dose, dose to the public from atmospheric releases, accidents during the operational period, and long-term impacts via the groundwater pathway in the post-closure period. The risks are expressed in many ways, including probability of latent cancer fatalities. Details of the analyses are provided in Volume I Section 5.11 and Volume II Appendix F.

DOE believes this HSW EIS complies with applicable NEPA requirements.

Risk analysis is used throughout the HSW EIS. See Volume I Section 5 in the EIS and Volume II Appendices

Groundwater

F, G, H, I and L.

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated releases and levels of groundwater contamination. As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater at 1 km from the disposal facilities are expected to be below the benchmark drinking water standards. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

Comments

L-0055/066

DOE is considering moving exclusively to burial of LLW and MLLW in lined disposal facilities with leachate collection systems. CTUIR strongly recommends lined disposal facilities with leachate collection systems as well as extensive monitoring wells around and under the trenches or burial grounds. This can help to detect any leaks or degrading of waste containers before the waste has a chance to move into the ground water system. The current EIS analyzed impacts to the ground water from a hypothetical well located 1 km from the burial site. The analysis should be done for a well located at the edge of the burial grounds. If the trenches will have a low-permeability liner and a system for collecting leachate does the design assume that water will be getting into the burial grounds, through the waste to be able to be collected? How is this system to be maintained for as long as the waste remains hazardous?

Response

Federal RCRA Subtitle C and related state hazardous waste management regulations require that radioactive mixed waste land disposal units meet minimum technical standards to prevent the release of hazardous substances. The standards include a system of multiple liners to prevent leakage into groundwater, a leachate collection system, groundwater monitoring wells, a multi-layer cap to prevent infiltration of rain and snow, stringent waste treatment standards, and a program of monitoring, inspection, and reporting during the period of operation and after closure. These standards will apply to all new mixed waste disposal units evaluated in the HSW EIS. Volume I Section 2.2.3 discusses disposal facilities and their environmental protection features.

The preferred alternative as described in Volume I Section 3.7 is to dispose of low level waste in newly constructed lined disposal facilities as soon as they are available. For purposes of analysis the HSW EIS assumes this would occur by 2007. MLLW is currently being, and will continue to be, disposed of in lined facilities.

However, the use of unlined trenches for disposal of low level waste is an established, legal, and environmentally protective method of low level waste disposal at both DOE and commercial facilities. As such, it is a reasonable alternative, under CEQ regulations, and must be analyzed. The HSW EIS considers a wide range of alternatives for disposal of low level waste in both lined and unlined facilities. Lined trench alternatives include leak detection and leachate collection capabilities. In addition, groundwater monitoring would be done in compliance with applicable RCRA and State hazardous waste, TPA, and DOE requirements to validate the performance of the disposal facilities.

The maximum point of impact from multiple and widely dispersed sources may not necessarily be directly underneath the Low Level Burial Grounds or at the Low Level Burial Ground boundary. To model the groundwater impacts from multiple and widely dispersed disposal units over long periods of time, a 1-km point of analysis location was deemed to be more appropriate and representative than a regulatory point of compliance well location, for purposes of NEPA analysis. The point of analysis approach is considered technically appropriate for a NEPA evaluation of groundwater impacts over the long-term (10,000 years) time period analyzed. The 1-km point of analysis is not intended to represent the proposed locations for actual monitoring wells that would be used during the operational and closure time period. Groundwater impacts at the facility boundary (about 100 meters) have been added to the impacts identified for the preferred alternative and are discussed qualitatively for the other alternatives. A discussion of the differences between the 1-km point of analysis and the disposal facility boundary is provided in Volume I Section 5.3 and Volume II Appendix G.

Groundwater monitoring is conducted according to TPA requirements, the Hanford Dangerous Waste Management permit, and DOE Orders. Groundwater monitoring will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations.

Comments

E-0041/006

In response to a question about non-renewable resources, only two new non-renewable resources have been added. Others (such as steel, and water), are either dismissed as not being 'major', or are asserted not to be at risk—a dubious argument at best, given the pollution to the groundwater that already exists.

L-0052/006

Groundwater. Water is a sacred resource for the Nez Perce Tribe, and the ERWM can assure you the Tribe is not interested in sacrificing such a resource, as is suggested by Section 5.15, Volume I, Irreversible and Irretrievable Commitment of Resources. That section states, "…after a few hundred years following disposal, the vadose zone surrounding disposal areas and groundwater beneath the Hanford Site to which contaminants travel would be irretrievably committed." Table 5.146, Volume I, does not even indicate the anticipated volume and extent of irreversible and irretrievable (I and II) commitment of groundwater.

Response

As a result of additional mitigation measures incorporated into the action alternatives, the impact of the proposed action on groundwater at the 1-km line of analysis would be below benchmark drinking water standards. The discussion of Irreversible and Irretrievable Commitments of Resources in Volume I Section 5.15 has been revised in this EIS.

Comments

E-0043/018, EM-0217/018, EM-0218/018, L-0056/018, LM-0017/018, LM-0018/018

DOE may not irreversibly and irretrievably commit groundwater. Groundwater is a state resource, not a federal resource. DOE should design a facility to prevent the release of contaminants to the soil and groundwater.

E-0047/019

DOE declares Irreversible and Irretrievable Commitments of Resources violates State, Federal and the Trust Responsibility.

E-0047/021

Groundwater and the vadose zone under the Hanford Site are declared irretrievably and irreversibly committed due to long-lived radionuclides in existing disposal areas at Hanford.

E-0047/023

EIS does not discuss the area or volume of groundwater that will be made unusable by the alternatives proposed, only that it will exceed acceptable risk values in the future.

E-0055/023

DOE may not irreversibly and irretrievably commit groundwater
In section 5.15, DOE asserts a broad and unspecific claim to irreversibly and irretrievably commit an unspecified amount of groundwater with unspecified levels of contamination for an unspecific and unlimited

Groundwater

time.

Groundwater is a State resource, not a Federal resource. DOE lacks authority to make such a claim. Further, both State and Federal law for environmental cleanups require the protection of groundwater.

E-0055/024

DOE must to the greatest degree practicable reclaim or remediate groundwater and prevent its contamination. DOE may not use Hanford's groundwater or the Columbia River for waste disposal. Additionally, DOE must mitigate these impacts both to meet NEPA requirements and to avoid or fulfill the Natural Resource Damage provisions under CERCLA. It is inappropriate and unacceptable for DOE to use an EIS as a vehicle to supplant environmental cleanup laws and regulations.

L-0039/016

This draft EIS makes a claim of irreversible and irretrievable commitment of groundwater due to contamination.

· Groundwater is a State resource, not a Federal resource. DOE lacks authority to decide to allow contamination of groundwater to levels that prevent future use – and "irreversible and irretrievable commitment." This claim should be deleted. Moreover, DOE notes in response to Board Advice Number 133 (attached) that the claim is only made due to existing plumes and contamination, which are not within the scope of this EIS.

· Both State and Federal law for environmental cleanup require the protection of groundwater.

L-0041/012

In addition to these specific deficiencies, we strongly disagree with DOE's intent to knowingly re-contaminate groundwater as new burial sites eventually leach radioactive and hazardous contaminants into the vadose zone and groundwater. Future contamination of groundwater is planned and apparently considered acceptable. In effect, groundwater under Hanford is written off in perpetuity. Detrimental impacts on the health of the Columbia River are likely under this scenario. Planned re-contamination of the groundwater is simply unacceptable.

L-0041/013

This Environmental Impact Statement (EIS) makes a broad and unspecified claim of Irreversible and Irretrievable commitment of resources. It states that it commits an unspecified quantity of groundwater over an unspecified area for and unspecified and unlimited time. This is contrary to the intents and requirements of the body of environmental laws that govern Hanford cleanup.

L-0041/028

Groundwater across the Hanford Site exceeds drinking water standards today. Approximately 200 square kilometers is contaminated. Contaminants include radionuclides and hazardous constituents (see list below) in excess of drinking water standards in one or more wells. The modeling presented in the revised draft of the EIS presumes that future releases would be into uncontaminated groundwater, since these contaminates "will have migrated out of the unconfined aquifer by then" (Page 5.244 Line 19). This indicates that the complete mass of radioactive and hazardous contaminants, presently in the vadose zone and in groundwater will have migrated into the Columbia River, been removed through remedial action, or naturally attenuated.

Radioactive Contaminants
Carbon-14
Cesium-137
Cobalt-60
Europium-154
Iodine-129
Plutonium-238/239
Strontium-90
Technetium-99

Groundwater

Tritium
Uranium
Trichloroethene
Xylene

Hazardous Contaminants
Benzene
Carbon Tetrachloride
Chloroform
Hexavalent Chromium
Cyanide
Dichloroethene
Ethylbenzene
Fluoride
Nitrate
Toluene

However, DOE then claims an irreversible and irretrievable commitment of the groundwater based solely on the present impacts from uncontrolled releases to the groundwater from past actions. The irreversible and irretrievable commitment claim for groundwater must be removed from the EIS.

L-0041/029

The EIS does not discuss the area or volume of groundwater that will be made unusable by the alternatives proposed, only that it will exceed acceptable risk values in the future. Without information on the quantity and quality of the groundwater beneath the burial grounds, an assessment of impacts is not possible. This precludes adequate planning of mitigation strategies.

L-0044/016

Ecology does not agree that the USDOE's claim that the presence of long-lived, mobile radionuclides in the groundwater constitutes a continuing commitment of a water resource. Ecology will not allow releases from waste management units to continue or be left after the units cease operations, absent any form of monitoring or mitigation. Ecology will insist that the USDOE remove the waste that are sources of contamination in the groundwater, monitor for the releases, and implement short- and long-term mitigation measures.

E-0049/003, L-0048/003

The revised EIS claims that groundwater beneath the Hanford site may be considered irreversibly and irretrievably contaminated – in effect, written off entirely. Protecting the groundwater underlying the Hanford site is of particular interest to the Board in that this is the best way to protect the Columbia River. Declaring that nothing can or will be done to clean up the groundwater contamination would result in unregulated contamination of the Columbia River. This is totally unacceptable to the Board.

L-0049/009

Section 5.15, page 5.252. The amount of the vadose zone and groundwater that may be irreversibly and irretrievably committed needs to be better identified and quantified.

L-0052/008

The ERWM [Environmental Restoration and Waste Management] believes that the reasonable benchmark for the health of the water resource is the current drinking water standard. Recognizing the enormity of the contamination as it already exists, the ERWM contends that DOE has the responsibility to reclaim or remediate groundwater to the greatest degree technically practicable and prevent its further contamination. In essence, do no further harm to the resource.

P-0013/002

There are better ways to handle the waste so that groundwater contamination is avoided.

Groundwater

P-0129/001

Please do not continue to compound a terribly inadequate waste storage problem at Hanford with even more nuclear waste. I am well aware of the leakage of plutonium -- extremely carcinogenic -- and carbon tet - a known carcinogen -- into the groundwater of the Columbia River.

THR-0001/002

But they fail to analyze in the EIS, what is the cost of the loss of that resource. What is the cost of one acre-foot in today's dollars, in a dry, arid climate with agriculture, what's it going to be worth in 100 years, 200 years, 300 years, or a thousand years? No analysis. None.

TLG-0002/004

We're troubled by assumptions that the Environmental Impact Statement makes that groundwater at Hanford will eventually be allowed to continue to be contaminated to levels that we consider to be unacceptable. And, again, without knowing what this increment is, we can't tell when we might reach the level of how much more waste can be disposed there safely before you reach these unacceptable levels. So we believe that is a shortcoming as well in the document.

Response

As a result of additional mitigation measures incorporated into the action alternatives, the impact of the proposed action on groundwater at the 1-km line of analysis would be below benchmark drinking water standards. The discussion of Irreversible and Irretrievable Commitments of Resources in Volume I Section 5.15 has been revised in this EIS.

Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. The CERCLA process considers legally applicable Federal, State, and local laws or relevant and appropriate requirements (ARARs). Any decisions reached by DOE on the basis of analysis in the HSW EIS would be implemented in accordance with applicable Federal, State, and local laws and regulations. See Volume II Appendix N, Section N.2.4.

Comments

L-0055/015

Page 5.252 states that "In addition, after a few hundred years following disposal, the vadose zone surrounding disposal areas and groundwater beneath the Hanford Site to which contaminants travel would be irretrievably committed." Yet Table 5.146 does not list an irreversible and irretrievable ground water resource commitment. This is also contradictory to another quote in this EIS from Hanford (page 5.244): "By the time the waste constituents from the action alternatives are predicted to reach groundwater (hundreds of years), the waste constituents would not superimpose on existing plumes, and would not exceed the benchmark dose, because the existing groundwater contaminant plumes will have migrated out of the unconfined aquifer by then." Although this last quote is inaccurate since the source of the current plumes is at least partially from contaminants in the vadose zone, DOE is stating that the ground water would have been in a "clean" state and they are knowingly contributing pollution to the ground water that will leave it in a hazardous condition. This is also unacceptable. DOE can not make such broad statements that will "commit" and leave the whole of the ground water beneath Hanford forever contaminated by their actions, nor can they make a claim for irreversible and irretrievable conditions for existing releases. In addition, since new plumes have recently or will be discovered, DOE can not say with certainty when current plumes would have moved out of the area.

L-0055/016

By the time the waste constituents from the action alternatives are predicted to reach groundwater (hundreds of years), the waste constituents would not superimpose on existing plumes, and would not exceed the benchmark dose, because the existing groundwater contaminant plumes will have migrated out of the unconfined aquifer by then. Is DOE implying that the ground water will have been cleaned up to pristine conditions before more contaminants will have entered the system to recontaminate the ground water. Why is it predicted to take 100's of years for new contaminants to reach the ground water but current contamination in the vadose zone and ground water would have migrated out of the area by then. There is no discussion of cumulative groundwater issues or of multiple plume issues. It was also predicted that the current contamination would never have reached the ground water in the first place. There are many more types of radionuclides that have contributions to the contamination to the ground water under the Hanford site only a few were analyzed in this EIS to determine their "combined" effects.

Response

DOE is not implying that the groundwater will have been cleaned up to pristine conditions before more contaminants will have entered the groundwater. However, the potential contaminants from actions taken as a result of this EIS will not result in groundwater exceeding benchmark drinking water standards at the 1-km or Columbia River lines of analysis.

The groundwater beneath the 200 East and 200 West Areas has been contaminated with radionuclides and non-radioactive chemicals because of waste management activities during past Hanford Site operations. Existing groundwater contamination is largely the result of past liquid disposal practices, leakage from liquid waste storage tanks, and other liquid spills. An estimated 80 square miles of plumes that exceed the benchmark MCLs now exists underneath the Hanford Site. These plumes resulted from the release of an estimated 450 billion gallons of liquid effluent since 1944, 346 billion gallons of which were released in the 200 East and 200 West areas. DOE has ended the types of untreated waste discharges and management activities that caused the contamination, and is taking actions to prevent additional releases from Hanford facilities.

Contaminants from solid waste are expected to move slower than contaminants from liquid waste disposal. Because the contaminants arrive at different times, contaminants from solid waste disposal actions evaluated in this EIS would not result in exceeding benchmark drinking water standards at the 1-km and Columbia River lines of analysis. Cumulative groundwater impacts are discussed in Volume I Section 5.14.3 and Volume II Appendix L.

Additional text has been added to Volume II Appendix G discussing the application of the U-Code.

Discussion of the synergistic transport effects among organic and inorganic contaminants is provided in Volume I Section 5.3 and Volume II Appendix G. To establish the relative mobility of each contaminant, they were grouped based on their mobility in the vadose zone and underlying unconfined aquifer. Contaminant groupings were used, rather than the individual mobility of each contaminant, primarily because of the uncertainty involved in determining the mobility of individual constituents. The groups were selected based on relatively narrow ranges of mobility, and constituents were placed in the more mobile group when there was uncertainty concerning which group they should be placed in. Some of the constituents, such as iodine and technetium, would move at the rate of water whether in the vadose zone or underlying groundwater. The movement of other constituents in water, such as americium and cesium, would be slowed or retarded by the process of sorption onto soil and rock.

Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. The CERCLA process considers legally applicable Federal, State, and local laws or relevant and appropriate requirements (ARARs). Any decisions reached by DOE on the basis of analysis in the HSW EIS would be implemented in accordance with applicable Federal, State, and local laws and regulations. See Volume II Appendix N, Section N.2.4.

Comments

E-0026/008

It [the EIS] fails to address "soil caps" and lateral movement of water and waste under the soil caps.

Groundwater

Response

Lateral water movement, as a phenomenon that might affect contaminant transport, has not been evaluated in the HSW EIS. This is attributable to an absence of field observations of natural recharge events causing lateral movement of water under the solid waste burials. It is possible that liquid discharge waste sites, sewer tile fields, and unplanned releases located immediately adjacent to solid waste burial grounds could create higher moisture contents in and above some strata within the vadose zone profile, and that such water could move laterally. However, such events and effects would be local and short term (operational era), relative to the larger scale and longer term risk assessments (thousands of years).

For the SAC, the solid waste burial grounds have been simulated as aggregated solid wastes with a one-dimensional model that did not assume movement of water laterally under the burial grounds. Multidimensional analyses are conducted as part of the Solid Waste Burial Ground Performance Assessments. These analyses are based on a uniform recharge rate over the disposal region, and may project a buildup of moisture in and above some strata in the geohydrologic profile before drainage occurs. The performance assessment analyses do not indicate lateral migration. (Wood et al. 1995, Wood et al. 1996).

The HSW EIS barrier performance analysis takes into account degradation of the modified RCRA Subtitle C barrier. No guidance is available for specifying barrier performance after the design life. However, it is likely that this specific barrier will perform as designed far beyond its design life. The modified RCRA Subtitle C barrier (see Volume I Section 2.2 for description of this barrier) has a design life of 500 years in the absence of any active institutional controls or maintenance 100 years after closure. The starting infiltration rate used in the release modeling begins at 0.01 cm/yr, after which the assumed rate increases in five steps over 500 years after the start of cover degradation (See Volume II Figure G.3). After 500 years of degradation, the infiltration rate used in the release modeling is assumed to be equivalent to the rate used to represent recharge for the natural surrounding environment (0.5 cm/yr). This rate was used during the remaining 9,000 years of this assessment. Groundwater impacts based on these assumptions are in Volume I Section 5.3 and Volume II Appendix G. A sensitivity analysis was also performed that assumed the cap would be maintained beyond 100 years after closure. Groundwater impacts from this sensitivity analysis are in Volume II Appendix G Section G.4.

Comments

L-0055/017

Although not used as a source of drinking water today, nor expected to be in the foreseeable future, groundwater was analyzed as a source of drinking water. It appears DOE is already trying to write-off the use of the ground water as a drinking water source. The Native American Tribes in the area have consistently expressed their desire to reoccupy the lands of the Hanford Reservation when DOE opens it up. A blanket state that the ground water is unlikely to be used is irresponsible.

Response

The Irreversible and Irretrievable Commitments of Resources discussion in Volume I Section 5.15 has been revised in the final HSW EIS. Consistent with Volume I Section 5.15, DOE intends to maintain appropriate restrictions on groundwater usage for as long as necessary.

Comments

L-0014/005, L-0022/005

While we agree that the existing wastes, which were disposed of in unlined trenches at Hanford should be left as is except where release problems have or will be identified; i.e. carbon tetrachloride release from 200 W Area burial grounds. When problems are found they must be promptly corrected. Any new wastes must be disposed of in lined trenches. Analyses must be provided to verify the acceptability at leaving the wastes in the unlined trenches. The current draft does not adequately address this issue.

Groundwater

L-0033/010

This EIS does not adequately address the problems of mixed waste such as carbon tetrachloride solvent in the waste stream. These volatile carcinogenic compounds represent a serious health risk to future workers. Full disclosure of the future problems of opening these trenches is required in an adequate EIS.

L-0044/009

The EIS does not acknowledge information available about suspected releases from the burial grounds (e.g., LLWMA 4) and deficiencies associated with the existing groundwater monitoring network.

L-0044/064

The short-term impacts of operations and construction activities are described in Section 5.3.1 and appear to be based on an assumption of no current environmental impacts from the LLBGs. This assumption is not supported by monitoring data or technical evaluation. Releases have been detected from LLWMA 4 as shown by environmental monitoring data.

L-0049/005

Section 3.4.3, page 3.25, lines 20-22. This sentence ignores the carbon tetrachloride in the groundwater that apparently came from a burial ground.

THR-0002/006

I wanted to note that one of the chemicals that's leaching into these low-level burial grounds is carbon tetrachloride, a carcinogen. It was measured in air samples from some of these low-level burial trenches at levels reaching 176 times the OSHA standard for worker exposure. So there is also, you know, not only groundwater concerns, but worker health and safety concerns. And these need to be addressed in the EIS, and they are not.

TPO-0011/010

Already it's completely leaked into the groundwater. This is insane putting more things there then there is now.

TRI-0001/010

The permit application filed and on which a Notice of Deficiency was given earlier this year by Ecology, that permit application failed to include dangerous wastes, and the conditions in the Notice of Deficiency noted by Ecology are not addressed in this EIS. … And those conditions that they describe are not described in this EIS. For instance, the notice of deficiency talks about the conceptual model does not adequately explain the groundwater and the vadose zone presence of organics. Nor does this document.

TRI-0001/012

The Department of Ecology noted that considerable evidence shows waste constituent releases from Low-Level Waste Management Area 4 immediately west of the Plutonium Finishing Plant, also not described adequately in this EIS, even though it is a serious and immediate threat to health and the environment.

TRI-0001/013

TRU containers are designed to vent and known inventories are not considered for organics. Now, what are we talking about? Many of you have heard me discuss this before. Levels of carbon tetrachloride in the vapor space of the trenches have been measured at 1,760 parts per million. We have, if you just do a little bit of research, you will find that on the Center for Disease Control and NIOSH [National Institute for Occupational Safety and Health] web sites, you will find medical literature documenting immediate threat to human health as well as fatalities at exposure levels well below 1,760 parts per million, multiples below. But we still have an expectation that workers will be retrieving transuranic waste without personal protective equipment, without supplied air, and we do not have an adequate investigation of the other organics and solvents present. We have only looked at one, and incompletely at that.

Groundwater

TRI-0001/014

At this time the EIS should describe and should be withdrawn until it describes results of a full Model Toxics Control Act investigation of the releases and groundwater assessment. We do know that we have conditions that are spreading contamination, we have organics detected in the groundwater near Waste Management Area 4, we have as I said carbon tetrachloride spreading in vapor form at deadly levels, and we have not even begun to describe in this EIS any timeline for investigation of the burial grounds in the near term.

Response

As indicated in Volume I Section 5.3, existing groundwater monitoring data does not indicate that releases from the LLBGs have occurred. As indicated in Volume I Section 4.5.3.3, the carbon tetrachloride in the groundwater under Low-Level Waste Management Area 4 is from an upgradient source. Groundwater impacts from Low-Level Waste Management Areas 1, 2, 3, and 4 are discussed in the Hanford Site-Groundwater Monitoring for Fiscal Year 2001 document (Hartman et al. 2002). Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4.

Sampling being conducted as part of the ongoing CERCLA program in the LLW Management Area 4 has indicated the presence of carbon tetrachloride vapors in and near several trenches. During the trench sampling, industrial hygienists conducted repeated air monitoring at the top of the vent risers above trenches—a required health and safety practice for all sampling activities to protect the workers from potentially being exposed during the sampling. After the carbon tetrachloride had been detected in the air at the bottom of the trench, industrial hygienists again monitored the trench to ensure that other workers who entered this area in the burial ground would not be exposed. The measurements for all "organics" in the air above the trench (including carbon tetrachloride and its decay products) showed readings ranging from "not detectable" to 4 ppm—well below the standard set by the Occupational Safety and Health Administration (OSHA) of 10 ppm per day during a 40-hour work week. Samples taken in the "breathing zone" did not show any level of organics. The monitoring at the surface of the trenches indicated that toxic vapors were not emanating from the vent risers. Monitoring above and below the surface continues. Based on monitoring results and activities to be performed, industrial hygienists specify protective measures to be taken to protect workers. Common measures might include protective clothing, respiratory protection, and removal of contaminants from the work area.

Additional sampling for organic compounds, including carbon tetrachloride, in the Low Level Burial Grounds is being conducted as part of the on-going TRU waste retrieval activities. This sampling started October 15, 2003 and is being conducted in accordance with a State of Washington Department of Ecology approved Sampling and Analysis Plan (SAP). Sampling results will be used both for helping reduce risks during retrieval and to provide information for remediation planning.

In response to carbon tetrachloride vapors found in previous vent riser sampling in trench 4 of LLBG 218-W-4C, a vapor extraction system has been installed and started operation November 15, 2003. This system is currently intended to operate until the carbon tetrachloride concentrations are less than or equal to 10 ppmv. This work is being conducted prior to retrieval in order to reduce the likelihood that higher levels of carbon tetrachloride will be encountered during retrieval that could pose a higher risk to workers and slow progress on retrieval.

Retrieval of the suspect transuranic waste from this burial ground has already started and is anticipated to be complete within the next few years, with Trench 4 retrieval completed by the end of 2006. If the retrievably stored waste is the source of the carbon tetrachloride vapors, the completion of this retrieval will eliminate the source of contamination. Additional sampling results from the SAP sampling after the removal of the retrievably stored waste will provide information to assist in determining appropriate actions after the waste is removed.

Groundwater

Groundwater monitoring is conducted according to TPA requirements, the Hanford Dangerous Waste Management permit, and DOE Orders. Groundwater monitoring will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations.

Federal RCRA Subtitle C and related state hazardous waste management regulations require that radioactive mixed waste land disposal units meet minimum technical standards to prevent the release of hazardous substances. The standards include a system of multiple liners to prevent leakage into groundwater, a leachate collection system, groundwater monitoring wells, a multi-layer cap to prevent infiltration of rain and snow, stringent waste treatment standards, and a program of monitoring, inspection, and reporting during the period of operation and after closure. These standards will apply to all new mixed waste disposal units evaluated in the HSW EIS. Volume I Section 2.2.3 discusses disposal facilities and their environmental protection features.

The preferred alternative as described in Volume I Section 3.7 is to dispose of low level waste in newly constructed lined disposal facilities as soon as they are available. For purposes of analysis the HSW EIS assumes this would occur by 2007. MLLW is currently being, and will continue to be, disposed of in lined facilities.

However, the use of unlined trenches for disposal of low level waste is an established, legal, and environmentally protective method of low level waste disposal at both DOE and commercial facilities. As such, it is a reasonable alternative, under CEQ regulations, and must be analyzed. The HSW EIS considers a wide range of alternatives for disposal of low level waste in both lined and unlined facilities. Lined trench alternatives include leak detection and leachate collection capabilities. In addition, groundwater monitoring would be done in compliance with applicable RCRA and State hazardous waste, TPA, and DOE requirements to validate the performance of the disposal facilities.

As a result of additional mitigation measures incorporated into the action alternatives, the impact of the proposed action on groundwater at the 1-km line of analysis would be below benchmark drinking water standards. The discussion of Irreversible and Irretrievable Commitments of Resources in Volume I Section 5.15 has been revised in this EIS.

Comments

L-0044/059

The response states: "Current results from the RCRA-compliant groundwater monitoring have not identified any groundwater impacts from the LLBGs." The RCRA Part B permit application text states: "Total organic halides in downgradient well 299-W15-16 has exceeded the upgradient/downgradient comparison value since January 1999, but the source of contamination is believed to be the regional carbon tetrachloride plume, not the burial grounds." Subsequently, investigation by the USEPA Hanford Office and Ecology suggested that the LLBG is a source of CCl_4.

Response

DOE is not aware of any EPA or Ecology investigation that concludes that carbon tetrachloride in the groundwater is from the LLBGs. Further characterization of the carbon tetrachloride plume is being conducted.

Hanford Cleanup

Comments

L-0012/001

Many of the possible solutions for treating, storing or burying solid wastes from other weapons sites at the Hanford Nuclear Reservation appear to embody some the public's values expressed over the years and at last summer's first hearings on the EIS. However, our buy-off on whatever alternative you decide upon rests upon our ability to trust the promises of the Department of Energy. This is difficult at a time when the DOE stops cleanup work, based on a directive from the Washington Department of Ecology because you "must comply". Yet over the years and even in this new document, you capriciously pick and choose which laws to comply with, and which to change without going through the proper legal steps.

L-0012/005

Throughout this document, the Department has interwoven many of the premises put forth in last year's Performance Management Plan that proposed cost saving measures that play havoc with current laws.

TSE-0011/001

I notice that there has been a significant tone of the discussion, alteration in the last few months, and it seems to me that we get the impression that the administration is moving by "Fiat" [Fiat is a sports car]. This seems to be that this "Fiat" is on the fallacy of the accelerated plan, which is to use a whole lot less money and do things quicker.

Response

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit).

Volume I Section 6 identifies the major statutes, permits, compliance agreements, and regulatory requirements followed in conducting operations at Hanford Site. Statutes include AEA, CERCLA, RCRA and the State of Washington Hazardous Waste Management Act. Volume I Section 6.3 discusses the TPA. Volume I Section 6.4 discusses the Dangerous Waste Management permit. Volume I Section 6.19 provides a summary of existing and potential permits (including state approved permits where state decision-making will be necessary) required to construct and operate treatment, storage, and disposal facilities related to the HSW EIS alternatives. Volume I Section 6 has been updated and revised in response to comments in the final HSW EIS.

The Hanford Performance Management Plan (DOE-RL 2002) is discussed in Volume I Section 1.4.4 and Volume II Appendix N.

Comments

TSE-0027/007

The health effects of company staff were higher than those of DOE staff. Why? Shouldn't we be doing something about this and requiring the companies to be more careful? And have their employees have less exposure?

Response

Clean up of the Hanford Site has been and will continue to be subject to regulatory dose requirements and ALARA (as low as reasonably achievable) principles. All DOE and contractor staff must follow the same DOE occupational safety and health requirements.

Comments

P-0008/003

ENOUGH LEAKING CONTAINERS.

P-0019/001

Nuclear waste destroys lives and wastes money.

P-0103/001

DO THE RIGHT THING, NOT JUST BAD SCIENCE RIGAMOROLE TO MEET THE BUSH ADMINISTRATION'S AGENDA THAT IS SELLING US DOWN THE RIVER

Response

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4. See Volume III Section 2.0, Item 6 of the CRD for more examples of cleanup at Hanford.

DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

Comments

TSE-0025/001

Whatever you subsidize, you are encouraging somebody to go ahead and waste it. And in this case, the federal government, the Department of Energy is proposing to subsidize the production of nuclear garbage. They are saying, go ahead and produce it, we're going to let somebody else pay for it, somebody else somewhere down the road.

Response

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4. See Volume III Section 2.0, Item 6 of the CRD for more examples of cleanup at Hanford.

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The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

Charging DOE waste generators higher disposal costs is not expected to reduce the amount of waste generated by DOE sites or to increase the amount of waste reduction already occurring under the DOE pollution prevention and waste minimization program. The Pollution Prevention Act, Section 6002 of RCRA and several executive orders were enacted, in part, because it was recognized that (1) government organizations should make efforts to minimize the amount of waste they generate and (2) economic incentives generally do not work for government entities. For waste being disposed of at Hanford, the waste generator and the disposal facility are both part of the same government organization, the DOE. Although private companies can collect money today for work to be performed in later years, government organizations like DOE are precluded from collecting money to cover future costs (such as closure costs and long-term monitoring costs) without specific congressional approval.

The recent "Report to Congress - The Cost of Waste Disposal: Life Cycle Cost Analysis of Disposal of Department of Energy Low-Level Radioactive Waste at Federal and Commercial Facilities" (DOE 2002d) explains that waste disposal decisions should be made based on the total life-cycle cost of waste disposal. These decisions need to consider the costs for treatment, inspection and verification, disposal, closure, and long-term monitoring. The DOE pollution prevention and waste minimization program already requires waste disposal decisions to be made based on life-cycle costs and other factors. See Volume I Section 2.2.5 for a discussion of the DOE pollution prevention/waste minimization program.

Comments

L-0027/005

The DOE is morally and legally obliged to live up to the Tri-Party agreement to meet all deadlines for vitrification and not try to escape its obligations by reclassifying deadly waste as harmless.

Response

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4. See Volume III Section 2.0, Item 6 of the CRD for more examples of cleanup at Hanford.

Hanford Cleanup

DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

The HSW EIS proposes no changes regarding the classification of high-level waste.

Comments

L-0038/002

On another subject, since I am a Washingtonian, the milestones for clean-up of the contaminated Hanford Nuclear Reservation have not been met. In view of that fact, it is inconceivable to even consider bringing in more waste to Hanford.

Response

DOE recognizes that the cleanup of Hanford is a complex effort and is committed to it through the TPA process. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule.

The Hanford area has been extensively studied and determined to be suitable for disposal of DOE and commercial waste. The impacts of disposing various quantities and types of waste are discussed in this HSW EIS as well as previous NEPA documentation. See Volume I Section 1.5.

Comments

P-0133/001

The Revised Draft EIS indicates that the US DOE plans to send more solid wastes to Hanford. Although it is commendable that you will send the wastes to a national repository eventually, it is not logical to add more wastes to Hanford until after you have removed what is already there.

Response

The HSW EIS evaluates several alternatives for the storage, treatment, and processing of waste from onsite and offsite generators. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

The total amount of radioactivity expected to leave Hanford is much greater than the amount of radioactivity expected to come to Hanford. About 400 MCi of radioactivity are currently onsite. About 375 MCi are expected to be shipped to the Waste Isolation Pilot Plant in New Mexico, the geologic repository for spent nuclear fuel and high-level waste proposed for Yucca Mountain in Nevada, and other places. Less than 10 MCi would be expected to come to Hanford even if all the offsite waste evaluated in this HSW EIS were to come to Hanford. See Volume I Section 1 Figure 1.4.

Comments

L-0012/004

This EIS does not address the issue of digging up and treating waste from the Hanford Burial grounds. It shows the uses of unlined trenches for waste burial. How can we use existing land and facilities for imported waste when we have yet to treat and dispose of the myriad volumes of our own waste to an acceptable degree of protection?

Response

TPA Milestone M-15-00C requires all 200 Area, non-tank farm, pre-record of decision site investigation activities to be completed by December 31, 2008. Site characterization information generated from TPA remedial investigation and LLBG RCRA permitting activities has been used in development of the HSW EIS.

Retrieval of TRU waste from the LLBGs has already started. Shipments of TRU waste from Hanford to WIPP have also started. As indicated in the Hanford Performance Management Plan (HPMP, DOE-RL 2002), approximately one-third of the containers (fifteen thousand containers) of suspect TRU waste from the LLBGs are scheduled to be retrieved by 2006 . No substantial releases are expected to occur before the waste is retrieved.

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4. See Volume III Section 2.0, Item 6 of the CRD for more examples of cleanup at Hanford.

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The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

The preferred alternative as described in Volume I Section 3.7 is to dispose of low level waste in newly constructed lined disposal facilities as soon as they are available. For purposes of analysis the HSW EIS assumes this would occur by 2007. MLLW is currently being, and will continue to be, disposed of in lined facilities.

However, the use of unlined trenches for disposal of low level waste is an established, legal, and environmentally protective method of low level waste disposal at both DOE and commercial facilities. As such, it is a reasonable alternative, under CEQ regulations, and must be analyzed. The HSW EIS considers a wide range of alternatives for disposal of low level waste in both lined and unlined facilities. Lined trench alternatives include leak detection and leachate collection capabilities. In addition, groundwater monitoring would be done in compliance with applicable RCRA and State hazardous waste, TPA, and DOE requirements to validate the performance of the disposal facilities.

The Hanford Only waste volume has been evaluated in all action alternatives and the No Action Alternative to provide a better comparison with the impacts of adding offsite waste. The incremental impacts of offsite waste are the differences between the Lower and Upper Bound Volumes and the Hanford Only impacts for a given alternative.

Comments

L-0043/003

Citizens by the thousands - who live in the area - have given comments, testimony. The single message has been loud and clear. [The] cleanup of existing dangerous, leaking, explosive-prone wastes needs to be top priority.

Response

Environmental cleanup is DOE's top priority at Hanford and other DOE sites.

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4. See Volume III Section 2.0, Item 6 of the CRD for more examples of cleanup at Hanford.

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The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

Comments

TSE-0035/001

People are tired of talking about cleanup. Well, these are things that last for, you know, hundreds and thousands of years. So, it isn't like you can be real fast with this. So accelerated is an American way, by God, we are impatient, we are going to accelerate. But I want to hear the word quality, and safety, and I could care less about the acceleration I am feeling. I am on the Hanford Advisory Board. I am getting a gut feeling very strongly, accelerated means less. Accelerated I think is meaning less, translated. So, if slowness is just apathy, not doing nothing, is bad, but if slower means cautious, and quality, and protecting the water, protecting the workers' health, protecting the public health, and protecting the ecosystem, then not so accelerated is better. So this unGodly worship of the word acceleration I question, because I am afraid acceleration means less.

Response

Environmental cleanup is DOE's top priority at Hanford and other DOE sites.

DOE is committed to openness and public involvement in its decision making. The DOE revised the HSW EIS in order to respond to public, tribal and regulator requests, and then held six public meetings to receive comments on the revisions. The DOE plan to accelerate cleanup is based, in part, on the requests of stakeholders who have repeatedly expressed concern that the effort is proceeding too slowly. The Hanford Performance Management Plan is also consistent with stakeholder input that DOE should give priority to reducing risk and cleaning up along the river corridor. Although the plan was developed in a relatively short time, it was based on input from the public in concert with regulatory agencies and others during the year-long Constraints and Challenges to Cleanup Team (C3T) process. Public involvement in DOE decision making is critical, and DOE will continue to seek input as Hanford cleanup progresses.

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4. See Volume III Section 2.0, Item 6 of the CRD for more examples of cleanup at Hanford.

DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

Comments

L-0005/002

Unlined trenches provide no protection from soil and groundwater contamination. Contaminated groundwater would flow into the Columbia River for thousands of years! Birth defects and cancer would be our legacy to countless future generations in the Columbia Basin and beyond.

TSE-0012/006

You once told us it would take 2000 years for these contaminants to reach the Columbia River. It didn't. Groundwater, or water quality, potable water quality, will be a major issue in the United States within 40 years. It may be a much more serious issue than energy, which seems to pre-occupy us all at the present time. And finally, I regret to say that you have no credibility. You have contracted to clean up the Hanford soils by 2018, but you propose to carry on putting materials in unlined trenches until the year 2046.

Response

The preferred alternative as described in Volume I Section 3.7 is to dispose of low level waste in newly constructed lined disposal facilities as soon as they are available. For purposes of analysis the HSW EIS assumes this would occur by 2007. MLLW is currently being, and will continue to be, disposed of in lined facilities.

However, the use of unlined trenches for disposal of low level waste is an established, legal, and environmentally protective method of low level waste disposal at both DOE and commercial facilities. As such, it is a reasonable alternative, under CEQ regulations, and must be analyzed. The HSW EIS considers a wide range of alternatives for disposal of low level waste in both lined and unlined facilities. Lined trench alternatives include leak detection and leachate collection capabilities. In addition, groundwater monitoring would be done in compliance with applicable RCRA and State hazardous waste, TPA, and DOE requirements to validate the performance of the disposal facilities.

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The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years.

Hanford Cleanup

For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

Contaminants from solid waste are expected to move slower than contaminants from liquid waste disposal. Because the contaminants arrive at different times, contaminants from solid waste disposal actions evaluated in this EIS would not result in exceeding benchmark drinking water standards at the 1-km and Columbia River lines of analysis. Cumulative groundwater impacts are discussed in Volume I Section 5.14.3 and Volume II Appendix L.

Comments

P-0023/001

Please stop dumping Radioactive waste at Hanford... Human health is already threatened by the contaminated groundwater and will take forever to clean up. Save the Columbia River and the future of the Hanford Reach.

Response

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

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The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

Comments

E-0029/001

I very strongly do not want waste from other states being sent to Hanford.

E-0030/001

As a resident of Washington, I urgently request that you prevent any more nuclear waste coming to Hanford. Residents of our state are already living with the negative health results of too much nuclear in their air and water and ground.

E-0034/001

We are Washington State residents who are concerned about the use of Hanford as a nuclear waste dump. We wish to see all dumping of nuclear waste stopped on the Hanford Reserve, and continued cleanup of past activity. Hanford is a poor choice as a dump site primarily because of its proximity to the Columbia River. Washington State has provided waste storage long enough. Let some other state take the responsibility from now on.

F-0020/001

Storing additional waste at Hanford is unacceptable.

F-0020/002

This area is already the number 1 waste / contamination site in the country. Adding more waste would go against prior agreements and public opinions.

F-0023/002

We do not want any more waste brought into Hanford from anywhere.

F-0024/004

No more waste transported and dumped with an inadequate SWEIS at Hanford.

F-0025/008

The NW region must be rendered safe from present contamination and not be further made into a national dump.

F-0031/002

70,000 TRUCKLOADS of Radio-active Waste - What the hell [sic] is happening here?

L-0029/005

It seems to me instead of bringing more poison to an area so close to a major river, covered by a major flood in the past with seeps, springs and unknown water table, plans would be made to remove to a more arid, stable site, like the national repository in New Mexico.

L-0030/005

Please reconsider and prepare an EIS that protects the Hanford site and that forbids additional dumping from other states.

L-0032/004, LM-0005/004, LM-0006/004, LM-0007/004, LM-0008/004, LM-0009/004, LM-0010/004, LM-0011/004, LM-0012/004, LM-0013/004, LM-0014/004, LM-0015/004, LM-0016/004

The eastern Washington shrub-steppe is a complex ecosystem, not a wasteland, and we don't want your waste. Eastern Washington is an agricultural mecca, dependent entirely on the Columbia, not a filter for your plutonium. It does not take a scientist to realize such toxic waste should be stored away from a major waterway, so find someplace else for it

P-0146/001

It is my understanding that Hanford already has toxic/hazardous/radioactive wastes in unlined "graves" and that there are plans to bury some 50,000+ truckloads more in this manner. Please do not allow this to happen. Hanford's already a total environmental catastrophe and adding to it seems extremely counterintuitive.

P-0149/001

I urge you NOT to import any offsite waste to Hanford's already inadequate storage of radioactive waste. Clean up the mess that is already there-this is a priority. We do not need more river and soil contamination or risky transport of waste.

P-0153/001

NO WASTE TO HANFORD Please stop immediately any and all plans to transport waste to Hanford. ... We still have not satisfactorily dealt with local issues involving nuclear waste.

P-0165/001

Stop using our state as a dumping ground!!

P-0166/001

Please do not make Hanford a national dump site.

TSE-0011/003

Hanford was not originally designed as a waste area. We have two other waste areas, Yucca Mountain, and the WIPP in New Mexico, which are actually designed as geologically safe areas to put waste. Hanford has in no way been designed for the placement of waste.

Response

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

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CRD for more examples of cleanup at Hanford.

DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

The total amount of radioactivity expected to leave Hanford is much greater than the amount of radioactivity expected to come to Hanford. About 400 MCi of radioactivity are currently onsite. About 375 MCi are expected to be shipped to the Waste Isolation Pilot Plant in New Mexico, the geologic repository for spent nuclear fuel and high-level waste proposed for Yucca Mountain in Nevada, and other places. Less than 10 MCi would be expected to come to Hanford even if all the offsite waste evaluated in this HSW EIS were to come to Hanford. See Volume I Section 1 Figure 1.4.

DOE's radioactive waste will continue to be disposed of in several states around the country where there are existing DOE and commercial disposal facilities. See Volume I, Figure 1.2.

The shipment of LLW and MLLW to Hanford for treatment and disposal is consistent with existing NEPA documentation, including the WIPP SEIS and WM PEIS. The HSW EIS shows the impacts of receiving and disposing of LLW and MLLW, from other DOE sites, is small. See the discussion in Volume III Section 2.0, Item 1.

Comments

L-0030/001

There are so many reasons why this [additional waste importation] is not a good idea that it is difficult to comprehend how this plan would even be considered. Several years ago there were reliable reports of contamination of salmon from leaking, inadequate storage tanks which allowed seepage into the adjacent Columbia River. Adding more chemical and radioactive waste which will be there for thousands of years requires more thought on the part of the US Department of Energy.

Response

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

The EPA Columbia River Basin Fish Contaminants Survey 1996-1998 (EPA 2002) was a study of organic, metal, and radionuclide concentrations in 208 fish tissue samples collected from 24 locations on the Columbia, Snake, Yakima, Clearwater, Klickitat, Deschutes, Willamette and other rivers that drain the Columbia River Basin. Locations included the Hanford Reach of the Columbia River, artificial ponds on the Hanford Site, and the upper Snake River. Cancer risks were estimated for consumption of fish that were contaminated with radionuclides. These risks were small relative to the estimated risks associated with radiation from naturally occurring background sources, to which everyone is exposed. The levels of radionuclides in fish tissue from the Hanford Reach of the Columbia River and the ponds on the Hanford Site were similar to levels in fish from the Snake River. These estimates of risks were not combined with the potential risks from other chemicals, such as PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and a limited number of pesticides. The potential cancer risks from consuming fish collected from Hanford Reach and the artificial ponds on the Hanford Site were similar to cancer risks in fish collected from the upper Snake River. EPA reported that the Yakima River and the Hanford Reach of the Columbia River tended to have higher concentrations of organic chemicals than other study sites. EPA also reported that the chemicals and or chemical classes that contributed the most to cancer risk for most of the resident fish were PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and a limited number of pesticides. For most of the anadromous fish, the chemicals that contributed the most to cancer risk were PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and arsenic. These chemicals occur in the Columbia River as a result of agricultural and industrial operations (pulp and paper plants, for example) and are very unlikely to be of Hanford origin. These chemicals would not exist in wastes proposed for future disposal at Hanford, or, if initially present, would be treated to reduce their mobility and toxicity to meet applicable standards prior to disposal.

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

Comments

TPO-0021/002

...it's [the EIS process is] a shell game. It's about money. It's about fast track and the importation of more poison waste to Hanford.

Response

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

The HSW EIS provides important environmental information to assist DOE in making decisions about site-specific storage, treatment, and disposal actions at Hanford.

Comments

E-0018/001

STOP further import of radioactive waste to this state and Hanford. Let other states deal with their own wastes. Washington is too beautiful to continue to be a dumping ground. What goes around comes around.

TPO-0013/002

I'm strongly opposed to importing any additional wastes into this region. This must not be the dumping ground for the entire nation.

Response

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

DOE's radioactive waste will continue to be disposed of in several states around the country where there are existing DOE and commercial disposal facilities. See Volume I, Figure 1.2.

Comments

P-0112/003

The mission at Hanford needs to be completely devoted to environmental stewardship & remediation, and should no longer be in the business of nuclear waste production or acceptance.

Response

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford.

Hanford Cleanup

Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

Some additional wastes will be generated as part of the cleanup of Hanford Site and other DOE sites. However, plutonium production, the source of most of the waste created, has stopped at Hanford. TRU waste, high-level waste, and spent nuclear fuel will be sent to underground repositories in other states that have been designed to safely contain the waste.

The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

Comments

L-0055/034

Another consideration is to conserve resources by characterizing and reducing the total amounts of nuclear and chemical wastes and to spread the burden of responsibility equitably across the system and not simply using storage at remote locations as the solution. This also requires accelerating planning and building the appropriate facilities to treat the waste and responding to many of the concerns and questions of other federal agencies, the States of Oregon and Washington, and Tribes.

Response

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

Pollution prevention and waste minimization are discussed in Volume I Sections 2.2.5 and 5.18.1. NEPA documents related to this HWS EIS are discussed in Volume I Section 1.5. The WM PEIS and other NEPA documents identified in this HSW EIS evaluate alternatives for managing various DOE waste streams. DOE uses waste minimization methods where practicable to minimize waste management costs and to comply with RCRA waste minimization requirements.

Comments

E-0043/005, EM-0217/005, EM-0218/005, L-0056/005, LM-0017/005, LM-0018/005

The HSW EIS is based on a flawed and discredited study, the Waste Management Programmatic Environmental Impact Statement (WM PEIS). The WM PEIS contains insufficient analysis.

E-0047/003

The apparent assumption in the EIS that the WM PEIS provides adequate analysis for a decision to select Hanford as a national disposal site for LLW and MLLW is in error. The WM PEIS lacked the necessary detail and site-specific analysis to provide a basis for such a decision. The WM PEIS, for example, admittedly failed to consider the effects of waste generated during environmental cleanup actions which are certain to pose potential cumulative effects in relation to the proposed management of LLW and MLLW.

L-0014/015, L-0022/015

Any final decision regarding low level and mixed waste disposal and shipment between sites must be based upon risk based analyses and long-term site utilization planning options.

L-0044/143

Among the reasons Ecology asserts that USDOE has failed to provide adequate NEPA coverage in the WM PEIS and the RHSW-EIS are the following:

• Extensive additional EISs were required for disposal of other classes of waste (WIPP SEIS II, Yucca Mountain EIS).

• NTS and other sites' site wide EIS's were cited in the WM-PEIS, but no such EIS existed for Hanford.

• The WM-PEIS did not have available the analytic tools to model releases to the environment used in the HSW-EIS, notably the SAC and its inventories.

• Potential exceedences of groundwater standards in the RHSW-EIS are quite different from those acknowledged in the WM-PEIS (e.g., Tc-99 vs. uranium).

• The TWRS-EIS addressed onsite storage of Immobilized Low Activity waste in its Record of Decision (64 FR 46661), not land disposal; therefore, it cannot be said to be adequate to evaluate long-term impacts.

• The WM-PEIS contained insufficient information about the Hanford site to enable assessment of site specific impacts that should have been considered before Hanford was selected for disposal of off-site waste.

L-0054/014

Eighth, USDOE failed to resolve the Yakama Nation's concerns regarding the Waste Programmatic EIS which USDOE is basing their actions here on.

L-0055/007

Contrary to discussions in this revised Draft HSWEIS this is an Environmental Justice Issue. To simply analyze the costs of the impacts to low income residents surrounding the Hanford site to determine there are no environmental justice issues without assessment of the national implications is inappropriate for a national decision. To analyze this project as a local issue without discussion and recognition of the national implications too narrowly limits the actual scope of this project.

L-0055/040

Coordination amongst the whole nuclear weapons clean up complex is needed to truly reduce costs and savings of resources. The Summary states that DOE supports the cleanup and early closure of other DOE sites across the country. Hanford is connected to and dependent on other sites. Hanford has "long received LLW, MLLW, and TRU waste from offsite sources." What available funding is provided to Hanford to aid them in the early closure of these other sites by accepting this offsite waste? Hanford is not the only facility designated to accept MLLW and LLW. The Nevada Test Site has also been designated to accept this waste. There should be an evaluation to compare which site has the least environmental impact and the least public health impact.

P-0076/002

A new location such as dry desert with no waterway should be considered and made the dumping site.

TSE-0039/001

It [the PEIS] didn't have the risk estimates for these various wastes [nuclear waste that is not only slated for Hanford but to be moved around the nation], it didn't have the arrows coming here, going there, it didn't have the information that we need to make decisions like we are being asked to make in this EIS. So when are we going to have the comprehensive publicly vetted national strategy on nuclear materials disposition for this country?

Hanford Cleanup

Response

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

The WM PEIS (DOE 1997b) was a comprehensive evaluation of DOE nationwide waste management. The WM PEIS evaluated a broad suite of alternatives for waste management across the DOE complex, including managing most waste at generator facilities, or consolidating waste management at fewer sites that have existing facilities suitable to accept waste from other facilities. The impacts of those alternatives were compared for a variety of waste volumes at different DOE sites, including larger quantities of waste than are evaluated in the HSW EIS. The general result of the WM PEIS was that radioactive and hazardous wastes generated at a DOE site should be disposed of at that site unless the site was not capable of or not technically able to support those actions. DOE determined there was sufficient information in the WM PEIS to support decisions regarding the sites that were suitable for long-term waste management missions. Those decisions included processing and disposing of Hanford waste at Hanford, and the importation of wastes from other sites that could not adequately handle them. A discussion of the WM PEIS is provided in Volume I Section 1.5. Decisions made as part of the WM PEIS made Hanford available for the disposal of low-level waste and mixed low-level waste from other DOE generators. The initial WM PEIS decisions related to LLW, MLLW, and TRU waste were issued between January 1998 and February 2000.

The HSW EIS uses the best available data, computer modeling, assumptions, and related methods to produce estimates of reasonably foreseeable environmental impacts. The modeling approach was consistently applied to each alternative, and it provided information that allowed comparison of the alternatives.

Risk analysis is used throughout the HSW EIS. See Volume I Section 5 in the EIS and Volume II Appendices F, G, H, I and L.

Comments

E-0047/004

CRK [Columbia Riverkeepers] believes that given the existing contamination and impacts on ecological receptors, including salmonids and other aquatic species in the Columbia River, that DOE should not move forward with additional waste shipments to Hanford. Accordingly, DOE should revise the draft EIS to reflect a decision that DOE will direct its limited resources at cleaning up existing contamination at Hanford and not the treatment of additional off-site waste.

While including a limited recognition about the shipment of additional TRU waste to Hanford from off-site, the draft EIS fails to provide an adequate review of the site-specific effects of transporting, storing, treating, and managing additional off-site TRU waste to Hanford. If DOE plans to rely on the Solid Waste EIS to support such shipments it needs to closely consider in a detailed fashion consistent with NEPA such effects.

Question # 1- Does DOE plan to use the analysis in the draft EIS as a basis for allowing additional off-site TRU waste shipments to Hanford absent additional environmental review?

Although this is not clearly apparent in the draft EIS, the assessment of transportation impacts related to such shipments is wholly inadequate. The general non-site-specific analysis relied on ignores the requirements of NEPA and the unique conditions of waste transportation to Hanford that must be assessed.

Response

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

In response to public comments, DOE has conducted a route- and generator-specific offsite transportation analysis using updated highway routing and 2000 census data. See Volume I Section 5.8 and Volume II Appendix H. The potential impacts identified in the updated evaluation are similar to those presented in the WM PEIS (DOE 1997b) and the WIPP SEIS-II (DOE 1997c), and would not change conclusions or DOE-wide waste management decisions based on those studies.

The EPA Columbia River Basin Fish Contaminants Survey 1996-1998 (EPA 2002) was a study of organic, metal, and radionuclide concentrations in 208 fish tissue samples collected from 24 locations on the Columbia, Snake, Yakima, Clearwater, Klickitat, Deschutes, Willamette and other rivers that drain the Columbia River Basin. Locations included the Hanford Reach of the Columbia River, artificial ponds on the Hanford Site, and the upper Snake River. Cancer risks were estimated for consumption of fish that were contaminated with radionuclides. These risks were small relative to the estimated risks associated with radiation from naturally occurring background sources, to which everyone is exposed. The levels of radionuclides in fish tissue from the Hanford Reach of the Columbia River and the ponds on the Hanford Site were similar to levels in fish from the Snake River. These estimates of risks were not combined with the potential risks from other chemicals, such as PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and a limited number of pesticides. The potential cancer risks from consuming fish collected from Hanford Reach and the artificial ponds on the Hanford Site were similar to cancer risks in fish collected from the upper Snake River. EPA reported that the Yakima River and the Hanford Reach of the Columbia River tended to have higher concentrations of organic chemicals than other study sites. EPA also reported that the chemicals and or chemical classes that contributed the most to cancer risk for most of the resident fish were PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and a limited number of pesticides. For most of the anadromous fish, the chemicals that contributed the most to cancer risk were PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and arsenic. These chemicals occur in the Columbia River as a result of agricultural and industrial operations (pulp and paper plants, for example) and are very unlikely to be of Hanford origin. These chemicals would not exist in wastes proposed for future disposal at Hanford, or, if initially present, would be treated to reduce their mobility and toxicity to meet applicable standards prior to disposal.

Comments

L-0044/144

The HSW-EIS fails to acknowledge that exclusion of off-site waste and/or disposal of Hanford wastes off-site are reasonable mitigation measures, should groundwater standards be exceeded when LLW and MLLW wastes are land disposed.

Response

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated releases and levels of groundwater contamination. As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater at 1 km from the disposal facilities are expected to be below the benchmark drinking water standards. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

Comments

F-0007/001

Why does the DOE want to ship radioactive waste from facilities to Hanford and then let it sit for (?) [sic] years and then ship it to New Mexico?

Response

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

These TRU wastes are not expected to be stored onsite for an extended period of time. However, they are expected to be stored above ground at the Central Waste Complex and T Plant and (in the case of remote handled, non-mixed TRU waste) underground in concrete boxes so that they will have no contact with the soil. The storage of these wastes will be monitored in compliance with applicable RCRA, State of Washington dangerous waste regulations, and/or DOE requirements.

Regarding TRU waste received from other sites, DOE plans to temporarily store this waste and prepare it for shipment to WIPP for disposal. The TRU waste will not be disposed of at Hanford.

Comments

TSE-0022/001

And the really tragic part about this is, it's really not even about volume. Because we are talking about materials in such tiny, tiny amounts that one pound of plutonium, for instance, evenly divided among the lungs of the people of the planet earth, would kill everybody. So. Microscopic, miniscule quantities of some of this stuff, dangerous for thousands and thousands of years, and I don't think it's 30 and 40 years, I think it's probably 3,000 years of a half-life for most of these radionuclides, it's a real threat. And it's not enough. We've got to add more to it. We've got to bring in another 70,000 truck loads. And there's something wrong with this picture.

Response

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

The HSW EIS estimates that up to 33,900 shipments of LLW, MLLW, and TRU waste could be shipped to Hanford if the upper bound waste volumes are realized. The actual number of shipments is expected to be less than this.

Comments

E-0023/001

I am writing in opposition to the plan to ship 70,000 plus truckloads of waste into Hanford.

E-0025/001

It is unsafe, and therefore unwise to ship 70,000 truckloads of radioactive waste to Hanford, which is ALREADY leaking radioactive waste.

The government needs to focus on cleaning up Hanford, not importing more toxic waste which poses the threat of accidents on the highways, and intensified toxic leaks in Hanford.

L-0009/001

I am writing to express my opposition to the USDOE plan to ship 70,000 truckloads of radioactive waste to Hanford.

P-0011/001

We here in Washington State and Oregon are greatly concerned about adding more contaminated waste to the area. We are alarmed by the plan to ship 70,000 loads (truck) of radioactive waste to Hanford.

P-0041/001

DOE's proposal to ship an additional 70,000 truckloads of radioactive waste to Hanford poses dangers to the people in Washington and Oregon, to future generations, and to the Columbia River watershed. The EIS should fully reflect these risks and identify other sites as well as mitigation plans for unavoidable damage.

P-0083/001

The plan to ship 70,000 truckloads of radioactive waste to Hanford defies understanding. It would destroy a precious treasure, the Columbia River and its basin. It would create a vast area of contaminated ground water and soils - rendered unfit for use by man and creatures for all time.

P-0085/001

I cannot imagine that you would consider shipping 70,000 more truckloads (or any at all!) to Hanford. What an uncalculated risk to our residents! Hanford is already the nation's worst contaminated site, & it is near the great Columbia River, a lifeline for the Northwest. The groundwater contamination is a real & present threat to all of us, plus fish & wildlife.

P-0122/001

Please do not allow 70,000 truckloads of radio-active material to be dumped at Hanford.

P-0136/001

Washington State is the most beautiful state in America. Thus, it broke my heart that the US DOE plans to ship 70,000 truckloads of Radioactive waste to Hanford. Please don't let this happen.

TSE-0030/003

Of course we should not bring in 70,000 truck loads of additional waste to the most contaminated site in the western world.

Response

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

The HSW EIS estimates that up to 33,900 shipments of LLW, MLLW, and TRU waste could be shipped to Hanford if the upper bound waste volumes are realized. The actual number of shipments is expected to be less than this.

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

An expanded discussion of uncertainties associated with the HSW EIS impact analyses is included in Volume I Section 3.5.

Comments

E-0043/074, EM-0217/074, EM-0218/074, L-0056/074, LM-0017/074, LM-0018/074

Also, the current "Upper Bound" (larger than expected estimate of the maximum expected volume of waste to be managed) potentially conceals, masks, or minimizes differences between and among the analyzed alternatives. EPA requires that site specific parameters be used in models. DOE should quantitatively analyze the alternatives using an accurate estimate (what DOE truly expects, explaining how it came to this expectation) of the maximum and minimum expected volumes to be managed.

Response

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

Assumptions regarding waste volume identification and selection methodology are presented in Volume II Appendix C Section C.1.

Comments

L-0055/059

According to the EIS, DOE will accept "some" LLW and MLLW from sites that do not have disposal capability. "Some" appears to be more volume than is currently at the Hanford site according to figure S.4. DOE does not know precisely how much waste Hanford will receive from offsite. This is somewhat disturbing. DOE has evaluated a range of waste quantities but they do not know precisely how much they have, let alone what they could receive. Is there an accounting problem with known volumes? What about deeper, contaminated vadose zone volumes? What contribution could this add?

Response

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

Assumptions regarding waste volume identification and selection methodology are presented in Volume II Appendix C Section C.1.

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

The HSW EIS uses best available data for estimating inventories of hazardous and radioactive wastes. These data are obtained from information management systems maintained at Hanford and other DOE sites. Most of the waste will be generated by environmental restoration activities, and there is uncertainty about the amounts that will be generated. Areas of uncertainty are discussed in Volume I Section 3.5.

Comments

E-0043/050, EM-0217/050, EM-0218/050, L-0056/050, LM-0017/050, LM-0018/050

The single value used for the Hanford Only waste volume neglects the fact that not even DOE knows the true volume of waste currently at the Hanford Site. DOE states on page S.34 of the HSW EIS summary that "[w]aste site inventories, both in terms of chemical and radioactive contaminants, are not precisely known…" DOE should give a detailed quantitative breakdown of how DOE chose to use this single value for the Hanford Only waste volume. Additionally, DOE should provide a quantitative analysis throughout the HSW EIS using not only this single value, but also additional estimated values to account for the fact that DOE does not know the actual volume of waste currently at the Hanford Site.

E-0043/052, EM-0217/052, EM-0218/052, L-0056/052, LM-0017/052, LM-0018/052

The complete waste inventory should be presented in a temporal format to show the movement of waste from one storage status to another, the waste imports and exports from Hanford, the effect of treatment on the inventory, and the cumulative environmental releases over time. Such inventory should include: 1) identification of the waste by IUPAC [International Union of Pure and Applied Chemistry] nomenclature and CAS [Chemical Abstracts Service] number - wastes not in pure form should identify both chemical and/or radiological constituents of the waste; 2) location of the waste by latitude/longitude, by plane coordinates, and by DOE location names/numbers; 3) mass of the identified waste or waste constituent at each location in kilograms; 4) density of the identified waste or waste constituent at each location in grams/cubic centimeter; 5) activity of the identified waste or waste constituent at each location in grays; 6) storage status of identified waste or waste constituent at each location in terms of "contained-retrievable waste," "contained-non-retrievable waste," or "non-contained waste" (waste already in the environment).

Response

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

Assumptions regarding waste volume identification and selection methodology are presented in Volume II Appendix C Section C.1.

An expanded discussion of uncertainties associated with the HSW EIS impact analyses is included in Volume I Section 3.5.

Comments

E-0017/001

We are very concerned with the U.S. Department of Energy (DOE) proposal to double the amount of radioactive waste buried in unlined soil trenches at Hanford. We believe DOE has failed to adequately address the human health and environmental impacts of adding this radioactive waste to Hanford in its Revised Draft Solid Waste Environmental Impact Statement (EIS). We urge you not to import any offsite waste to Hanford. Rather, we urge you to stick to your mission to clean up the huge radioactive mess already contaminating the Columbia River at Hanford and not to add any more contamination to this problem.

We believe the revised EIS human health and environmental impact analyses are lacking as follows:

- There should be a complete inventory and classification of all wastes before DOE can assess the impacts of adding even more waste to Hanford.

- There will be an increase in contaminated groundwater that flows to the Columbia River by dumping more new radioactive and chemical waste. If the groundwater is allowed to become contaminated, any possibility of the public enjoying a safe and usable Hanford Reach will be eliminated.

- There is not an adequate assessment of risks to all communities along transportation routes.

- There is not actual timeline given for lining and monitoring the burial trenches for radioactive waste. These burial grounds must be lined immediately.

- The "no action" alternative considers stopping all cleanup at Hanford--that is not an alternative!

We don't understand why, when we are spending billions of dollars to clean up radioactive waste at Hanford, we would want to risk adding more waste to the already contaminated soil and groundwater. We request DOE reconsider all the impacts to our region before making a decision based on the faulty analyses contained in the revised EIS, which is still not responsive to citizen concerns. We urgently request DOE stop all future import of radioactive and chemical wastes to Hanford for burial and stop burying radioactive waste in unlined soil trenches.

EM-0001/001, EM-0002/001, EM-0003/001, EM-0004/001, EM-0005/001, EM-0006/001, EM-0007/001, EM-0008/001, EM-0009/001, EM-0010/001, EM-0011/001, EM-0012/001, EM-0013/001, EM-0014/001, EM-0015/001, EM-0016/001, EM-0017/001, EM-0018/001, EM-0019/001, EM-0020/001, EM-0021/001, EM-0022/001, EM-0023/001, EM-0024/001, EM-0025/001, EM-0026/001, EM-0027/001, EM-0028/001, EM-0029/001, EM-0030/001, EM-0031/001, EM-0032/001, EM-0033/001, EM-0034/001, EM-0035/001, EM-0036/001, EM-0037/001, EM-0038/001, EM-0039/001, EM-0040/001, EM-0041/001, EM-0042/001, EM-0043/001, EM-0044/001, EM-0045/001, EM-0046/001, EM-0047/001, EM-0048/001, EM-0049/001, EM-0050/001, EM-0051/001, EM-0052/001, EM-0053/001, EM-0054/001, EM-0055/001, EM-0056/001, EM-0057/001, EM-0058/001, EM-0059/001, EM-0060/001, EM-0061/001, EM-0062/001, EM-0063/001, EM-0064/001, EM-0065/001, EM-0066/001, EM-0067/001, EM-0068/001, EM-0069/001, EM-0070/001, EM-0071/001, EM-0072/001, EM-0073/001, EM-0074/001, EM-0075/001, EM-0076/001, EM-0077/001, EM-0078/001, EM-0079/001, EM-0080/001, EM-0081/001, EM-0082/001, EM-0083/001, EM-0084/001, EM-0085/001, EM-0086/001, EM-0087/001, EM-0088/001, EM-0089/001, EM-0090/001, EM-0091/001, EM-0092/001, EM-0093/001, EM-0094/001, EM-0095/001, EM-0096/001, EM-0097/001, EM-0098/001, EM-0099/001, EM-0100/001, EM-0101/001, EM-0102/001, EM-0103/001, EM-0104/001, EM-0105/001, EM-0106/001, EM-0107/001, EM-0108/001, EM-0109/001, EM-0110/001, EM-0111/001, EM-0112/001, EM-0113/001, EM-0114/001, EM-0115/001, EM-0116/001, EM-0117/001, EM-0118/001, EM-0119/001, EM-0120/001, EM-0121/001, EM-0122/001, EM-0123/001, EM-0124/001, EM-0125/001, EM-0126/001, EM-0127/001, EM-0128/001, EM-0129/001, EM-0130/001, EM-0131/001, EM-0132/001, EM-0133/001, EM-0134/001, EM-0135/001, EM-0136/001, EM-0137/001, EM-0138/001, EM-0139/001, EM-0140/001,

Hanford Cleanup

EM-0141/001, EM-0142/001, EM-0143/001, EM-0144/001, EM-0145/001, EM-0146/001, EM-0147/001, EM-0148/001, EM-0149/001, EM-0150/001, EM-0151/001, EM-0152/001, EM-0153/001, EM-0154/001, EM-0155/001, EM-0156/001, EM-0157/001, EM-0158/001, EM-0159/001, EM-0160/001, EM-0161/001, EM-0162/001, EM-0163/001, EM-0164/001, EM-0165/001, EM-0166/001, EM-0167/001, EM-0168/001, EM-0169/001, EM-0170/001, EM-0171/001, EM-0172/001, EM-0173/001, EM-0174/001, EM-0175/001, EM-0176/001, EM-0177/001, EM-0178/001, EM-0179/001, EM-0180/001, EM-0181/001, EM-0182/001, EM-0183/001, EM-0184/001, EM-0185/001, EM-0186/001, EM-0187/001, EM-0188/001, EM-0189/001, EM-0190/001, EM-0191/001, EM-0192/001, EM-0193/001, EM-0194/001, EM-0195/001, EM-0196/001, EM-0197/001, EM-0198/001, EM-0199/001, EM-0200/001, EM-0201/001, EM-0202/001, EM-0203/001, EM-0204/001, EM-0205/001, EM-0206/001, EM-0207/001, EM-0208/001, EM-0209/001, EM-0210/001, EM-0211/001, EM-0212/001, EM-0213/001, EM-0214/001, LM-0001/001, LM-0002/001, LM-0003/001, LM-0004/001

The U.S. Department of Energy (USDOE) is proposing to double the amount of radioactive waste buried in unlined soil trenches at Hanford, which doubles the risk of more soil and groundwater contamination.

Once again, you have failed to adequately address the human health and environmental impacts of adding this radioactive waste to Hanford in your Revised Draft Solid Waste Environmental Impact Statement (SW EIS). I urge you to choose not to import any offsite waste to Hanford. Your mission is to clean up the huge radioactive mess already contaminating the Columbia River at Hanford, not to add more contamination to this problem.

The analysis of human health and environmental impacts in this revised SW EIS still fails in several ways:

· You do not include in your cumulative risk analysis many of the long-lived radionuclides, such as iodine-129, that occur in significant quantities at Hanford. You must complete the inventory and classification of these wastes before you can assess the impacts of adding more waste to Hanford.

· Dumping more new radioactive and chemical waste will increase contamination groundwater flowing towards the Columbia River for "thousands of years." In your impact analysis, you have placed the point of compliance for groundwater at the Columbia River, miles away from the burial grounds, in order to meet drinking water standards. Allowing the groundwater to become contaminated destroys any possibility of the public enjoying a safe and usable Hanford Reach.

· Transporting nuclear waste to Hanford creates unnecessary risks to human and environmental health in Washington and Oregon. The new EIS still does not adequately address risks to all communities along transportation routes, specifically the risks from dangerous "transuranic wastes."

· The SW EIS contains several alternatives to line and monitor the burial trenches for radioactive waste. You do not provide any timeline for achieving this, yet these burial grounds should be lined by the end of 2003.

· Finally, you still do not provide an alternative in your EIS that would only assess burial of onsite Hanford cleanup waste. Your current "no action" alternative considers something which is unacceptable—stopping all cleanup at Hanford.

We are spending billions of dollars to cleanup up the radioactive mess at Hanford. Why would we risk adding more waste to the already contaminated soil and groundwater? I ask again that you reconsider all the impacts to our region before making a decision based on a faulty analysis. The Solid Waste Environmental Impact Statement is still not responsive enough to citizen concerns and does not effectively analyze all alternatives. I request that you stop all future import of radioactive and chemical wastes to Hanford for burial and stop burying radioactive waste in unlined soil trenches by the end of 2003.

Hanford Cleanup

EMM-0002/001

As a Northwestern resident who knows people who have been working on cleaning up Hanford, I want to encourage you to further the cleanup operations. The U.S. Department of Energy (USDOE) is proposing to double the amount of radioactive waste buried in unlined soil trenches at Hanford, which doubles the risk of more soil and groundwater contamination. Once again, you have failed to adequately address the human health and environmental impacts of adding this radioactive waste to Hanford in your Revised Draft Solid Waste Environmental Impact Statement (SW EIS). I urge you to choose not to import any offsite waste to Hanford. Your mission is to clean up the huge radioactive mess already contaminating the Columbia River at Hanford, not to add more contamination to this problem.

The analysis of human health and environmental impacts in this revised SW EIS still fails in several ways:

· You do not include in your cumulative risk analysis many of the long-lived radionuclides, such as iodine-129, that occur in significant quantities at Hanford. You must complete the inventory and classification of these wastes before you can assess the impacts of adding more waste to Hanford.

· Dumping more new radioactive and chemical waste will increase contamination groundwater flowing towards the Columbia River for "thousands of years." In your impact analysis, you have placed the point of compliance for groundwater at the Columbia River, miles away from the burial grounds, in order to meet drinking water standards. Allowing the groundwater to become contaminated destroys any possibility of the public enjoying a safe and usable Hanford Reach.

· Transporting nuclear waste to Hanford creates unnecessary risks to human and environmental health in Washington and Oregon. The new EIS still does not adequately address risks to all communities along transportation routes, specifically the risks from dangerous "transuranic wastes."

· The SW EIS contains several alternatives to line and monitor the burial trenches for radioactive waste. You do not provide any timeline for achieving this, yet these burial grounds should be lined by the end of 2003.

· Finally, you still do not provide an alternative in your EIS that would only assess burial of onsite Hanford cleanup waste. Your current "no action" alternative considers something which is unacceptable—stopping all cleanup at Hanford.

We are spending billions of dollars to cleanup the radioactive mess at Hanford. Why would we risk adding more waste to the already contaminated soil and groundwater? I ask again that you reconsider all the impacts to our region before making a decision based on a faulty analysis. The Solid Waste Environmental Impact Statement is still not responsive enough to citizen concerns and does not effectively analyze all alternatives. I request that you stop all future import of radioactive and chemical wastes to Hanford for burial and stop burying radioactive waste in unlined soil trenches by the end of 2003.

EMM-0003/001

Please think of the future of our children, when making such long term decisions!

I am writing you as a citizen concerned with the cleanup of Hanford, one of the most contaminated places in the world. The U.S. Department of Energy (USDOE) is proposing to double the amount of radioactive waste buried in unlined soil trenches at Hanford, which doubles the risk of more soil and groundwater contamination. Once again, you have failed to adequately address the human health and environmental impacts of adding this radioactive waste to Hanford in your Revised Draft Solid Waste Environmental Impact Statement (SW EIS). I URGE you to choose not to import any offsite waste to Hanford. Your mission is to clean up the huge radioactive mess already contaminating the Columbia River at Hanford, NOT to add more contamination to this problem.

Hanford Cleanup

The analysis of human health and environmental impacts in this revised SW EIS still fails in several ways:

· You do not include in your cumulative risk analysis many of the long-lived radionuclides, such as iodine-129, that occur in significant quantities at Hanford. You must complete the inventory and classification of these wastes before you can assess the impacts of adding more waste to Hanford.

· Dumping more new radioactive and chemical waste will increase contamination groundwater flowing towards the Columbia River for "thousands of years." In your impact analysis, you have placed the point of compliance for groundwater at the Columbia River, miles away from the burial grounds, in order to meet drinking water standards. Allowing the groundwater to become contaminated destroys any possibility of the public enjoying a safe and usable Hanford Reach.

· Transporting nuclear waste to Hanford creates unnecessary risks to human and environmental health in Washington and Oregon. The new EIS still does not adequately address risks to all communities along transportation routes, specifically the risks from dangerous "transuranic wastes."

· The SW EIS contains several alternatives to line and monitor the burial trenches for radioactive waste. You do not provide any timeline for achieving this, yet these burial grounds should be lined by the end of 2003.

· Finally, you still do not provide an alternative in your EIS that would only assess burial of onsite Hanford cleanup waste. Your current "no action" alternative considers something which is unacceptable—stopping all cleanup at Hanford.

We are spending billions of dollars to cleanup the radioactive mess at Hanford. Why would we risk adding more waste to the already contaminated soil and groundwater? I ask again that you reconsider all the impacts to our region before making a decision based on a faulty analysis. The Solid Waste Environmental Impact Statement is still not responsive enough to citizen concerns and does not effectively analyze all alternatives. I request that you stop all future import of radioactive and chemical wastes to Hanford for burial and stop burying radioactive waste in unlined soil trenches by the end of 2003.

PLEASE consider future consequences in making your decisions.

EMM-0004/001

The U.S. Department of Energy (USDOE) is proposing to double the amount of radioactive waste buried in unlined soil trenches at Hanford, which doubles the risk of more soil and groundwater contamination. Once again, you have failed to adequately address the human health and environmental impacts of adding this radioactive waste to Hanford in your Revised Draft Solid Waste Environmental Impact Statement (SW EIS). I urge you to choose not to import any offsite waste to Hanford. Your mission is to clean up the huge radioactive mess already contaminating the Columbia River at Hanford, not to add more contamination to this problem.

We are spending billions of dollars to cleanup the radioactive mess at Hanford. Why would we risk adding more waste to the already contaminated soil and groundwater? I ask again that you reconsider all the impacts to our region before making a decision based on a faulty analysis. The Solid Waste Environmental Impact Statement is still not responsive enough to citizen concerns and does not effectively analyze all alternatives. I request that you stop all future import of radioactive and chemical wastes to Hanford for burial and stop burying radioactive waste in unlined soil trenches by the end of 2003.

EMM-0005/001

Sustainability. Sustainability is essential to every decision we make in this interconnected world we live in. Nuclear energy is the antithesis of sustainability. It generates radioactive wastes with half lives that run hundreds of generations. Is this the legacy we want to leave our children? And their children hundreds of generations removed? The human race will be dealing with the fallout from our collective decisions regarding nuclear waste for a very long time. Understanding this, it is vitally important that our decisions are made with both eyes focused intently on the future. Half assed fixes will be dealt with again. And again. And again. Over and over again. Until we get it right. So let's make every effort to do it right this time.

Right now.

I am writing you as a citizen concerned with the cleanup of Hanford, one of the most contaminated places in the world. The U.S. Department of Energy (USDOE) is proposing to double the amount of radioactive waste buried in unlined soil trenches at Hanford, which doubles the risk of more soil and groundwater contamination. Once again, you have failed to adequately address the human health and environmental impacts of adding this radioactive waste to Hanford in your Revised Draft Solid Waste Environmental Impact Statement (SW EIS). I urge you to choose not to import any offsite waste to Hanford. Your mission is to clean up the huge radioactive mess already contaminating the Columbia River at Hanford, not to add more contamination to this problem.

The analysis of human health and environmental impacts in this revised SW EIS still fails in several ways:

· You do not include in your cumulative risk analysis many of the long-lived radionuclides, such as iodine-129, that occur in significant quantities at Hanford. You must complete the inventory and classification of these wastes before you can assess the impacts of adding more waste to Hanford.

· Dumping more new radioactive and chemical waste will increase contamination groundwater flowing towards the Columbia River for "thousands of years." In your impact analysis, you have placed the point of compliance for groundwater at the Columbia River, miles away from the burial grounds, in order to meet drinking water standards. Allowing the groundwater to become contaminated destroys any possibility of the public enjoying a safe and usable Hanford Reach.

· Transporting nuclear waste to Hanford creates unnecessary risks to human and environmental health in Washington and Oregon. The new EIS still does not adequately address risks to all communities along transportation routes, specifically the risks from dangerous "transuranic wastes."

· The SW EIS contains several alternatives to line and monitor the burial trenches for radioactive waste. You do not provide any timeline for achieving this, yet these burial grounds should be lined by the end of 2003.

· Finally, you still do not provide an alternative in your EIS that would only assess burial of onsite Hanford cleanup waste. Your current "no action" alternative considers something which is unacceptable—stopping all cleanup at Hanford.

We are spending billions of dollars to cleanup the radioactive mess at Hanford. Why would we risk adding more waste to the already contaminated soil and groundwater? I ask again that you reconsider all the impacts to our region before making a decision based on a faulty analysis. The Solid Waste Environmental Impact Statement is still not responsive enough to citizen concerns and does not effectively analyze all alternatives. I request that you stop all future import of radioactive and chemical wastes to Hanford for burial and stop burying radioactive waste in unlined soil trenches by the end of 2003.

EMM-0006/001

I use[d] to live in Richland, WA. All of my grandparents worked at Hanford. I am well aware of the problems associated with Hanford, the risks imposed upon the citizens of Washington, and the risk nuclear waste represents to the Columbia river ecosystem and the everything downstream to the Pacific Ocean. I urge the USDOE to cleanup the superfund site of Hanford, one of the most contaminated places in the world.

The U.S. Department of Energy (USDOE) is proposing to double the amount of radioactive waste buried in unlined soil trenches at Hanford, which doubles the risk of more soil and groundwater contamination. We have not even fixed the problem of contaminated ground 20 feet away from the Columbia River. Why would we add to the problem before fixing it. I plead with you to first resolve the issue before adding to it.

Once again, The USDOE has failed to adequately address the human health and environmental impacts of adding this radioactive waste to Hanford in your Revised Draft Solid Waste Environmental Impact Statement (SW EIS). I urge you to choose to NOT import any off site waste to Hanford. Your mission is to clean up the huge radioactive mess already contaminating the Columbia River at Hanford, not to add more contamination to this problem. Fix the Super Fund site now. Don't freakin add to the problem. Who runs this show anyways?

The analysis of human health and environmental impacts in this revised SW EIS still fails in several ways:

· You do not include in your cumulative risk analysis many of the long-lived radionuclides, such as iodine-129, that occur in significant quantities at Hanford. You must complete the inventory and classification of these wastes before you can assess the impacts of adding more waste to Hanford.

· Dumping more new radioactive and chemical waste will increase contamination groundwater flowing towards the Columbia River for "thousands of years." In your impact analysis, you have placed the point of compliance for groundwater at the Columbia River, miles away from the burial grounds, in order to meet drinking water standards. Allowing the groundwater to become contaminated destroys any possibility of the public enjoying a safe and usable Hanford Reach.

· Transporting nuclear waste to Hanford creates unnecessary risks to human and environmental health in Washington and Oregon. The new EIS still does not adequately address risks to all communities along transportation routes, specifically the risks from dangerous "transuranic wastes."

· Your current "no action" alternative in your EIS considers something which is unacceptable -- stopping all cleanup at Hanford.

We are spending billions of dollars to cleanup the radioactive mess at Hanford. Why would we risk adding more waste to the already contaminated soil and groundwater? I ask again that you reconsider all the impacts to our region before making a decision based on a faulty analysis. The Solid Waste Environmental Impact Statement is still not responsive enough to citizen concerns and does not effectively analyze all alternatives. I request that you stop all future import of radioactive and chemical wastes to Hanford for burial and stop burying radioactive waste in unlined soil trenches by the end of 2003.

Remember, you are a government agency that works for the people. Not the Bush Administration's flawed Energy Policy created with the help of Enron. You don't work for Corporations. You work for the people, the citizens. Please do not consider the opinions of Corporations, as they do not have the right to vote and should not have any right to have an opinion at all in politics. As that would be anti-democracy. Please respect the peoples' comments and address each concern. I also urge you to accept all comments, whether they are unique comments or part of a mass mailing.

EMM-0007/001

The U.S. Department of Energy (USDOE) is proposing to double the amount of radioactive waste buried in unlined soil trenches at Hanford, which doubles the risk of more soil and groundwater contamination. Once again, you have failed to adequately address the human health and environmental impacts of adding this radioactive waste to Hanford in your Revised Draft Solid Waste Environmental Impact Statement (SW EIS).

I urge you to not import any off-site waste to Hanford. Your mission is to clean up the huge radioactive mess already contaminating the ground, and potentially the Columbia River, at Hanford, not to add more contamination. Clean-up has been delayed many times and the cost has risen substantially. Washington citizens have already been harmed by radioactive releases from Hanford, and radioactive material has been detected in groundwater which will soon reach the Columbia River, if it has not already done so.

If a successful process for consolidating waste for permanent disposal, such as vitrification, can be developed, and the existing mess is cleaned up, that will be the time to consider importing new waste for processing, but not storage, at Hanford. However, I am also concerned about the risk to citizens that would occur by having trucks or trains transporting radioactive materials through Washington state. I have seen no evidence that this issue has been adequately addressed. Each load may increase the risk only slightly, but transporting many loads increases the risk of accident or terrorism substantially.

The analysis of human health and environmental impacts in this revised SW EIS still fails in several ways:

· You do not include in your cumulative risk analysis many of the long-lived radionuclides, such as iodine-129, that occur in significant quantities at Hanford. You need to complete the inventory and classification of these wastes before you can assess the impacts of adding more waste to Hanford.

· Dumping more new radioactive and chemical waste will increase contamination groundwater flowing towards the Columbia River for "thousands of years." In your impact analysis, you have placed the point of compliance for groundwater at the Columbia River, miles away from the burial grounds, in order to meet drinking water standards. Allowing the groundwater to become contaminated destroys any possibility of the public enjoying a safe and usable Hanford Reach.

· Transporting nuclear waste to Hanford creates unnecessary risks to human and environmental health in Washington and Oregon. The new EIS still does not adequately address risks to communities along transportation routes, specifically the risks from dangerous "transuranic wastes."

· The SW EIS contains several alternatives to line and monitor the burial trenches for radioactive waste. You do not provide any timeline for achieving this, yet these burial grounds should be lined by the end of 2003.

· Finally, you still do not provide an alternative in your EIS that would only assess burial of onsite Hanford cleanup waste. Your current "no action" alternative considers something which is unacceptable—stopping all cleanup at Hanford.

We are spending billions of dollars to cleanup the radioactive mess at Hanford. Why would we risk adding more waste to the already contaminated soil and groundwater? I ask again that you reconsider all the impacts to our region before making a decision based on a faulty analysis. The Solid Waste Environmental Impact Statement is still not responsive enough to citizen concerns and does not effectively analyze all alternatives. I request that you stop all future import of radioactive and chemical wastes to Hanford for burial, and stop burying radioactive waste in unlined soil trenches now.

EMM-0008/001

I recently received notice that the DOE is proposing to double the amount of waste buried in unlined trenches. I cannot believe that any additional waste is being allowed in unlined trenches. Even standard municipal solid waste dumps must be lined.

I live downstream from Hanford, one of the most contaminated places in the world. As a sailboat racer on the Columbia river, I have a vested interest in keeping radionuclides out of the water. The Columbia river has enough problems without the DOE ignoring it's responsibility to the health of the river.

Once again, you have failed to adequately address the human health and environmental impacts of adding this radioactive waste to Hanford in your Revised Draft Solid Waste Environmental Impact Statement (SW EIS).

I urge you to choose not to import any offsite waste to Hanford. Your mission is to clean up the huge radioactive mess already contaminating the Columbia River at Hanford, not to add more contamination to this problem.

The analysis of human health and environmental impacts in this revised SW EIS still fails in several ways:

· You do not include in your cumulative risk analysis many of the long-lived radionuclides, such as iodine-129, that occur in significant quantities at Hanford. You must complete the inventory and classification of these wastes before you can assess the impacts of adding more waste to Hanford.

· Dumping more new radioactive and chemical waste will increase contamination groundwater flowing towards the Columbia River for "thousands of years." In your impact analysis, you have placed the point of compliance for groundwater at the Columbia River, miles away from the burial grounds, in order to meet drinking water standards. Allowing the groundwater to become contaminated destroys any possibility of the public enjoying a safe and usable Hanford Reach.

· Transporting nuclear waste to Hanford creates unnecessary risks to human and environmental health in Washington and Oregon. The new EIS still does not adequately address risks to all communities along transportation routes, specifically the risks from dangerous "transuranic wastes."

· The SW EIS contains several alternatives to line and monitor the burial trenches for radioactive waste. You do not provide any timeline for achieving this, yet these burial grounds should be lined by the end of 2003.

· Finally, you still do not provide an alternative in your EIS that would only assess burial of onsite Hanford cleanup waste. Your current "no action" alternative considers something which is unacceptable stopping all cleanup at Hanford.

We are spending billions of dollars to cleanup the radioactive mess at Hanford. Why would we risk adding more waste to the already contaminated soil and groundwater? I ask again that you reconsider all the impacts to our region before making a decision based on a faulty analysis. The Solid Waste Environmental Impact Statement is still not responsive enough to citizen concerns and does not effectively analyze all alternatives. I request that you stop all future import of radioactive and chemical wastes to Hanford for burial and stop burying radioactive waste in unlined soil trenches by the end of 2003.

EMM-0009/001

The U.S. Department of Energy (USDOE) is proposing to double the amount of radioactive waste buried in unlined soil trenches at Hanford, effectively doubling the risk of soil and groundwater contamination. The Revised Draft Solid Waste Environmental Impact Statement (SW EIS) on Hanford fails to adequately address the human health and environmental impacts of adding this radioactive waste. I urge you to choose not to import any additional offsite waste to Hanford. Our mission should be to clean up the radioactive mess already contaminating the Columbia River, not to add more contamination to this problem.

The analysis of human health and environmental impacts in this revised SW EIS is inadequate in the following ways:

1. The cumulative risk analysis many of the long-lived radionuclides, such as iodine-129, that occur in significant quantities at Hanford is not included. An inventory and classification of these wastes must be performed before we can assess the impacts of adding more waste to Hanford.

2. New radioactive and chemical waste will increase contamination groundwater flowing towards the Columbia River for "thousands of years." The analysis places the point of compliance for groundwater at the Columbia River, miles away from the burial grounds, in order to meet drinking water standards. Contaminating the groundwater at Hanford destroys any possibility of the public enjoying a safe and usable Hanford Reach.

Hanford Cleanup

3. Transporting nuclear waste to Hanford creates unnecessary risks to human and environmental health in Washington and Oregon. The new EIS still does not adequately address risks to all communities along transportation routes, specifically the risks from dangerous "transuranic wastes."

4. The SW EIS contains several alternatives to line and monitor the burial trenches for radioactive waste. However, it does not provide any timeline for achieving this.

5. Finally, the EIS does not specify an alternative to burial of onsite Hanford cleanup waste. Your current "no action" alternative considers something which is unacceptable—stopping all cleanup at Hanford.

6. We are spending billions of dollars to cleanup the Hanford radioactive mess. Why would we risk adding more waste to the already contaminated soil and groundwater? Please reconsider all the impacts to our region before making a decision based on a faulty analysis.

EMM-0010/001

You, the U.S. Department of Energy (USDOE), are proposing to double the amount of radioactive waste buried in unlined soil trenches at Hanford, which doubles the risk of more soil and groundwater contamination. Once again, you have failed to adequately address the human health and environmental impacts of adding this radioactive waste to Hanford in your Revised Draft Solid Waste Environmental Impact Statement (SW EIS). I urge you to choose not to import any offsite waste to Hanford. Your mission is to clean up the huge radioactive mess already contaminating the Columbia River at Hanford, not to add more contamination to this problem. I am particularly concerned because I, and millions of other Washington and Oregon residents live downstream from Hanford and are subject to the contamination of the entire Columbia Basin ground water supply. This is serious business. Once the water supply is contaminated, we may never be able to clean it successfully.

The analysis of human health and environmental impacts in this revised SW EIS still fails in several ways:

You do not include in your cumulative risk analysis many of the long-lived radio-nuclides, such as iodine-129, that occur in significant quantities at Hanford. You must complete the inventory and classification of these wastes before you can assess the impacts of adding more waste to Hanford.

Dumping more new radioactive and chemical waste will increase contamination groundwater flowing towards the Columbia River for "thousands of years." In your impact analysis, you have placed the point of compliance for groundwater at the Columbia River, miles away from the burial grounds, in order to meet drinking water standards. Allowing the groundwater to become contaminated destroys any possibility of the public enjoying a safe and usable Hanford Reach.

Transporting nuclear waste to Hanford creates unnecessary risks to human and environmental health in Washington and Oregon. The new EIS still does not adequately address risks to all communities along transportation routes, specifically the risks from dangerous "transuranic wastes."

The SW EIS contains several alternatives to line and monitor the burial trenches for radioactive waste. You do not provide any timeline for achieving this. I want these burial grounds to be lined by the end of 2003!

Finally, you still do not provide an alternative in your EIS that would only assess burial of onsite Hanford cleanup waste. Your current "no action" alternative considers stopping all cleanup at Hanford – this is unacceptable!

We are spending billions of dollars cleanup the radioactive mess at Hanford. Why would we risk adding more waste to the already contaminated soil and groundwater?

I ask again that you reconsider all the impacts to our region before making a decision based on a faulty analysis. The Solid Waste Environmental Impact Statement is still not responsive to citizen concerns and does not effectively analyze all alternatives. I request that you stop all future import of radioactive and chemical wastes to Hanford for burial and stop burying radioactive waste in unlined soil trenches by the end of 2003.

L-0042/001

I'm tired of getting jacked-around by bureaucrats! How about pretending that Washington State is your home and treating us the way you would like to be treated? We don't want anymore nuclear waste. Washington State did its' share while the U.S. was developing nuclear weapons and we deserve some consideration now.

I am writing to you as a citizen concerned with the cleanup of Hanford, one of the most contaminated places in the world. You, the U.S. Department of Energy (USDOE), are proposing to double the amount of radioactive waste buried in unlined soil trenches at Hanford, which doubles the risk of more soil and groundwater contamination. Once again, you have failed to adequately address the human health and environmental impacts of adding this radioactive waste to Hanford in your Revised Draft Solid Waste Environmental Impact Statement (SW EIS). I urge you to choose not to import any offsite waste to Hanford. Your mission is to clean up the huge radioactive mess already contaminating the Columbia River at Hanford, not to add more contamination to this problem.

The analysis of human health and environmental impacts in this revised SW EIS still fails in several ways:

· You do not include in your cumulative risk analysis many of the long-lived radionuclides, such as iodine-129, that occur in significant quantities at Hanford. You must complete the inventory and classification of these wastes before you can assess the impacts of adding more waste to Hanford.

· Dumping more new radioactive and chemical waste will increase contamination groundwater flowing towards the Columbia River for "thousands of years." In your impact analysis, you have placed the point of compliance for groundwater at the Columbia River, miles away from the burial grounds, in order to meet drinking water standards. Allowing the groundwater to become contaminated destroys any possibility of the public enjoying a safe and usable Hanford Reach.

· Transporting nuclear waste to Hanford creates unnecessary risks to human and environmental health in Washington and Oregon. The new EIS still does not adequately address risks to all communities along transportation routes, specifically the risks from dangerous "transuranic wastes."

· The SW EIS contains several alternatives to line and monitor the burial trenches for radioactive waste. You do not provide any timeline for achieving this, yet these burial grounds should be lined by the end of 2003!

· Finally, you still do not provide an alternative in your EIS that would only assess burial of onsite Hanford cleanup waste. Your current "no action" alternative considers stopping all cleanup at Hanford - this is unacceptable.

We are spending billions of dollars to cleanup up the radioactive mess at Hanford. Why would we risk adding more waste to the already contaminated soil and groundwater? I ask again that you reconsider all the impacts to our region before making a decision based on a faulty analysis. The Solid Waste Environmental Impact Statement is still not responsive enough to citizen concerns and does not effectively analyze all alternatives. I request that you stop all future import of radioactive and chemical wastes to Hanford for burial and stop burying radioactive waste in unlined soil trenches by the end of 2003.

L-0046/001

The U.S. Department of Energy's (USDOE) proposal to double the amount of radioactive waste buried at Hanford presents a grave threat of radioactive contamination to the Columbia River and all the land adjacent to it including the National Scenic Area. Because the waste will likely be stored in unlined disposal pits, the risk of more soil and groundwater contamination is greatly increased.

The Revised Draft Solid Waste Environmental Impact Statement (EIS) fails to adequately address the human health and environmental impacts of shipping additional waste to Hanford. Because the DOE has not yet cleaned up the existing radioactive contamination at Hanford, additional radioactive waste should not be sent to Hanford. The EIS must address the cumulative impacts of shipping more waste to the Hanford site. A cumulative impacts analysis must consider the past, present, and likely future efforts to control the contamination at Hanford. In addition, the analysis should address the following issues:

· The EIS must consider the long half-life of radio-nuclides such as iodine-129, which are stored in large quantities at Hanford. The DOE must complete the inventory and classification of these wastes before it can assess the impacts of adding more waste at Hanford.

· The EIS must consider the impacts additional hazardous waste might have on water quality in the immediate vicinity of Hanford Reach. The latest EIS masks the impact of ground and surface water contamination by only considering water quality miles downriver from Hanford.

· The EIS fails to adequately address risks to all communities along transportation routes, specifically the risks from dangerous "transuranic wastes."

· The EIS fails to provide a timeline that states specific deadlines for the lining of hazardous waste dumpsites and contaminated areas. These sites must be lined immediately.

· The no-action alternative must not use as a baseline comparison the notion that all on-site mitigation will cease if the proposed alternatives are not implemented. Such a notion creates a false choice between cleanup and no cleanup.

Because the multi-billion-dollar effort to clean up the Hanford waste site is not complete, the DOE's plan to ship additional waste to the site will undermine current cleanup efforts and drain scarce budgetary resources from the currently inadequate cleanup fund. The Solid Waste Environmental Impact Statement is still not responsive to citizen concerns and does not effectively analyze all alternatives.

LMM-0001/001

We are writing you as citizens who live downriver from Hanford, one of the most contaminated places in the world. Right now, you, the U.S. Department of Energy (USDOE), are proposing to double the amount of radioactive waste buried in unlined soil trenches at Hanford. This would double the risk of more soil and groundwater contamination, and this at a place that is supposedly being cleaned up. In fact, billions of dollars are being spent on this supposed cleanup. All of this will be wasted and our River, the air around Hanford, in fact, possibly the entire area will be radioactively polluted if more is dumped into the unlined pits at Hanford. How on earth can this be considered within any realm of conscience?

Once again, you have failed to adequately address the human health and environmental impacts of adding this radioactive waste to Hanford in your Revised Draft Solid Waste Environmental Impact Statement (SW EIS). There is simply no valid reason to import any offsite waste to Hanford. Your mission is to clean up the huge radioactive mess already contaminating the Columbia River at Hanford, not to add more contamination to this problem.

The analysis of human health and environmental impacts in this revised SW EIS still fails in several ways:

You do not include in your cumulative risk analysis many of the long-lived radio-nuclides, such as iodine-129, that occur in significant quantities at Hanford. This inventory and the classification of these wastes must be completed before you can assess the impacts of adding more water to Hanford. In fact, it is not necessary to complete the inventory and classification to fully understand the horribly negative impact of such dumping at the Hanford site.

Dumping more new radioactive and chemical waste will increase contamination groundwater flowing towards the Columbia River for "thousands of years." In your impact analysis, you have placed the point of compliance for groundwater at the Columbia River, miles away from the burial grounds, in order to meet drinking water standards. Allowing the groundwater to become contaminated destroys any possibility of the public enjoying a safe and usable Hanford Reach.

Transporting nuclear waste to Hanford creates unnecessary risks to human and environmental health in Washington and Oregon, and along the entire route between current storage and Hanford. The new EIS still does not adequately address risks to all communities along transportation routes, specifically the risks from dangerous "transuranic wastes."

The SW EIS contains several alternatives to line and monitor the burial trenches for radioactive waste. You do not provide any timeline for achieving this. I want these burial grounds to be lined by the end of 2003!

Finally, you still do not provide an alternative in your EIS that would only assess burial of onsite Hanford cleanup waste. Your current "no action" alternative considers stopping all cleanup at Hanford - this is unacceptable!

We are spending billions of dollars cleanup the radioactive mess at Hanford. Why would we risk adding more waste to the already contaminated soil and groundwater? You must reconsider all the impacts to our region before making a decision based on a faulty analysis. The Solid Waste Environmental Impact Statement is still not responsive to citizen concerns and does not effectively analyze all alternatives. I request that you stop all future import of radioactive and chemical wastes to Hanford for burial and stop burying radioactive waste in unlined soil trenches.

Response

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. See Volume III Section 2, Item 6 of the CRD for more examples of cleanup at Hanford.

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford-only and "no import of out of state waste" waste volumes. These provide a basis with which to determine the impacts of varying quantities of offsite waste at Hanford.

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The HSW EIS No Action Alternative provides a baseline for comparison of the impacts from the proposed action and alternatives and is consistent with decisions reached under previous NEPA reviews. No Action thus reflects the current status quo and continued operation of existing facilities without conducting additional activities necessary to meet regulatory obligations. The HSW EIS No Action Alternative would only partially meet DOE's obligations under the Hanford TPA and applicable regulatory requirements. As such it represents an analytical construct to meet NEPA requirements rather than an expression of DOE's intended future actions. Because most activities considered in the HSW EIS are ongoing operations, or have been the subject of previous decisions made under other NEPA reviews, the No Action Alternative consists of implementing the previous NEPA decisions or of continuing current solid waste management practices, consistent with CEQ guidance. The No Action Alternative was evaluated using the Hanford Only waste volume and the Lower Bound waste volume. The No Action Alternative for disposal of ILAW consists of the preferred alternative selected previously in the Record of Decision (ROD) for the Tank Waste Remediation System (TWRS) EIS (62 FR 8693). The ILAW volume reflects a different waste form (cullet in canisters) than that assumed for Alternative Groups A through E (monolithic vitrified waste in canisters). See Volume I Section 3.1. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

The preferred alternative (Volume I, Section 3.7) is to dispose of LLW in newly constructed lined disposal facilities as soon as they are available. For purposes of analysis the HSW EIS assumes this would occur by 2007. All MLLW is currently, and will continue to be, disposed of in lined facilities. However, the use of unlined trenches for disposal of LLW is an established, legal, and environmentally protective method of low level waste disposal at both DOE and commercial facilities. As such, it is a reasonable alternative, under CEQ regulations, and must be analyzed. The HSW EIS considers a wide range of alternatives for disposal of LLW in both lined and unlined facilities. Lined trench alternatives include leak detection and leachate collection capabilities. In addition, groundwater monitoring would be done in compliance with applicable RCRA and State hazardous waste, TPA, and DOE requirements to validate the performance of the disposal facilities.

The maximum point of impact from multiple and widely dispersed sources may not necessarily be directly underneath the Low Level Burial Grounds or at the Low Level Burial Ground boundary. To model the groundwater impacts from multiple and widely dispersed disposal units over long periods of time, a 1-km point of analysis location was deemed to be more appropriate and representative than a regulatory point of compliance well location, for purposes of NEPA analysis. The point of analysis approach is considered technically appropriate for a NEPA evaluation of groundwater impacts over the long-term (10,000 years) time period analyzed. The 1-km point of analysis is not intended to represent the proposed locations for actual monitoring wells that would be used during the operational and closure time period. Groundwater impacts at the facility boundary (about 100 meters) have been added to the impacts identified for the preferred alternative and a qualitative discussion is provided for the other alternatives. A discussion of the differences between the 1-km point of analysis and the disposal facility boundary is provided in Volume I, Section 5.3 and Volume II, Appendix G.

DOE believes that transportation impacts were properly analyzed in previous NEPA documents. However, in response to public comments, DOE has conducted a route- and generator-specific offsite transportation analysis using updated highway routing and 2000 census data. See Volume I, Section 5.8 and Volume II Appendix H. The potential impacts identified in the updated evaluation are similar to those presented in the WM PEIS and the WIPP SEIS-II, and would not change conclusions or DOE-wide waste management decisions based on those studies.

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

The purpose of an EIS is to analyze and disclose the future consequences of a proposed action and its reasonable alternatives thereby providing environmental input into the final decision regarding the action.

DOE has sought input from regulatory agencies, Tribal Nations, and members of the public on the revised draft HSW EIS. DOE public involvement efforts have been conducted in accordance with applicable NEPA requirements

Comments

E-0055/010

USDOE is required by NEPA to integrate all related Hanford specific Environmental Restoration and Waste Management actions into a Hanford Sitewide EIS to determine the cumulative impacts from the wastes that already exist at Hanford, and all proposed Hanford cleanup actions and decisions. Only after the aggregate risks and impacts from all Hanford site wastes, and proposed actions for Hanford wastes, are known, can DOE analyze the impacts of adding additional off-site wastes (and facilities for treating, storing and disposing of those wastes).

DOE committed in the Waste Management Programmatic Environmental Impact Statement (WM PEIS) to a sitewide NEPA review for site impacts in implementing the decisions under the PEIS. The HSW EIS fails to analyze all of the site level impacts and hence is not the sitewide analysis as DOE committed to.

USDOE is legally required to present the actual conditions in the Hanford burial grounds, waste release sites and facilities, and analyze the impacts of those conditions on human health and the environment. The revised draft Hanford Solid Waste EIS totally fails to present the actual conditions, and the risks from those conditions. NEPA requires that alternatives for cleanup and mitigation or elimination of those risks be presented in this EIS.

L-0062/003

We [Hanford Communities] are concerned, however, that information in the document is still inadequate to support any decision to permanently dispose of additional off-site waste at Hanford. In our letter to you dated

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September 24, 2002; we stated: "we believe that the EIS should evaluate the extent and characteristics of waste and contamination already in the ground, including CERCLA [Comprehensive Environmental Response, Compensation, and Liability Act] waste that will remain at Hanford. It should include information and analysis of groundwater contamination and movement as it relates to existing waste and projected waste disposal." We stated our expectation that the document would provide "a thorough analysis of the environmental consequences of waste currently buried at Hanford and analyze the incremental impact of waste coming from other sites."

We, like others in the region, expected this document to provide a cumulative analysis of the risks posed by Hanford and offsite waste that will remain at the site. We also expected an analysis of the holding capacity of the land so that we can be assured that permanent disposal of off-site waste will provide no environmental consequences to this region. It is extremely important to residents of the region[,] businesses[,] and individuals considering relocating to the area that adequate scientific analysis has been done. This is necessary to assure that the disposal of waste from on- and off-site does not pose a threat to the environment and the health of people in this region.

Response

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS (DOE 1997b) decisions regarding certain TRU waste, LLW, and MLLW streams. Site-specific waste management actions at Hanford involve transportation, treatment and processing of TRU waste and MLLW, disposal of LLW, MLLW and ILAW, and storage of LLW, MLLW, and TRU waste. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

The WM PEIS was a comprehensive evaluation of DOE nationwide waste management. The WM PEIS evaluated a broad suite of alternatives for waste management across the DOE complex, including managing most waste at generator facilities, or consolidating waste management at fewer sites that have existing facilities suitable to accept waste from other facilities. The impacts of those alternatives were compared for a variety of waste volumes at different DOE sites, including larger quantities of waste than are evaluated in the HSW EIS. The general result of the WM PEIS was that radioactive and hazardous wastes generated at a DOE site should be disposed of at that site unless the site was not capable of or not technically able to support those actions. DOE determined there was sufficient information in the WM PEIS to support decisions regarding the sites that were suitable for long-term waste management missions. Those decisions included processing and disposing of Hanford waste at Hanford, and the importation of wastes from other sites that could not adequately handle them. Decisions made as part of the WM PEIS made Hanford available for the disposal of low-level waste and mixed low-level waste from other DOE generators. The initial WM PEIS decisions related to LLW, MLLW, and TRU waste were issued between January 1998 and February 2000.

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7):

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"Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

An expanded discussion of potential mitigation measures is in Volume I Section 5.18.

Comments

F-0022/002

In connection to this cleanup report, I would like to have a contract in the draft that promises and abides to bi-annual reports of the clean-up procedures that have occurred.

Response

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. Extensive information is available to the public and regulators through TPA public information programs, administrative record, websites, and reading rooms.

Comments

L-0043/002

[The] USDOE is in violation today of the Tri-Party Agreement, by its refusal to provide basic information, essential to crucial cleanup of Hanford.

Response

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. Extensive information is available to the public and regulators through TPA public information programs, administrative record, websites, and reading rooms.

DOE believes this HSW EIS complies with applicable NEPA requirements.

Comments

E-0001/001

Please stop any further importation of offsite waste to Hanford. Your mission is to clean up the huge radioactive mess already contaminating the Columbia River at Hanford, not to add more contamination to this problem. And please do not let it be moved through Portland, where any number of disasters could happen.

Hanford Cleanup

E-0002/001

Do not let more shipments of radioactive waste come to Hanford. It is not capable of taking these shipments.

E-0003/001

First, the nuclear waste and pollution that already exists, hasn't been dealt with at Hanford yet to my satisfaction.

E-0004/001

I am a concerned citizen, and I am writing this in an effort to get Hanford to stop the importation of radioactive waste.

E-0005/001

I am writing to express my concern over the shipping of nuclear waste for dumping at the Hanford site. I ask that you stop this practice until further studies can be completed.

E-0006/002

PLEASE do not import any offsite waste to Hanford. The radioactive mess needs to be cleaned up as its already contaminating the Columbia River. Why would we risk adding more waste to the already contaminated soil and groundwater?

E-0007/001

No more importation of radioactive waste to Hanford!

E-0008/003

I feel distressed when I hear that the government is wanting to (and probably has) brought more radioactive materials to Hanford. I thought the goal was to clean it all up and return the NW USA to health and safety.

E-0009/001

I am writing to express my GREAT concern about the Hanford Clean up site and news of further contamination by accepting more nuclear waste from other locations.

E-0010/001

The US DOE is proposing a doubling of the amount of waste stored at Hanford; this is completely unacceptable. Why, in an area that continues to absorb billions of dollars in taxpayer money for cleanup, would we want to add MORE nuclear/chemical waste?

E-0010/002

Enforce and follow the guidelines/goals previously established for cleanup of the site.

E-0011/001

I am adamantly opposed to adding more radioactive waste to Hanford. This is ridiculous, given the amazing cleanup task ahead of us with what we have now.

E-0012/001

I urge you to choose not to import any off-site waste to Hanford.

E-0012/005

PLEASE. NO import of radioactive and chemical wastes to Hanford for burial.

E-0015/001

I cannot attend the meeting Tuesday evening, but would like to register my opinion against the dumping of further radioactive materials at Hanford. The water of the Columbia Basin is already in danger of extreme contamination, it makes little sense to increase that danger. Please see that not only the proposed dumping does not take place, but that the existing mess is cleaned up.

Hanford Cleanup

E-0016/001

As a citizen of Washington State I want to protest the idea of sending any more radioactive waste to Hanford. The D.O.E. needs to live up to the tri-party agreement first of all, and protect the soil and water from the waste that is already there.

E-0020/001

I cannot imagine why and how it is even being considered to have more radioactive waste delivered to Hanford. This site is already the most contaminated site in our nation. And has been for quite some time! Please put a stop to this and let's clean up Hanford first.

E-0021/001

I do not think we should be accepting any additional wastes until what is already at Hanford is cleaned up and stored safely.

E-0022/001

I am deeply distressed by the state of the Hanford nuclear waste dump. I am also appalled by the plans the DOE has to import even more--70,000 truckloads of nuclear waste--to the Hanford storage site.

E-0022/003

Clean up Hanford!

E-0024/001

I've just found out more about the DOE's continuing plans to store nuclear waste at Hanford. It seems to me that Hanford has enough problems with its own cleanup - which continues to be stalled. I understand that a judge has at least temporarily stopped the storage, but it's not the final word.

E-0024/002

Please do whatever you can to STOP any further storage at Hanford, and push continued cleanup there.

E-0024/003

We've already been shown that carelessness is common and I see no reason why I should assume it will get any better. It doesn't take a genius to see that, with the Columbia River so near, and with the contamination that's already occurring, we don't need further dumping.

E-0026/003

Hanford is more than just a nuclear waste disposal location. It is a permanent reminder for generations to come of human irresponsibility, lack of forethought and planning AND most importantly lack of responsibility to clean up the messes we have created. The end result is the long-term poisoning of life and water sources within two states and hundreds of mile radius. This is a reality that must change.

E-0028/001

I strongly do not want waste from other states being sent to Hanford and/or any other locations in our state, Washington.

E-0032/001

I am heartily opposed to the DOE plan for bringing in more waste into Hanford. There is substantial waste there today, which needs to be cleaned up and properly treated and stored. The Columbia River and the area around Hanford are already at grave risk. We do not need more waste, we do need more cleanup.

E-0033/001

Please stop further import of radioactive waste.

E-0035/002

I can't help but be confused by how this plan contributes to the ongoing cleanup at Hanford. I wonder why we can't take care of our outstanding problems at Hanford before adding to them. If the truth is that there is no intent to ever clean up Hanford please make this clear. If we're willing to sacrifice the Columbia River as part of the Northwest's contribution to the national welfare, someone needs to simply say so, so the people have an opportunity to comment on these plans.

E-0036/001

I urge you as a concerned citizen of the State of Washington to put an immediate stop to further import of radioactive waste to Hanford!

E-0037/001

I am emailing you to voice my concerns about the planned shipment of 70,000 truckloads of waste to Hanford. I do not believe it makes sense to do this when the current waste is leaking into the soil and water table. I want the DOE to fulfill its previous commitments to clean up Hanford before it makes the situation even worse. If the DOE can clean up and vitrify the existing Hanford waste, I will have far less concern about shipping more waste. Until that time, I am most assuredly opposed to any action that involves shipping more waste to Hanford.

E-0038/001

It seems that in the past our country has often taken the easiest and least expensive approach to the clean up of radioactive and chemical waste. It's time for us to take a stand and show our country that we can store radioactive and chemical waste safely, that we can halt groundwater contamination, that we can stop transporting more radioactive waste until we can safely store our existing waste.

E-0039/001

Don't dump more waste in Hanford. It's already leaking.

E-0039/002

Cleanup must be our top priority.

E-0039/003

Cleanup is impossible if additional waste keeps increasing the problem.

E-0040/002

In addition, adding more nuclear waste at Hanford, a site that is not designed to house such refuse and is so close to the Columbia River a thriving ecosystem, is not an answer and poses more danger than solutions.

E-0042/001

I have been watching the developments in the Tri-Cities for years and am dismayed to learn that we could become, for real, the recipient of more toxic waste. Do you suppose if would be possible to clean up what is there in a responsible way first? And then maybe we could figure out if the Columbia River and the natural and human environment could safely receive more toxins.

E-0043/002, EM-0217/002, EM-0218/002, L-0056/002, LM-0017/002, LM-0018/002

As a policy matter, the Government Accountability Project [GAP] fundamentally objects to the Department of Energy's implicit view that the Hanford Site is the national government's nuclear trash can in the desert.

E-0043/003, EM-0217/003, EM-0218/003, L-0056/003, LM-0017/003, LM-0018/003

It is a gross understatement to state that Hanford is an environmental crisis in its own right, a public health menace of the first magnitude, and a gigantic dirty bomb ready to detonate over the populations of a three-state area.

E-0043/043, EM-0217/043, EM-0218/043, L-0056/043, LM-0017/043, LM-0018/043

In conclusion, the Hanford Site should be cleaned up and restored. This vision is not realized by dumping more waste and piling more radioactive and toxic junk on top of an already severely contaminated site.

Hanford Cleanup

E-0043/045, EM-0217/045, EM-0218/045, L-0056/045, LM-0017/045, LM-0018/045

The DOE euphemistically refers to the Hanford Site as a "cleanup site," but the truth of the matter is writ large in these draft documents - DOE does not intend to clean up Hanford, but rather intends to dump even more waste there from around the country - and walk away.

E-0043/048, EM-0217/048, EM-0218/048, L-0056/048, LM-0017/048, LM-0018/048

Public comment on the PEIS reveals that the states, Tribes, and other stakeholders were dissatisfied with the analysis supporting the decision to select Hanford as a disposal site for imported waste.

E-0045/001

I am adamantly opposed to bringing more radioactive and hazardous waste into the Hanford Site. The current condition of the Hanford Site is unacceptable, and the proposed activities will add to the problem. Our attention should be focused on the clean-up of the existing environmental problems on site. Resources should be allocated for clean-up, not bringing in additional waste.

E-0047/040

For the reasons above and those articulated in a host of comments by other parties that we have reviewed, we believe DOE needs to issue yet another draft EIS. We recommend a Record of Decision for the disposal of radioactive waste at Hanford not be issued until the Tanks Retrieval and Closure EIS and its impacts are incorporated and all other deficiencies are incorporated.

While CRK does not make this request lightly, given DOE's efforts to adopt an aggressive program to ship additional waste to Hanford, failure to comply with NEPA and SEPA [State Evnironmental Policy Act] will only result in further delay and possible litigation.

E-0048/002

I do not think the Hanford Site Waste Program EIS describes a safe operation and I urge the Dept. of Energy to finish cleaning up Hanford without importing any new toxins.

E-0050/002

Primarily, I am interested in seeing that the current radioactive waste problem at Hanford is remedied.

E-0050/003

The current proposal, by bringing in more waste from off-site and doubling the amount of waste to be buried at Hanford, makes it likely that the current mess at Hanford will be aggravated rather than alleviated.

E-0051/002

The main issues then, as now, are the continued cuts in funding and a lack of emphasis on cleaning up Hanford's contaminated soil and water, and safely packaging and storing existing waste.

E-0051/007

Given the recent proposal to shut down the clean-up long before it actually is completed, coupled with Hanford clean-up budget cuts and the rapidly increasing federal deficit, I don't presently trust the Bush administration and by extension the DOE to do the right thing at Hanford.

E-0052/001

Please do not allow more radioactive waste to be imported to this state.

E-0052/002

Please abide by the Tri-Party agreement and clean up the mess!!!

EM-0215/001, EM-0216/001

We're writing to urge you to stop shipments of dangerous radioactive waste to Hanford. The focus needs to be on the cleanup of the dangerous nuclear waste stored there; the safety and security and the future of our state depend on it.

Hanford Cleanup

EMM-0001/001

The U.S. Department of Energy (USDOE) is proposing to double the amount of radioactive waste buried in unlined soil trenches at Hanford, which doubles the risk of more soil and groundwater contamination. I urge you to choose not to import any offsite waste to Hanford. Your mission is to clean up the huge radioactive mess already contaminating the Columbia River at Hanford, not to add more contamination to this problem.

F-0001/002

We have already seen that the DOE cannot be trusted to clean up the Hanford site in a timely manner and that known leaks are going untended. If we can't trust DOE to store the waste safely, there is no reason to think that it can be trusted to transport the waste safely.

F-0001/003

I believe the waste that's at Hanford should be handled properly before we allow any further waste to come in and be added to it.

F-0003/001

We have been promised clean-up of the existing waste, for years. Now you want to add uncounted tons more waste from other sites, without finishing what you have already started.

F-0005/001

I do not support any additional nuclear waste shipments from anywhere to the Hanford site!

F-0005/002

I urge DOE to focus on effective clean-up efforts NOW!

F-0006/001

We the citizens, demand full accountability of clean-up @ Hanford before you accept any more dangerous toxic problematic waste material! Bringing more waste onto the Hanford Site will undoubtedly slow the clean-up process and will add more environmental burden on our groundwater to the Columbia River. Until these issues have been fully evaluated and shared with the public, additional off-site waste should be rejected.

F-0008/003

Hanford must be cleaned up - PERIOD. Accepting additional waste from other facilities is obviously not an answer. Transportation issues (if it comes to that - which it should not) must be more adequately addressed.

Groundwater is already being contaminated. We must be protected now and in the future.

F-0009/001

The waste at Hanford needs to be completely cleaned up before I would ever even consider allowing more waste moved to Hanford.

F-0009/003

Do not cut corners or rush the clean-up process.

F-0010/001

I still have grave concerns about moving new waste to Hanford. On the heals of decisions by the Department of Energy to halt large portions of its current cleanup efforts at the Hanford, it is obvious that we have our hands full disposing of the millions of gallons of high-level nuclear waste already at the site. Our first priority must be to remove the existing waste and treat it, so that it no longer threatens the citizens of the northwest, before we increase the amount of new waste being shipped to Hanford.

F-0011/003

DOE has promised to clean up the dangerous waste which already exists at Hanford and consistently refuses to do so.

Hanford Cleanup

F-0011/006

Hanford already has excessive / more than its share of nuclear waste which is already not being properly processed.

F-0012/001

We the people of this region have asked for decades for a complete clean up of Hanford. Instead we have things like unlined trenches that can barely hold the waste for a few years let alone 1/4 million.

F-0012/003

The existing radioactive and toxic waste must be safely disposed of first before any waste may be brought in.

F-0014/003

I think that the consideration of accepting any new waste at Hanford is foolhardy. There is already an almost inconceivable amount of waste on the reservation that has not been dealt with (and in some cases, not identified), why accept more? Focus on cleanup.

F-0015/001, TSE-0014/001

Every president wants a legacy - and it seems that President Bush wants his legacy in Washington State to be enlarging our already dangerous Hanford Nuclear Reservation into the nation's toxic waste dump.

F-0015/007, TSE-0014/007

We believe that shipments to Hanford should end. The priority for the health of our people, fish and rivers is to safely contain the ever threatening toxic soup that sloshes around the Columbia Basin.

F-0015/008, TSE-0014/008

Focus this EIS on the effort to clean up what is already in the soil, rather than planning to add more to the nation's worst contaminated area.

F-0017/001

The Hanford mess is so horrific and inexcusable to begin with - that added to that the USDOE's horrific and inexcusable behavior in pretending to clean-up Hanford - it is nothing short of Domestic Terrorism!

F-0021/002

This is the cost of nuclear weapons and nuclear energy. The US Gov't can not shrink from real costs and try to skirt around the problem because our society, our river will be paying those costs for thousands and thousands of years.

F-0021/003

We only have one chance to get this right and we have to get it right, not quick, not cheap, but right.

F-0023/004

We do want Hanford and all other like areas in our country to be cleaned up to non-toxic (clean) levels in our lifetimes so we and our children and all the children, of all species, won't be afflicted with this kind of death.

F-0024/002

We want Hanford's dirty poisonous waste cleaned up - not just stored and quietly ignored.

F-0025/002

Worse yet, the incoming chemical and nuclear waste will likely put a halt to the ongoing cleanup work, long overdue at the Hanford Reserve.

F-0025/009

Our clean up dollars must come without more waste.

Hanford Cleanup

F-0027/001

We believe Hanford needs to be cleaned up

F-0029/005

More importantly an actual commitment to clean-up at Hanford is needed.

F-0029/007

Clean up Hanford as well as possible ASAP!! No more wastes trucked to Hanford.

F-0029/010

Why have there been so many problems with contractors to clean up Hanford? Does this reflect poorly on the DOE? Bechtel Corp was fined $3 million a while back for doing a poor job. Did they receive the contract because of political connection and not based on merit? How can we trust them to do a good job (and a fast job) when they have already messed up badly?

F-0030/006

It makes no sense to import further nuclear waste to Hanford; the only moral, safe, responsible thing to do is to do everything imaginable to clean up the dreadful, dangerous mess that is currently at the site before it ruins the magnificent Columbia River and kills everything downriver. And NOT to add further hazardous material to Hanford.

L-0001/001

I am concerned/opposed to nuclear waste being sent to Hanford. I understand Washington State is suing you for violations of agreements to clean up existing waste and not bring more in.

L-0001/002

Hanford is not appropriate for storage of this waste

L-0001/004

Now clean up Hanford.

L-0002/001

We want CLEAN UP AT HANFORD!.

L-0003/001

I am gravely concerned about the importation of transuranic waste to Hanford. I understand this was begun and has only been stopped by legal action by the State of Washington and Heart of America.

L-0003/002

WHEN WILL WASHINGTON STATE BE FREED FROM THAT THREAT TO OUR HEALTH AND OUR ENVIRONMENT?

L-0003/003

We want CLEAN UP[!]

L-0003/004

IT IS BEYOND COMPREHENSION THAT YOU WOULD BE DIGGING MORE AND BIGGGER TRENCHES TO ACCOMMODATE MORE WASTE[.]

L-0005/001

The current mission of Hanford is cleanup. More than doubling the total amount of radioactive and chemical waste, including deadly plutonium, is the very opposite of cleanup.

L-0006/001

I am against any further shipments of radioactive waste to the Hanford Nuclear site. This site is not adequately prepared to hold any more waste. It is also too dangerous to transport this type of waste on our nations highways.

L-0007/001

Cleanup for existing waste, which is already contaminating groundwater, has been designated as the current mission for the site, but progress has been excruciatingly slow. The proposal to add more waste will simply slow down cleanup even more while increasing the already existing threats to human and environmental health.

L-0008/001

I am alarmed that truckloads of radioactive and chemical waste are headed for Hanford.

Not one ounce of radioactive and chemical waste should go to Hanford until every bit already there is cleaned up. This is absolutely the highest priority to protect the health of those who live near.

This extreme danger to citizens of Oregon and Washington must be stopped.

L-0009/002

What we ask is that the present contamination be cleaned up so that the Columbia River will not be polluted.

L-0010/001

I am writing to encourage the Department of Energy not to go forward with the Hanford Solid Waste EIS. The current plan fails to adequately address the citizens' concerns. Dumping more radioactive waste at Hanford increases risk to human health and commerce by contaminating the Columbia River.

Please do not import more waste to Hanford.

L-0011/002

Waste storage is an issue that needs to be specifically addressed for the waste already on the site. Burying it in trenches and storage tanks that are subject to rotting out is not the answer.

L-0011/003

I believe that Hanford should continue to focus on the clean-up efforts that have been ongoing and find an environmentally sound method of waste disposal for the material on-site only. The facility is too close to the Columbia River and major population centers to risk bringing in additional waste from other sites. I strongly oppose transportation of any waste from off-site.

L-0012/007

We need to see more immediate progress in the cleanup of Hanford before we can carry the burdens from the rest of the nation.

L-0012/011

We insist on a quality cleanup, by our standards - we live here, we rely on the health of the environment for our own survival, for fishing, recreation and crop irrigation for the long haul.

L-0015/001

Regarding the proposed transporting of radioactive waste to Hanford: The current stated mission of Hanford is cleanup. It makes no sense to double the amount of radioactive and transuranic chemical waste being received, and then to bury it in unlined trenches. The legacy of groundwater contamination is frightening and unthinkable.

L-0015/002

It is imperative to put the health and well being of future generations ahead of the immediate profit and rampant politics of the Energy department and the Ecology department regarding Hanford.

Hanford Cleanup

L-0016/019

Having meddled in such matters [radioactivity and associated waste], we can't just walk away, worse luck. So we have to deal with the mess we've got-which means that we must make the most conservative assumptions possible-we must assume that whatever's in those burial grounds is dangerous until proven harmless-and we must set a very high standard of proof.

L-0017/001

Given that the Hanford Nuclear Reservation is already the most contaminated site in the country, it is too risky to the public health to bring in additional waste to this overburdened site when substantial existing contamination is not contained (e.g. leaking tanks, groundwater, etc.), much less cleaned up.

L-0017/002

We oppose the import of any new waste to Hanford until the site is in compliance with all federal and state environmental regulations, and until a publicly vetted national strategy for the disposition of all DOE's nuclear wastes is established.

L-0018/002, TSE-0001/002

While progress has been made at the Hanford site, principally with respect to the K-Basin and cocooning of reactors, there is an enormous amount of work yet to be done, and a lot of uncertainty surrounding the future of the site. For these reasons, I have grave concerns about plans to import more wastes into the Hanford site, particularly when those wastes are put in unlined soil trench landfills.

L-0019/001, TSE-0002/001

For more than 60 years our federal government has used our state as the dumping grounds for nuclear waste. For years we were assured there would be little risk of endangerment of human health or the environment. Science, time, and common sense have demonstrated this to be at best a misrepresentation - at worst blatant lies. Much of the contamination occurred while the Department of Energy (DOE) claimed exemption from independent external environmental regulation. Finally, in 1989, the DOE entered into an agreement with our state and the tribal nations and the Environmental Protection Agency to clean up the hazards. This agreement has repeatedly been violated by the DOE. … We were being asked to believe that the DOE would correct its neglect in cleaning up the existing toxic conditions - in exchange for doubling the nuclear waste it would dump at the site. Once again the public was assured of minimal risk of endangerment to human health or the environment. Tonight we are being asked to comment on a revised draft of last year's EIS. We are being asked to accept the promises, commitments, and projections of an agency backed by a history of years of malfeasance.

L-0019/008, TSE-0002/008

To this we add the current Administration's reprioritization of the DOE's budget for increased funding for nuclear programs that will generate more waste, and its proposal to make military use of nuclear energy exempt from environmental regulation. All this in the face of growing federal deficit spending and skyrocketing national debt that threatens the historically inadequate levels of funding for clean up of this site.

L-0019/009, TSE-0002/009

I continue to stand in opposition to this plan to import increased nuclear waste at Hanford.

L-0019/010, TSE-0002/010

I call for immediate action to clean up the existing contamination.

L-0020/002, TSE-0021/002

The DOE is using the legal system to leverage its enormous power against the democratically elected government of the state of Washington, -with U.S. citizen taxpayer money- to slow down, -no, to halt the U.S. taxpayer funded nuclear waste clean-up in the State of Washington, South Carolina, and Nevada just to name a few.

Hanford Cleanup

L-0020/003, TSE-0021/003

The DOE has no intention of EVER cleaning up Hanford

L-0020/004, TSE-0021/004

For 58 years from 1945 to the present, the DOE has funded the manufacturing of radioactive nuclear waste with U.S. citizen taxpayer money, without our collective knowledge or our permission, and is responsible for past and future deaths of U.S. citizens resulting from radioactive contamination from its waste sites and its facilities. No, I've looked at this every ways I can, and it still doesn't make sense. This is outrageous! Take a good look in the mirror and tell me you like what you see. Tell me you're doing this for the good of the country.

L-0021/002, TSE-0015/002

The Hanford waste is a ticking time bomb. But, instead of trying to diffuse this threat by cleaning up waste and preventing more coming our way, the Bush Administration is going the opposite direction: threatening to stop clean up measures and planning to add 70,000 truckloads of radioactive and chemical waste to this area.

L-0021/006, TSE-0015/006

...stop importing waste into Hanford[.]

L-0021/007, TSE-0015/007

...clean up the mess that already threatens our human, river and wildlife health. Washingtonians don't want our state to become a national radioactive waste dump.

L-0023/001

I am very concerned about more waste being taken to Hanford. We can't handle the waste that we have now and we already have 2/3 of the Nations waste. Please stop further exportation [sic] of Nuclear waste from being brought to Hanford.

L-0025/001

Please stop Hanford from receiving anymore nuclear waste. We can't handle any more waste at Hanford! We've got to put this to a STOP[.]

L-0027/001

I passionately oppose the US Dept. of Energy plan to bring in 70,000 truckloads of new radioactive and chemical waste to be buried in unlined trenches at Hanford. The current mission of Hanford is cleanup. Doubling the total amount of radioactive and chemical waste, including deadly plutonium, is the very opposite of cleanup.

L-0027/004

Please spend all funding on cleanup, not on increasing the radioactive waste problem.

L-0028/001

We are writing to express our concern about the plans of the Department of Energy to send highly radioactive trash from out of state to the Hanford Nuclear Reservation. As you know, there have been efforts over many years to clean-up the Hanford Reservation. These plans negate the process that has been made and current efforts in court are only delaying further cleanup.

L-0032/001, LM-0005/001, LM-0006/001, LM-0007/001, LM-0008/001, LM-0009/001, LM-0010/001, LM-0011/001, LM-0012/001, LM-0013/001, LM-0014/001, LM-0015/001, LM-0016/001

My friends and I represent the masses who depend on this river for our livelihoods and our very lives. The tragedy of contaminated groundwater and the high cancer rate of downwinders cannot be an element of the past, until the increased dumping is stopped in the present.

L-0033/001

I am concerned that an accumulative impact of bringing more waste onto the Hanford Site will slow the cleanup process and will add to the environmental burden on our groundwater and the Columbia River.

L-0033/012

For 45 years beginning in 1943 the DOE and its predecessors made unwise and dangerous decisions about the temporary storage of waste. I have seen examples of the records. They are deplorable. The risk to public health and the environment continues to grow. For the last 35 years DOE has attempted to clean up this mess, but poor management, shifting priorities, incompetent contractors and the lack of political will have resulted in inadequate results. It will be an additional 35 years before significant results are complete. Such a dismal record will be a long remembered blight on our generation. We can and must do better.

L-0034/006

[The] new imported waste streams, both those proposed for storage and those proposed for processing and disposal, will only contribute to the current serious environmental problems at Hanford.

L-0035/001

Please stop the madness -- I implore you, no further import of radioactive waste coming into the state of Washington, and specifically Hanford, Transuranic or otherwise.

L-0035/004

...clean up the onsite waste[.]

L-0036/001

This is a request to enlist your help in stopping any further importing of radioactive waste into Hanford. There is more than enough there now! And I am very concerned about health impact on my grandchildren and expected great grandchild.

L-0037/002

Please stop all future import of radioactive and chemical wastes to Hanford for burial.

L-0040/001, LM-0019/001

[The] WAFP [Washington Academy of Family Physicians] opposes the import of additional nuclear wastes to Hanford Nuclear Reservation at least until the current waste at the overburdened Hanford is in compliance with state and federal regulations.

L-0043/001

Hanford's radioactive and hazardous waste burial grounds must be closed down!

L-0043/006

Economics, whose goal is to maximize profits for a few at any cost to the environment that sustains life for all, is stupid economics.

L-0044/142

As did the previous draft, the Revised HSW-EIS assumes that the USDOE's Record of Decision (ROD) (65 FR 100651 ff) to create a regional MLLW disposal operation at Hanford allows receipt of wastes from sites around the complex for disposal in the Hanford MLLW trenches. It also assumes that TRU waste will be brought to Hanford for processing and certification per a recent revision of the ROD (67 FR 56989 ff). TRU waste management, including offsite TRU waste shipments to Hanford, is currently the subject of litigation between the State of Washington and the U.S. Department of Energy.

The RHSW-EIS compares impacts of disposal of Hanford waste only versus Hanford plus lower- and upper-bound volumes of LLW and MLLW; but it assumes that the 2000 Record of Decision (ROD) (65FR10061) for the Waste Management (WM-PEIS) for disposal of LLW and MLLW will be implemented. Based on that assumption, the RHSW EIS does not consider off-site disposal alternatives for Hanford-generated MLLW and LLW.

Hanford Cleanup

The tone of the HSW-EIS strongly suggests that it was driven by the imperative to support the 2000 ROD (and the 2002 modification of the TRU ROD that allows Hanford to become a consolidation center for TRU waste from other USDOE sites) under the WM-PEIS. Washington remains steadfast in its position that the WM-PEIS was not adequate for selecting sites for disposal of the waste inventories. The RHSW-EIS does not perform adequate independent assessment of the impacts of disposing of additional volumes of LLW and MLLW from other USDOE sites or transporting, consolidating, and storing TRU waste from other sites.

L-0051/001

I am writing to ask you and the [DOE] not to truck any more nuclear waste to [Hanford.]

L-0052/001

The ERWM [Environmental Restoration and Waste Management Program at the Nez Perce Tribe (NPT)] sees this document as an appropriate starting point, not an end point, for dealing with the complexity of solid waste treatment, storage, and disposal at the Hanford Site. The HSW EIS in its current state, though very informational, is insufficient and lacking of assurances that the Hanford Site will be effectively cleaned up in both the short and long term.

L-0055/048

Because the Hanford Site cleanup is a technically complex and long-term program, with associated uncertainties both in terms of final cleanup end states and modeling techniques, cumulative impact analysis will necessarily contain those same uncertainties. There is obviously uncertainty in the modeling techniques. The final cleanup end states should be obvious. CTUIR would hope the end state of cleanup of the Hanford Site would be for the protection of the ground water and surface water resources so they may be used to the fullest possible potential and to fully protect the people living in the area for all time in the future. It is obvious that DOE would like to do as little as possible to clean this site.

L-0055/056

The EIS discussion attests that four billion liters of ground water has been treated to remove the substantial amounts of Chromium, Carbon Tetrachloride, Nitrate, Uranium, Technetium-99, and Strontium-90. "Substantial" is a relative term. There are still substantial quantities of these contaminants in the vadose zone that have not been removed and currently, DOE does not have plans to remove these contaminants. DOE is claming removal for some of the wastes that are degrading naturally.

L-0057/002

Please stop import of such materials

L-0057/004

The mistakes of the past need to be attended to as well.

P-0001/001

Enough is enough --- No more waste shipments

P-0001/002

The job [clean up] should have been completed by now.

P-0002/001

I encourage you to do all you can to stop the shipment of radioactive waste to Hanford.

P-0003/001

I urge you to please take a stand against adding to the already troubled hazardous waste dump at Hanford. Let us focus our efforts towards cleaning up Hanford and reject any plan to bring in more waste. We must be proactive in coming up with solutions to lessen the impact of this radioactive waste dump in our beautiful state let alone increase the risks. Remember when Columbia was "the gem of the ocean"!

Hanford Cleanup

P-0004/001

All these mistakes should be cleared up - not more added.

P-0007/001

I think we should be cleaning up Hanford, not burying more radioactive waste.

P-0008/001

ENOUGH RADIOACTIVE WASTE DUMPED IN WASHINGTON!

P-0008/004

ENOUGH UNFULFILLED CLEANUP PROMISES!

P-0008/007

ENOUGH TALK AND REPORTS, NOT ENOUGH CLEANUP.

P-0010/001

I urge no more wastes at Hanford[.]

P-0012/001

I want you to tell people the truth about the mess we are in. We should never have done this. It can not be contained or disposed of.

P-0013/001

The citizens of Washington are committed to the clean-up of Hanford's nuclear waste. Adding more waste will make the job even harder and more costly.

P-0014/001

Do not allow more radioactive waste to be dumped at Hanford!

P-0014/002

Hanford is a catastrophe that should be cleaned up and shut down forever - before any more damage can be done.

P-0015/001

How long is the gov't going to mess around at Hanford and not do anything? They have been spending millions yet nothing gets done.

P-0016/001

No additional waste should be dumped in the Hanford area - The risk to the inhabitants in TOO GREAT.

P-0017/001

Stop the Radioactive Waste Dump at Hanford... We have lived in Wenatchee all our lives - therefore worry about current and future health risks. What about the Columbia River - What about the Ocean!

P-0018/001

I do not understand why my government is deliberately try to add to the problems of cleanup at Hanford. Why is the government willing to risk human health by contaminating the water of Columbia River?

P-0022/001

[Start] the cleanup[.]

P-0022/002

Do not add anymore radioactive crap to the problem[.]

Hanford Cleanup

P-0024/001

Please add no more nuclear waste to Hanford.

P-0025/001

CLEAN IT UP!

P-0026/001

Burying any more waste from offsite adds an additional burden to Hanford's clean-up.

P-0027/001

Disposal of more nuclear waste at the Hanford site from else where would make an already difficult cleanup even more so.

P-0028/001

It makes no sense to ship waste to a Superfund site. We can't clean up what we've got.

P-0029/002

It makes no sense to me to take in more radioactive material when we cannot handle what we already have at Hanford.

P-0030/001

Please don't send waste from all over to bury it in Hanford.

P-0030/002

Clean it up!

P-0032/002

Please stop dumping more radioactive waste at Hanford.

P-0032/003

Please increase the clean-up of Hanford and protect the mighty Columbia River from further contamination.

P-0033/001

We need to stop adding more radioactive waste to Hanford. We must stop adding chemical waste to Hanford.

P-0037/001

ENOUGH ALREADY!

P-0038/001

Do not ship more waste to Hanford. Clean up the mess that is there already.

P-0039/001

Why on earth should we allow more radioactive and chemical waste to be "buried" at Hanford, when it is already the most contaminated site in the nation? Dumping more such waste only increases the danger to human health and contamination of groundwater and the Columbia River.

P-0042/001

NO DUMP AT HANFORD

P-0042/002

Hanford's Area has been filthy in a nuclear was as long as it has existed, and yet the DOE has not continued to clean it up properly.

P-0043/001

Please stop bringing more waste to this state. We are already polluted enough.

Hanford Cleanup

P-0044/002

How many years has it been since Hanford was declared a superfund site and it would be "cleaned up," a daunting project under the best of conditions.

P-0045/001

Please make them stop adding anything more to Hanford

P-0046/002

Clean up our present mess before we accept more!

P-0047/001

Stop the Hanford National Radioactive Waste Dump. The government has not been able to safely contain or clean-up the waste already at Hanford - more waste will not help us to do so.

P-0047/004

Do not allow more waste to be shipped to Hanford!

P-0048/001

I am strongly opposed to the US DOE's plan to make Hanford the National Radioactive Waste Dump. Oregon and Washington will be at increased risk of radioactive contamination, especially in regards to the Columbia River and local groundwater.

P-0048/002

Hanford Clean-up has been inadequate to date.

P-0050/001

Promised cleanup have not happened. The Columbia River is at great risk. This cleanup would increase the danger.

P-0051/001

...clean-up at Hanford is way below par. Do NOT send more radioactive waste to Hanford until a thorough clean-up has been done and a safe - truly safe - plan and system and the resources required for that has been adapted and shown to us citizens.

P-0052/001

At a time when Hanford is slowly being cleaned after decades of neglect, I don't find it is appropriate to ship highly toxic/radioactive waste to the site. In addition, I am concerned about accidents during transport that would threaten the public.

P-0053/001

I do not approve of more waste being dumped at Hanford. Environmental would be endangered.

P-0055/001

I want the US government to stop using Hanford as a national radioactive waste dump. I have major concerns that this site does not guarantee safety against the environmental and health risks.

P-0056/001

I believe Washington State at Hanford has received more than its share of Radioactive waste. Hanford is the nations most contaminated site, more waste increases the risk to health from contamination of the Columbia river. Shipping truckloads of radioactive and chemical waste increases risks to residents along Oregon and Washington Highways.

P-0057/002

The Health of the Environment & Humans should ALWAYS comes 1st! We want no more waste at Hanford & the surrounding area!

Hanford Cleanup

P-0059/001

CLEAN UP WHAT'S THERE THOROUGHLY!

P-0059/002

DON'T ADD ANYMORE!

P-0060/001

I have no objection per se to additional radioactive waste being at Hanford given what is already there. However, that said, based on the past record of DOE at Hanford I do have concerns about how additional wastes will be handled. What assurances can you provide the public that storing additional wastes will not add to the many problems that have already reluctantly been made public? Unfortunately DOE's past record at Hanford does not build public trust.

P-0061/001

PLEASE NO MORE RADIOACTIVE WASTE TO OUR STATE. THE COLUMBIA RIVER IS IN JEOPARDY. WATER QUALITY. AN ACCIDENT WAITING TO HAPPEN.

P-0062/002

Burying more waste from offsite adds an unnecessary burden to Hanford Clean-up. Dumping more radioactive waste at Hanford increases the risk to our health from contaminated ground water, which is allowed to enter the Columbia River.

P-0063/001

The risks [of continuing with the Hanford waste dump] are high, the danger is long-term, and the contamination is extensive.

P-0064/001

I am very concerned about adding radioactive waste to the Hanford site when clean-up is supposed to be underway. Please do not add to the clean up problems at Hanford. This will end up costing all of us more time and money in the future. The Hanford area is not appropriate for a long-term storage site.

P-0067/001

No more No more Radioactive Waste in Hanford. Help save our Columbia River!! Be gentle with our earth!!

P-0070/001

We are trying to clean up the Hanford site - or at least keep it from getting worse. Why would we ever want to add more waste from outside the site?

P-0071/001

I am strongly opposed to the transporting and storage of more hazardous wastes at Hanford. Any chance of contamination of the Columbia River is totally unacceptable as it is one of our nation's most invaluable treasures.

P-0072/001

You must commit yourself and resources to actually cleaning up Hanford.

P-0073/001

The public was led to believe that the USDOE agreed to follow the TriState agreement and "Clean up" Hanford. Now you are accepting radioactive waste from elsewhere! How is this a clean up?

P-0074/002

More radioactive waste buried at Hanford will simply add to the nation's most contaminated radioactive waste site which is totally unacceptable. We no longer want the risks of contaminated groundwater

Hanford Cleanup

P-0075/001

Please stop adding more radioactive and chemical waste to Hanford.

P-0076/001

It is imperative that no more waste be dumped at Hanford. The Columbia River is at risk.

P-0078/002

Hanford is already the nation's most contaminated site; burying more makes it worse. It allows contamination to enter the Columbia River for the next 150 years.

P-0079/001

When are you going to move Your Family, Your Children, their cousins, your Parents into this Waste area to Live? If you say Never it is too dangerous - the side effects are too serious to expose MY Loved ones to that mess, that drinking water, that polluted soil -- Then take ACTION! Because YOU CAN! Help the Northwest quality of Life.

P-0080/001

Please send NO more refuse & dangerous items to Washington State[.]

P-0081/001

Hanford is already the nation's most contaminated nuclear waste deposit site. PLEASE, NO MORE!! Radioactive contaminants are threatening the ground water as well as the river.

P-0081/002

CLEAN UP THE EXISTING MESS!!

P-0082/001

Hanford in Washington state needs no more dumping of radioactive waste. Its damaging the health of the mighty Columbia river and the ground water. It is not tolerated for any product to cause a health risk to every citizen in 2 states (in Oregon & Washington) via air, water or land contamination.

P-0084/002

Do not allow radioactive nor chemical waste to be added to the contamination already at Hanford.

P-0087/001

Please know that I do not support the continued practice of importing and burying radioactive & chemical waste. The shipping brings these materials down the interstate and increases risks along those highways.

P-0087/002

Hanford is already a environmental disaster & clean-up is slow. This [waste importation] further burdens this process & endangers the groundwater that is contaminated reaching the Columbia River.

P-0088/001

I am requesting that DOE quit stalling and playing games with the Hanford cleanup.

P-0088/002

I fully support a ban on any new waste coming to Hanford until the old waste is 100% cleaned up.

P-0089/002

Certainly don't add MORE waste.

P-0091/001

I would like my voice to be heard, along with many, many other citizens that national radioactive waste NOT be deposited at Hanford WA Site!

Hanford Cleanup

P-0091/002

Hanford already has great & scary problems to get the existing radioactive material taken care of. If not for the health of the people in that area - think, think, think of the Columbia River contamination!

P-0092/002

Hanford is already the most contaminated site in the country. Burying any more adds unnecessary burdens to clean-up.

P-0093/003

[I am very concerned about DOE's current plan regarding] the added impact to Hanford Clean-up[.]

P-0094/001

It is not fair that the federal government takes years of talking - only, not doing - about cleaning up the mess they made of Hanford and finally act, not to perform on clean-up promises, but to bring in more waste[.]

P-0096/001

I am a Hanford Downwinder who is very concerned about adding more radioactive waste to Hanford. We need to take care of the waste already there.

P-0097/002

I don't think any new materials should be brought into Hanford.

P-0097/003

DOE's poor track record in dealing with wastes already present on the site gives me no confidence that new contaminants will be properly handled.

P-0097/004

CLEAN UP HANFORD NOW!!

P-0099/001

Hanford is already the nation's most contaminated site. Burying any more waste from offsite adds an unnecessary burden to Hanford clean up!

P-0100/001

Putting More Waste at Hanford is Ridiculous - Please Help to find a Better Solution!

P-0102/001

I am shocked to hear of the truckloads of chemical & radioactive waste being sent to Hanford - This will increase the risk of contamination to the ground water and Columbia river, it will add to the problem already there. This effects all residents of WA & OR. The Hanford clean up has been agonizingly slow for years. Its ridiculous to add to the problem already there.

P-0105/001

Now again after huge cost overruns, followed by shutdown - followed by unimaginable pollution of the area & the Columbia - we must hear that more "guk" is going to be disposed of at Hanford. This is outrageous! Stop it NOW.

P-0107/001

Before Hanford accepts more radioactive solid waste, they should be much further alone in their cleanup activities.

P-0107/002

To date, their [Hanford's] record for the management of existing waste is not very good.

Hanford Cleanup

P-0109/001

Please stop adding more radioactive chemical waste to Hanford!

P-0110/002

More waste will only add burden to the clean up.

P-0111/001

Please, Don't dump more waste at Hanford[.]

P-0112/001

I want to see Hanford completely cleaned up and not accept any more nuclear waste.

P-0113/003

I implore you to maximize the cleanup, not bring more waste to Hanford[.]

P-0114/001

Don't let the Hanford location become even more of a radioactive waste dump than it already is. We still don't know of the long term effects of what is already buried on this land.

P-0115/001

We do not want more toxic waste in Washington. Hanford is already the most radioactive spot in the U.S.A.

P-0115/002

What we need is a definite plan, along with the needed money, to keep radioactive waste from forever polluting the Columbia River.

P-0116/002

Second, why can't the USDOE get its act together and complete the cleanup at Hanford?

P-0118/001

For more than 20 years we have been seeking a cleanup of radioactive waste from the Hanford area - This waste had the potential of polluting the Columbia River & creating a crisis situation in the whole Pacific Northwest. Now in a contradictory policy the Federal govt. is attempting to store MORE nuclear waste in the Hanford area.

P-0118/002

For the sake of human and animal life in this area DON'T DO IT [store MORE nuclear waste in the Hanford area]!

P-0119/001

What right does our government have to condemn the Pacific Northwest to Radioactivity for the next 10,000 years?

P-0120/001

The only sane and responsible action is to clean up Hanford NOW and to send no more chemical or radioactive waste to Hanford.

P-0121/001

Sending more radioactive waste to Hanford, the nation's most contaminated site - including the added danger of transporting it to the site - just doesn't make sense. Don't do this! This needs to be re-planned and reworked. This land, this environment, this groundwater - it's in your power to help and sustain the healthful survival of all these things.

P-0122/002

Clean up Hanford according to the tri-party agreement.

Hanford Cleanup

P-0124/001

Please stop the Hanford National Radioactive Waste Dump. It is already a contaminated area.

P-0124/003

Washington State produces much food for the U.S. and world. The land and water must be clean and not toxic for this production.

P-0125/001

Contamination of the ground water and the Columbia River has never been taken care of - why add more? We have greatly diminished fish and herd populations in that area. There are risks to human health as well from the river

P-0127/001

Please do not let Hanford become a National Radioactive Waste Dump. There is clearly too much danger of polluting the Columbia River.

P-0127/003

Cleanup efforts must be begun now and be effective!

P-0128/001

We must clean up the present dangerous waste now residing at Hanford, polluting the land and Columbia River.

P-0128/002

Also, no more radioactive waste should be stored there [Hanford]. No one who lives close to such a storage place would welcome it, but Hanford is in such a dangerous area with the river and Hanford Reach so close, which is such a unique area!

P-0130/001

The contents already existing at Hanford are enough of a hazard to our environment. I would like to see real efforts (not promises) in cleaning up this poorly handled and dangerous site and not add more to the problem.

P-0131/001

Please clean up and close down Hanford once and for all.

P-0132/001

I understand from all reports on TV and in papers (newspapers) etc., that Hanford is already one of the most polluted sites on planet Earth. How can you dare add more contaminated material? You will have to answer to some one, some day, be it a higher authority, the general public, a court inquiry, a senate investigation, etc. CAN YOU HAVE A GOOD ANSWER?

P-0134/001

We must prevent the further contamination of the Columbia River by rapidly and safely containing the current accumulation and stopping the importation of waste from other sources.

P-0135/004

No more waste to Hanford! Stop NOW[.]

P-0136/002

With Hanford not cleaned up 58 years after the end of World War II, think of the irreplaceable damage this EIS will further do to the great Columbia river, the Indians who fish on it, and the damage to the ecology of the state of Washington

P-0137/001

Stop adding to the radioactive waste at Hanford.

Hanford Cleanup

P-0138/001

The "clean-up" of leaking tanks, etc. at Hanford is a government scandal because after billions of dollars have been spent, the Columbia River - one of the nation's spectacular rivers - is still being polluted by radioactive waste…As is the whole large area surrounding Hanford. … why have the expensive contractors paid to clean up Hanford been unable (or unwilling) to complete the job?

P-0140/001

[Clean] up has been slow and has not been effective.

P-0143/001

Please stop the radioactive waste dump at Hanford. It is already the nations most contaminated site. It will increase the risk to human health from contaminated groundwater. It will allow contaminated flow into the Columbia River.

P-0144/001

Please stop the Hanford National Radioactive Waste Dump.

P-0145/001

Please do all you can to stop the nuclear waste storage at Hanford. It is already a most contaminated site which has a history of leaks and environmental damage.

P-0148/002

Second, do not import any more waste to Hanford. First we must clean up the old mess!

P-0149/003

Focus on cleaning up and monitoring Hanford's onsite waste now[.]

P-0150/001

Please do not bring any more waste to Hanford - it's time to clean up what is there now.

P-0152/001

Please do not bring any more waste into Hanford. It is already too great a hazard to a large area.

P-0154/001

No waste should be shipped to Hanford. Never!

P-0155/001

We demand clean up!

P-0155/002

We demand a clean state to grow up in! No more toxic waste!!!!

P-0156/001

Please no more waste to Hanford. We have had enough.

P-0157/001

Nothing has been changed with this latest analysis; it is still a shell game.

P-0157/002

We cannot afford to take in more waste at Hanford. This is not about cleanup.

P-0158/001

Say no to 70,000 tons of toxic waste "Cleanup."

Hanford Cleanup

P-0159/001

It is beyond reason that more radioactives should be dumped at Hanford when the cleanup of existing is totally inadequate. Save the Columbia river, its people and resources!!

P-0160/001

Hanford is unquestionably the most toxic waste site in the nation. It has for half a century been a "sacrifice" area. To introduce an additional 70,000 truck loads at this time is unconscionable as there is absolutely NO ADEQUATE STORAGE AVAILABLE thus assuring leakage into the Columbia [river] which is used to irrigate food crops.

P-0161/001

Stop the waste. Very much a hazard to people and the environment.

P-0162/001

Please no more waste to Hanford. We have had enough.

P-0163/001

NO MORE TOXIC WASTE! SAY NO TO 70,000 TONS OF TOXIC WASTE! Cleanup not stock up!

P-0166/003

Clean up what we have now before getting more [radioactive waste].

P-0167/001

I am against the dumping of any further nuclear waste at [the] Hanford site in Washington State. Hanford is already the most contaminated site in the country. I am really concerned about the risk of contamination of the Columbia River nearby.

P-0167/003

The government has not done enough clean up

P-0168/001

NO Dumping @ Hanford.

P-0169/001

I am greatly disturbed to learn of USDOE's plans to ship more radioactive waste to Hanford. The government has not honored its commitment to clean up what is already there and now you want to send more! Hanford is the nation's most contaminated site! As a citizen of the NW [northwest], I adamantly oppose future threats to our safety and well-being.

P-0172/001

It would be a travesty if wastes from other areas of the country are brought to Hanford for storage. Hanford is not dealing effectively with the waste that was produced there. Until that pollution is dealt with effectively, no other waste should be shipped to Hanford

P-0173/001

The needed clean up at Hanford has not taken place. We need to protect the river and the land by properly taking care of the waste that's already there - not dump more.

THR-0009/003

And we have the dirtiest site on the continent, and we are talking about bringing more stuff to it. It just is illogical, and I oppose that. I don't think anything, any option should include that. It's not reasonable.

THR-0009/008

And I don't think the site should be having to handle more waste coming there.

Hanford Cleanup

THR-0011/002

But all of that's [the progress made to date at Hanford] at risk right now with the USDOE saying that they want to double the amount of waste at Hanford, that they are playing shell games with the terminology.

THR-0011/004

And yet that's [waste denoted as "low-level" in the Draft Environmental Impact Statement] what they're [DOE] saying they're going to ship here and bury in unlined trenches for the next five to six years, next to the Columbia River.

THR-0012/004

Those of you who have been coming to these [public meetings] for 12 or 20 years or more, there was movement, positive movement [towards cleanup], and all of a sudden, two years ago, things changed. All of a sudden we have the highest level of radioactive material scheduled to come into our backyard.

THR-0012/005

The logic of this is simply - no waste to come in, and clean up the huge mess that we have now.

THR-0012/006

And that [the Hanford cleanup] was beginning to be discussed, and now it no longer is. It's just pile it all in, quick, fast, before anybody can say anything.

THR-0017/002

We need to spend as much money as we spent bombing the hell [sic] out of Iraq to clean up the mess, not make any more, just get it over with.

TLG-0001/001

I guess the credibility question that I have is: Right now at Hanford we have this really huge environmental problem. And like the gentleman mentioned earlier, it's supposed to be cleaned up. And I just don't see the wisdom in adding to the problem until we get a handle on the problem we already have.

TLG-0001/002

The other thing is we're talking about two of the lifelines to Eastern Oregon: one is the Columbia River, the other is the freeway. And I have a problem messing with either one of them, potentially, in terms of radioactive waste.

TLG-0003/002

I also have concerns that we're bringing more waste into Hanford when we haven't dealt with the problems that currently exist there.

TLG-0004/002

Until we know that we actually can deal with the waste that we have there, and we can deal with it in a way where conditions don't get worse but actually improve, we shouldn't be accepting any more waste. And I can't say exactly what's in that revised EIS, but I don't understand how DOE can propose to go forward with this addressing the impacts that have been brought to bear upon the fisheries downstream and the recreational users downstream, when I don't think they're really aware of what those impacts are.

TLG-0005/001

I just want to let you know, Hanford has enough. It's got so much stuff up there and we can't deal with what we have. And why are we adding more?

TLG-0006/001

Which was, first, is that we need to deal with the problem that we have already, before we start adding to this problem, because it's just going to build up and build up until our next generations are going to be forced to deal with our problems that we can deal with now by starting to learn.

Hanford Cleanup

TLG-0008/002

I know that people will try to do their best, but I don't see that shipping high-level wastes and transuranics to a place that already has its problems dealing with what we currently have is going to make any of this better.

TLG-0010/002

And it makes much more sense to me to come at it from asking us what it would take for us to be okay, to feel that we have a place to dump and store this stuff. It has to be dumped and stored. And the people who live here, to be able to respond with what it would take for us to be okay with it. And I think that you're going at it backwards, and it's not going to work and we're not going to buy it.

TPO-0001/001

I've heard comments about the clean up of Hanford, and yet all I hear is bringing in more waste and nothing about how much you've cleaned up. And this is very disparaging.

TPO-0003/001

What we've asked for and what we've been promised is clean up. To import additional waste is immoral, it's unconscionable.

TPO-0004/001

How can you send truckloads of waste when you haven't done anything to what you have there now?

TPO-0004/002

It's also, health wise, it's [bringing additional waste to Hanford] destructive for us and for everything -- for environmentally, the water, the air, everything.

TPO-0005/004

Here we have Hanford. And we have -- it's already a mess. And they're trying to clean it up, but they're not succeeding. And now we're going to add multi-millions of, you know like in terms of magnitude, the amount of compared to what there is. Maybe not millions. But I'm trying -- I'm exaggerating. But geometric amounts, more than what there already is there to make it even more difficult.

TPO-0006/005

We do feel very strongly that we ought to hold off on importation of large amounts of additional waste from offsite until we are confident that the most important treatment facility at Hanford is going to be constructed and meet capability. And that's the vitrification plant at Hanford. So we would like to see this document withdrawn and held in abeyance until we're convinced that the vit plant will be up and running on time.

TPO-0008/001

Number one, we've got concerns about the length of time the process is taking to clean up the Hanford complex.

TPO-0008/004

Of course, it sounds like we're not talking too much about cleanup, it's just putting some more in there.

TPO-0009/001

DOE looks at Hanford and says "Oh, the place is ruined. We might as well put more there."

TPO-0009/002

And I do not want that river contaminated. I want Hanford cleaned up, I do not want it increased.

TPO-0011/004

And the other part that's cheaper is the fact that this is free land that they are wasting it. They are saying this is a loss, a total loss. It is a sacrificed site.

Hanford Cleanup

TPO-0011/005

DOE never has had to follow the law. That's the whole point: The DOE never has had to follow the law.

TPO-0011/012

Look, this is about cleanup. This should only be about clean up.

TPO-0013/001

The nuclear and toxic contamination already at Hanford is virtually assured to contaminate both the water, the land, and the air in our lifetimes, and will continue to accumulate for many generations to come. Today the DOE has proposed to add to that contamination, of the past, by importing large volumes of additional wastes. Perhaps some view Hanford area as a national sacrifice zone, that it's already so contaminated that adding more does not affect it, I refuse to give up so easily. We must focus now on minimizing the existing risks here through the best available means of containment and treatment.

TPO-0013/006

How long will additional waste import delay the clean up of the existing waste?

TPO-0013/009

How do you plan to keep us and our children safe for the next generation or two or three? Much less, a quarter of a million years from now.

TPO-0014/002

And if you're going to destroy an area of land and leave it a permanent disaster with no possible cleanup in sight, how are you going to -- why don't you put it somewhere where there's not a big source of water? Because water is going to be worth more than gold in the future.

TPO-0014/003

If we can't clean up Hanford as it already is, then how are we going to clean up a thousand times worse than Hanford, when there's not going to be any resources, because we're going to be in debt up to our eyeballs for as far as we can see.

TPO-0015/002

They're [People are] wondering "What in the world is going on that it doesn't seem like much is happening to really clean up Hanford."

TPO-0015/003

They [people] do not want waste to be brought in. We've got plenty, thank you very much.

TPO-0015/011

We have the DOE dumping for five decades already in Hanford. I distrust anything that's fast track and not thoroughly thought through, thoroughly evaluated.

TPO-0015/013

We must contain and treat and store the wastes already at Hanford, not bring in any additional wastes.

TPO-0016/003

So in light of this, the DOE has to say, "We're going to clean this place up," and they are doing some things, give them some credit here and there, to protect the river, cocoon reactors. You know, dry out the spent fuel. All of these are kind of caretaker responsibilities, but, we're here in the Northwest community, very suspicious about the fact that about 12½ million cubic feet of waste is coming our way over the next 45 years. ... It's not clean up. It's a dump site. … the Department of Energy and the U.S. Government has given up on cleaning up Hanford and it's just going to take waste from all over the country and dump it here. And we object to that.

TPO-0017/002

When we did our weapons production, it left us in a very fine mess. With the less than visionary, and the inept, and the sometimes immoral management, has made Hanford the number one emergency site and the number two emergency site in the DOE complex in the country.

TPO-0017/006

And when we have the accelerated cleanup at Hanford, and when they show us that we can do this, then we can import waste from other sites.

TPO-0018/001

And we mean we don't want any more of this stuff. This is very lethal. We are totally against it.

TPO-0019/001

Our first priority must be to remove the existing waste and treat it so that it no longer threatens the citizens of the Northwest before we increase the amount of new waste being shipped to Hanford.

TPO-0021/003

We want no more poison waste.

TPO-0021/004

We want what is Hanford cleaned up. We want no more weapons, because that is a foundation of Hanford.

TRI-0001/006

We should not focus on how much more waste we will add before we have a baseline of what is already here and an EIS that describes what we will be doing with what is already here.

TRI-0001/016

It is senseless from the public's point of view and from the point of view of the environment to describe building modern facilities to take a million cubic feet of waste a year while ignoring the facilities that are contaminating the soil. It is unacceptable and it leaves this EIS legally inadequate, and it must be corrected.

TSE-0003/002, TSE-0004/002, TSE-0005/002, TSE-0006/002, TSE-0007/002

For cleanup is what we all want, And we're not satisfied.

TSE-0003/003, TSE-0004/003, TSE-0005/003, TSE-0006/003, TSE-0007/003

We won't take any more new waste 'til what's here is all clean[.]

TSE-0003/004, TSE-0004/004, TSE-0005/004, TSE-0006/004, TSE-0007/004

We're sick of being your waste dump[.]

TSE-0003/009, TSE-0004/009, TSE-0005/009, TSE-0006/009, TSE-0007/009

Clean up the spoil and groundwater[.]

TSE-0003/010, TSE-0004/010, TSE-0005/010, TSE-0006/010, TSE-0007/010

Meet all of the legal deadlines[.]

TSE-0011/007

It's [Contamination is] not a problem they have addressed. What they are trying to do is contain the public by putting up institutional controls that will fail to have the public get to an area which is massively contaminated. It is not being contained.

TSE-0012/003

For the low-level waste, as well as all other wastes, line the trenches, install legal groundwater monitoring, provide leachate collection, install weather proof caps, and do it now.

TSE-0013/002

…we are not doing well with the waste that we have.

Hanford Cleanup

TSE-0013/004

We have a serious present and future public health problem that if they could step forward and say, well, we have adequately characterized it, we have lined the trenches, and we have a national problem, and we need a national dialogue about how we all share that burden nationally, then maybe, and maybe it would be years from now, we'd say we could entertain possibly bringing in some of that if there's a place for it to be handled properly.

TSE-0013/005

I think it's totally out of the question to be even talking about it [bringing in more waste] until we have done a safe job as far as public health and the environment with what we have.

TSE-0017/008

I'm against the importation of any new waste to Hanford because adding to this problem is not solving it, and is not responsible care of our country, our resources, and the people that live here.

TSE-0017/009

So, withdraw this illegal, incomplete, and insulting EIS and do not come back until you are ready to solve Hanford's problems.

TSE-0019/001

...my comment is that Hanford already has a big enough contamination problem without adding waste to it or continuing to store waste in low-level burial grounds. … Adding waste to Hanford will slow cleanup of tainted soil and water and it will add to contamination levels at Hanford. The U.S. Department of Energy should not import any off-site waste into Hanford and add to the enormous amount of contamination already threatening the Columbia River and in some cases having reached the Columbia River already.

TSE-0020/001

I have a very brief comment to follow up on the physicians that were up here representing WPSR, which that it is unwise, unfair, and unacceptable for the DOE to ask the citizens of Washington or Oregon to assume the additional health risks that will come with additional wastes imported to Hanford.

TSE-0024/006

And so with this Environmental Impact Statement, you will have the lowest bidding contractor come, they are going to want to cut a lot of corners, and they are going to get sued for whatever crimes that they do, and when the federal government pays them, I don't want the federal government to use taxpayer money to reimburse their legal fees. That should come out of the corporation's pockets.

TSE-0025/002

Actually, I don't think that the way things are going, we will ever get around to cleaning it up. And that the peacocks and the giraffes will be long extinct, and probably human beings will be long extinct, and Hanford will still be producing its toxins.

TSE-0026/003

This is where the DOE's focus should be, on dealing with the waste that is already contaminating Hanford.

TSE-0027/001

...no more waste at Hanford[.]

TSE-0027/009

We need to clean up first, prove it is really done, and then that's enough. No more.

TSE-0029/001

We have to do the best we can to contain this stuff [radioactive waste], and quit adding any more at all.

Hanford Cleanup

TSE-0032/001

I don't trust my government, because this government is spending a billion dollars a day spreading depleted uranium on other countries in the form of bombs. We are worried about international terrorism. Our Department of Energy is committing terrorism on our country. In fact I suppose they are going to have to ship some of our uranium over to RUX [Russia?], because they can only find precursors, and we have got all the postcursers here. I think that we have a government that doesn't represent us, and that dealing with the Department of Energy is like dealing with a Patonkin village. It is just a facade. It is a pretense. The Environmental Impact Statements have been a total fraud. There's not even the appearance of fairness. They don't have any intention of keeping their contracts. And when your government doesn't believe in keeping its own contracts, it's -- it loses legitimacy.

TSE-0033/001

I really want to make a statement that we really need so desperately to take care of our entire planet, and we need to do that by being responsible citizens and being aware of what we're doing to our environment, our citizens, our friends, our family members, and our children and their children. So, I think that we really have to take it seriously, and do as much as we can to make it a better world, and make it a world that all of us can live in, and be healthy and safe in.

TSP-0001/001

I am here to at least have you think about our children and our children's children, and the impact of continued waste shipments

TSP-0001/007

I don't think it's right or reasonable to dump on Hanford even more waste and contribute to the problem.

TSP-0002/003

I believe the waste that is at Hanford should be handled properly before we allow any further waste to come in and be added to it.

TSP-0006/003

I object to the waste being brought to Hanford when the accumulated waste is not yet analyzed, and this is not done in the EIS.

TSP-0006/007

The present waste that's there, the length of time, and as far as I can remember, they have never met the timelines for cleanup that they have made in the past.

TSP-0010/001

The wastes there should be cleaned up first [before dumping more waste at Hanford].

TSP-0010/002

Adding more waste just complicates matters [of cleanup].

TSP-0011/001

And we have struggled, we people are being victimized here by the incongruous thinking processes of a DOE that is being intimidated by an administration that feels that they can make a new strategy and they are having a different goal.

TSP-0017/001

...we can all say not in my backyard[.]

Response

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel.

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed. See Volume II Appendix N, Section N.2.4. See Volume III Section 2, Item 6 of the CRD for more examples of cleanup at Hanford.

The WM PEIS (DOE 1997b) was a comprehensive evaluation of DOE nationwide waste management. The WM PEIS evaluated a broad suite of alternatives for waste management across the DOE complex, including managing most waste at generator facilities, or consolidating waste management at fewer sites that have existing facilities suitable to accept waste from other facilities. The general result of the WM PEIS was that radioactive and hazardous wastes generated at a DOE site should be disposed of at that site unless the site was not capable of or not technically able to support those actions. DOE determined there was sufficient information in the WM PEIS to support decisions regarding the sites that were suitable for long-term waste management missions. Those decisions included processing and disposing of Hanford waste at Hanford, and the importation of wastes from other sites that could not adequately handle them. Decisions made as part of the WM PEIS made Hanford available for the disposal of low-level waste and mixed low-level waste from other DOE generators. The initial WM PEIS decisions related to LLW, MLLW, and TRU waste were issued between January 1998 and February 2000.

Additional wastes will be generated as part of the cleanup of Hanford and other DOE sites. The HSW EIS evaluates several alternatives for the storage, treatment, and processing of wastes from onsite and offsite generators, and a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites. Plutonium production, the source of most of the waste created, has stopped at Hanford. TRU waste, high-level waste, and spent nuclear fuel will be sent to underground repositories in other states that have been designed to safely contain the waste. Many more curies of waste will be sent offsite from Hanford than will be received from offsite.

The Hanford area has been extensively studied and determined to be suitable for disposal of DOE and commercial waste. The impacts of disposing various quantities and types of waste are discussed in this HSW EIS as well as previous NEPA documentation. See Volume I Section 1.5. The evaluations in the HSW EIS provide a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions.

The HSW EIS considers a wide range of alternatives for disposal of low level waste in both lined and unlined facilities. Lined trench alternatives include leak detection and leachate collection capabilities. The use of unlined trenches for disposal of low level waste is an established, legal, and environmentally protective method of low level waste disposal at both DOE and commercial facilities. As such, it is a reasonable alternative, under CEQ regulations, and must be analyzed. The preferred alternative is to dispose of low level waste in newly constructed lined disposal facilities as soon as they are available. For purposes of analysis the HSW EIS assumes this would occur by 2007. All MLLW is currently, and will continue to be, disposed of in lined facilities. Groundwater monitoring is conducted according to TPA requirements, the Hanford Dangerous Waste Management permit, and DOE Orders. Groundwater monitoring will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations.

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Section 5.3 and Volume II Appendix G. See also Volume I Sections 5.11 and Volume II Appendixes F, G, and L. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW. Some of these measures reduced the estimated levels of groundwater contamination relative to those presented in the revised draft. As set forth in Volume I Section 5.3, constituent concentrations in groundwater at 1 km from the disposal site are expected to be below the benchmark drinking water standards for the proposed action. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

DOE does not and will not rely solely on long-term stewardship to protect people and the environment. As indicated in the DOE sponsored report "Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites" (National Research Council 2000) "contaminant reduction is preferred to contaminant isolation and the imposition of stewardship measures." Contaminant reduction is a large part of the ongoing cleanup efforts at Hanford. Most of the analyses in the HSW EIS are based on the assumption that long-term institutional controls will no longer be in effect 100 years after closure (about 2150 AD). Long-term groundwater impacts and subsequent human health impacts were determined based on the assumption that caps will degrade and eventually provide no protection (see Volume I Sections 5.3 and 5.11 and Volume II Appendices F and G). In addition, "intruder scenarios" are analyzed to determine the impacts of gaining access to the site (i.e., no institutional controls) and digging or drilling into waste sites (see Section 5.11.2.2 in Volume I and Section F.3 of Appendix F in Volume II). Further information on DOE's long-term stewardship activities can be found in the Long-Term Stewardship Study (DOE 2001a). The discussions of long-term stewardship in Volume I Sections 2.2.7 and 5.18 have been revised in response to comments.

This HSW EIS complies with applicable NEPA requirements. The cleanup of active DOE waste sites and facilities is regulated under the Atomic Energy Act, as well as the applicable provisions of the federal Resource Conservation and Recovery Act, the State of Washington Hazardous Waste Management Act, and the Comprehensive Environmental Response, Compensation, and Liability Act. Volume I Section 6 identifies the major statutes, permits, compliance agreements, and regulatory requirements followed in conducting operations at Hanford Site. Statutes include AEA, CERCLA, RCRA and the State of Washington HWMA. Volume I Section 6.3 discusses the TPA. Volume I Section 6.4 discusses the Dangerous Waste Management permit. Volume I Section 6.19 provides a summary of existing and potential permits (including state approved permits where state decision-making will be necessary) required to construct and operate treatment, storage, and disposal facilities related to the HSW EIS alternatives. Volume I Section 6 has been updated in the final HSW EIS. More specific provisions for cleanup of active Hanford waste sites and facilities are presented in the Tri-Party Agreement and in portions of the Hanford Dangerous Waste Management permit.

In response to public comments, DOE has conducted a route- and generator-specific offsite transportation analysis using updated highway routing and 2000 census data (See Volume I, Section 5.8 and Volume II, Appendix H of this document). The potential impacts identified in the updated evaluation are similar to those presented in the WM PEIS and the WIPP SEIS-II, and would not change conclusions or DOE-wide waste management decisions based on those studies. The HSW EIS estimates that up to 33,900 shipments of LLW, MLLW, and TRU waste could be shipped to Hanford if the upper bound waste volumes are realized. The actual number of shipments is expected to be less than this.

Comments

L-0034/001

The DOE's mission at Hanford since 1989 has been cleanup. USDOE , the Washington Department of Ecology, and the US Environmental Protection Agency, working via the "Hanford Federal Facility Agreement and Consent Order," also called the "Tri-Party Agreement" (TPA), have previously established two legally binding consent agreement vitrification cleanup schedules by which the DOE was to bring the Hanford site into compliance with state and federal environmental laws.

Unfortunately DOE failed to meet the cleanup schedule of the first of these agreements, and has now made an end run around the second by developing a plan to eliminate vitrification of 75% of the nation's High-Level Nuclear Wastes from nuclear weapons production, much of which resides at Hanford. Included in the fallout of this plan was the shipment of an initial 170 barrels of "Remote-Handled Transuranic" (RH TRU) wastes to Hanford. Additional shipments of RH TRU waste, as well as additional 70,000 truckloads of low level solid and mixed waste are planned.

In return for Washington State acceptance of these additional waste shipments, DOE promised to renegotiate the second consent agreement with the office of the State Attorney General. However, the second consent agreement itself was legally binding, without Washington State being required to take on more waste. Yet even after Washington State agreed to accept more waste, DOE failed in its promise of a new cleanup timetable.

Response

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel.

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed. See Volume II Appendix N, Section N.2.4. See Volume III Section 2, Item 6 of the CRD for more examples of cleanup at Hanford.

Hanford Cleanup

The WM PEIS (DOE 1997b) was a comprehensive evaluation of DOE nationwide waste management. The WM PEIS evaluated a broad suite of alternatives for waste management across the DOE complex, including managing most waste at generator facilities, or consolidating waste management at fewer sites that have existing facilities suitable to accept waste from other facilities. The general result of the WM PEIS was that radioactive and hazardous wastes generated at a DOE site should be disposed of at that site unless the site was not capable of or not technically able to support those actions. DOE determined there was sufficient information in the WM PEIS to support decisions regarding the sites that were suitable for long-term waste management missions. Those decisions included processing and disposing of Hanford waste at Hanford, and the importation of wastes from other sites that could not adequately handle them. Decisions made as part of the WM PEIS made Hanford available for the disposal of low-level waste and mixed low-level waste from other DOE generators. The initial WM PEIS decisions related to LLW, MLLW, and TRU waste were issued between January 1998 and February 2000.

Additional wastes will be generated as part of the cleanup of Hanford and other DOE sites. The HSW EIS evaluates several alternatives for the storage, treatment, and processing of wastes from onsite and offsite generators, and a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites. Plutonium production, the source of most of the waste created, has stopped at Hanford. TRU waste, high-level waste, and spent nuclear fuel will be sent to underground repositories in other states that have been designed to safely contain the waste. Many more curies of waste will be sent offsite from Hanford than will be received from offsite.

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DOE does not and will not rely solely on long-term stewardship to protect people and the environment. As indicated in the DOE sponsored report "Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites" (National Research Council 2000) "contaminant reduction is preferred to contaminant isolation and the imposition of stewardship measures." Contaminant reduction is a large part of the ongoing cleanup efforts at Hanford. Most of the analyses in the HSW EIS are based on the assumption that long-term institutional controls will no longer be in effect 100 years after closure (about 2150 AD). Long-term groundwater impacts and subsequent human health impacts were determined based on the assumption that caps will degrade and eventually provide no protection (see Volume I Sections 5.3 and 5.11 and Volume II Appendices F and G). In addition, "intruder scenarios" are analyzed to determine the impacts of gaining access to the site (i.e., no institutional controls) and digging or drilling into waste sites (see Section 5.11.2.2 in Volume I and Section F.3 of Appendix F in Volume II). Further information on DOE's long-term stewardship activities can be found in the Long-Term Stewardship Study (DOE 2001a). The discussions of long-term stewardship in Volume I Sections 2.2.7 and 5.18 have been revised in response to comments.

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Discussion of pending legal issues is not within the scope of this EIS.

Comments

E-0047/008

Question # 13- Does DOE continue to take the position that alternatives pursued for tank closure should continue to have a performance standard equal to borosilicate glass treatment and that any such tank disposals be retrievable?

L-0012/008

We need to see tank waste put into glass form.

L-0039/012

Disposal of immobilized low activity waste (ILAW) that is an alternate waste form [is not adequately analyzed in this EIS.]

L-0039/017

This draft EIS assumes all ILAW will be in the borosilicate glass waste form. Should DOE proceed with decisions based on this draft of the HSW EIS, the Board believes DOE is committing to a performance standard equivalent to glass, regardless of the waste form.

L-0040/002, LM-0019/002

[The] WAFP [Washington Academy of Family Physicians] opposes any "accelerated cleanup" of Hanford Nuclear Reservation tank wastes that is not scientifically demonstrated to be superior to vitrification in providing long-term protection of human health and the environment.

P-0140/002

As a member of a committee with Clark Co. [County] League of Woman Voters years ago on Hanford radioactive waste I learned that vitrification was the only really safe way [to clean up Hanford] and it was never done - and is still the only way for effective, safe storage of waste.

TPO-0011/003

And the fact that this glassification was originally what was intended, and now it's only going to be 20 percent, because it's cheaper.

TSP-0004/001

I am incredibly incensed at finding out that the Bush Administration's reason for failure to, what's the word, glassify, vitrify this waste is because of economic factors. How can they justify spending six billion dollars on war when obviously the priority for the health, safety and well-being of this citizenry of the state of Washington and perhaps all over the United States is placed as a second priority.

TSP-0008/001

[One of my issues is] vitrification and the fact that the DOE is proposing to essentially abandon that type of treatment. … it needs to be done.

TSP-0010/006

Putting cost above doing the best thing for people in this area and at Hanford by eliminating vitrification is absolutely wrong.

TSP-0011/004

And we have to realize that we have to demand the vitrification[.]

Response

The scope of the HSW EIS is to evaluate the potential environmental impacts of ongoing activities of the Hanford Solid Waste Program and to evaluate implementation of alternatives consistent with the WM PEIS. The HSW EIS evaluates reasonably foreseeable treatment, storage, and disposal facilities and activities for

LLW, MLLW, and TRU waste. It also evaluates disposal of ILAW in a form that has performance characteristics equivalent to borosilicate glass.

The Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single-Shell Tanks at the Hanford Site (68 FR 1052) will analyze other tank waste activities.

ILAW disposal has been evaluated in the HSW EIS based on the expectation that it will be a borosilicate waste form. Outside the scope of the HSW EIS, DOE has been considering adjustments to the ILAW waste form and its chemical and radionuclide composition. It is expected that potential environmental impacts associated with such changes in the ILAW waste form will be evaluated in the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site (68 FR 1052).

Comments

F-0003/004

When is the vitrification plant going to be finished? How about getting it up and running correctly before we start dragging more radioactive garbage in to Hanford.

L-0005/004

Every effort must be made to vitrify the contents of the leaking tanks as soon as possible. Cleanup funds are already being cut. How could they possibly cover the costs of storing yet more nuclear waste safely?

Response

ILAW disposal has been evaluated in the HSW EIS based on the expectation that it will be a borosilicate waste form. Outside the scope of the HSW EIS, DOE has been considering adjustments to the ILAW waste form and its chemical and radionuclide composition. It is expected that potential environmental impacts associated with such changes in the ILAW waste form will be evaluated in the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site (68 FR 1052).

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4. See Volume III Section 2.0, Item 6 of the CRD for more examples of cleanup at Hanford.

DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

Immobilized Low Activity Waste

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

Comments

L-0055/057

After the HLW is separated and vitrified from the tank waste, what is left is classified as Immobilized Low Activity Waste (ILAW). What process is used to immobilize this waste? Grouting is not a recommended process for immobilizing waste. The grouting (or "cast stone") will eventually break down and this waste will once again be mobilized into the environment. This EIS states it will use vitrification, however, the ORP are discussing other alternatives for the ILAW tank waste. The CTUIR believes the waste should be stored in containers or in a form that will last at least as long as the waste it is containing remains dangerous. If it is not, then DOE is just delaying the eventual contamination of the ground water for a future generation to deal with. The High Level Waste (HLW) will be stored for the interim at Hanford. Is the 2010 an accurate figure for when this water will be shipped out? Could the storage period be longer?

Response

ILAW disposal has been evaluated in the HSW EIS based on the expectation that it will be a borosilicate waste form. Outside the scope of the HSW EIS, DOE has been considering adjustments to the ILAW waste form and its chemical and radionuclide composition. It is expected that potential environmental impacts associated with such changes in the ILAW waste form will be evaluated in the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site (68 FR 1052).

The HSW EIS proposes no changes to existing decisions made regarding the management of high-level waste. Transportation and disposal of HLW, including potential disposal of high level waste melters, is evaluated in the Yucca Mountain Repository Environmental Impact Statement (DOE 2002c).

Comments

L-0041/010

The HSW-EIS makes two assumptions regarding the analysis of tank waste disposal that are vulnerable to invalidation, making the entire tank waste analysis subject to the same vulnerability. The first of these assumptions is that the Waste Incidental to Reprocessing provisions of DOE Order 435.1 will be upheld in the current litigation on this subject. The second assumption is that all the low activity tanks waste will be immobilized as borosilicate glass. We already know from DOE's own documents that this will not be the case as DOE is exploring three supplemental forms of waste treatment. DOE also needs to explicitly acknowledge the vulnerability of both assumptions and discuss the actions that will be taken in either or both of these assumptions are invalidated.

Immobilized Low Activity Waste

TPO-0016/004

They're already talking about not cleaning up the high-level waste in the nuclear waste tanks, by simply re-labeling, re-characterizing that waste and leaving it in place, maybe popping some concrete.

Response

ILAW disposal has been evaluated in the HSW EIS based on the expectation that it will be a borosilicate waste form. Outside the scope of the HSW EIS, DOE has been considering adjustments to the ILAW waste form and its chemical and radionuclide composition. It is expected that potential environmental impacts associated with such changes in the ILAW waste form will be evaluated in the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site (68 FR 1052).

The HSW EIS proposes no changes regarding the classification of high-level waste.

Comments

L-0041/037

Due to the screening approach used, groundwater modeling is based on technetium 99 and uranium, and appears to exclude the ILAW source term. The EIS states that SAC estimates indicate up to 450 curies of technetium 99 entering groundwater from an estimated inventory of 2,300 curies. ILAW could contain up to 25,500 curies of technetium 99 and DOE hypothesizes that only 86 curies would be released from the ILAW material (Page 5.248, Line 26). Therefore, Oregon recommends that the final ILAW waste form meet a performance requirement to leach a maximum of 86 curies in the next 10,000 years using prevailing waste characterization methods. Additionally DOE asserts that solid waste to be disposed will only account for 20 percent (450 curies + 86 curies = 536 curies) of the technetium 99 to be released to groundwater. This indicates that the estimated total release to groundwater will be about 2,680 curies of technetium 99. That is more than the inventory estimated in the SAC. The final EIS should resolve this apparent uncertainty.

Response

Volume I Section 5.14.3 explains how ILAW was accounted for in the cumulative groundwater impacts.

Comments

L-0044/012

The EIS does not adequately show the differences between the various alternatives locating disposal in 200 East versus 200 West Area. There are documented differences in disposing of the ILAW in 200 West versus 200 East Area, but this does not show up in the analysis that support this EIS. This absence indicates a problem with the modeling, or the points of calculation are too far way from the facilities.

Response

The EIS evaluates four different disposal locations for ILAW, including locations in the 200 East and 200 West Areas.

The maximum point of impact from multiple and widely dispersed sources may not necessarily be directly underneath the Low Level Burial Grounds or at the Low Level Burial Ground boundary. To model the groundwater impacts from multiple and widely dispersed disposal units over long periods of time, a 1-km point of analysis location was deemed to be more appropriate and representative than a regulatory point of compliance well location, for purposes of NEPA analysis. The point of analysis approach is considered technically appropriate for a NEPA evaluation of groundwater impacts over the long-term (10,000 years) time period analyzed. The 1-km point of analysis is not intended to represent the proposed locations for actual monitoring wells that would be used during the operational and closure time period. Groundwater impacts at the facility boundary (about 100 meters) have been added to the impacts identified for the preferred alternative and are discussed qualitatively for the other alternatives. A discussion of the differences between the 1-km point of analysis and the disposal facility boundary is provided in Volume I Section 5.3 and Volume II Appendix G.

Comments

P-0095/001

I'm worried about the health of the Columbia River and the workers and people who live and work in the area.

Response

The HSW EIS evaluates health impacts on downstream populations of groundwater reaching the Columbia River over a 10,000-year time frame. The impacts of groundwater reaching the river are discussed in Volume I Section 5.3 and Volume II Appendix G. See also Volume I Sections 5.11 and 5.14 and Volume II Appendixes F and L.

Comments

L-0052/009

Ecological evaluation. The ERWM has a concern about potential impacts from 200 Area contaminants entering the groundwater and eventually entering the Columbia River. Assuming that this is a possibility, should this EIS address this issue and talk about potential impacts to the riparian zone, river, and impacts on endangered species such as salmon?

THR-0005/001

I, too, wonder about the salmon and the elk. The salmon as they goes down the Columbia River out to the ocean and what the overall effect it [water contamination] has.

TPO-0010/003

What about the animals that have been mentioned before? What about the birds and the fish? The food chain? We can't impact our environment without impacting the whole interconnection of life itself. That's what we're talking about.

TPO-0011/002

I am worried about us and the other animals.

TSE-0022/002

Already the fish in the Columbia River are so poisonous that people eating these fish face a big risk of cancer. Tribal children in particular face, according to the EPA, a one in 50 chance of getting cancer from eating fish. That's generally in the Columbia River. At Hanford, it is the most contaminated, chemically contaminated, of course radiologically contaminated fish in the Columbia River. This isn't discussed in the EIS.

TSE-0026/001

The DOE's own model of current and projected groundwater contamination at Hanford is a terrifying death sentence predicting preventable cancer deaths among people and animals, fish and birds, who will be exposed to contaminated groundwater for years.

Response

The human exposure scenarios described in Volume II Appendix F consider direct and indirect use of the Columbia River water and biota (e.g., swimming, consumption of fish). For those radiological and non-radiological contaminants that will reach the Columbia River bioaccumulation of contaminants and resulting impacts to non-human biota are also expected to be small. See Volume I Sections 5.5 and 5.11, and Volume II Appendix F and Appendix I.

The EPA Columbia River Basin Fish Contaminants Survey 1996-1998 (EPA 2002) was a study of organic, metal, and radionuclide concentrations in 208 fish tissue samples collected from 24 locations on the Columbia, Snake, Yakima, Clearwater, Klickitat, Deschutes, Willamette and other rivers that drain the

Impact Evaluation

Columbia River Basin. Locations included the Hanford Reach of the Columbia River, artificial ponds on the Hanford Site, and the upper Snake River. Cancer risks were estimated for consumption of fish that were contaminated with radionuclides. These risks were small relative to the estimated risks associated with radiation from naturally occurring background sources, to which everyone is exposed. The levels of radionuclides in fish tissue from the Hanford Reach of the Columbia River and the ponds on the Hanford Site were similar to levels in fish from the Snake River. These estimates of risks were not combined with the potential risks from other chemicals, such as PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and a limited number of pesticides. The potential cancer risks from consuming fish collected from Hanford Reach and the artificial ponds on the Hanford Site were similar to cancer risks in fish collected from the upper Snake River. EPA reported that the Yakima River and the Hanford Reach of the Columbia River tended to have higher concentrations of organic chemicals than other study sites. EPA also reported that the chemicals and or chemical classes that contributed the most to cancer risk for most of the resident fish were PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and a limited number of pesticides. For most of the anadromous fish, the chemicals that contributed the most to cancer risk were PCBs (Aroclors and dioxin-like PCBs), chlorinated dioxins and furans, and arsenic. These chemicals occur in the Columbia River as a result of agricultural and industrial operations (pulp and paper plants, for example) and are very unlikely to be of Hanford origin. These chemicals would not exist in wastes proposed for future disposal at Hanford, or, if initially present, would be treated to reduce their mobility and toxicity to meet applicable standards prior to disposal.

The ecological impact analysis contained in the HSW EIS is consistent with the requirements of NEPA. It is also consistent with the methods, characteristics, and controls associated with a composite analysis as described by the Columbia River Comprehensive Impact Assessment (CRCIA) team. The analysis modules included in the System Assessment Capability (SAC) parallel those identified by CRCIA and were developed through work group meetings that included regulator and stakeholder participation. Several key modules were adopted directly from the CRCIA including the module used to calculate human health impacts (the HUMAN code) and the module used to calculate impacts to ecological species (the ECEM code).

Volume II Appendix I provides information about potential impacts to terrestrial and aquatic ecological resources that may result from implementation of HSW EIS alternatives. Potential impacts to terrestrial resources were evaluated in the near term (i.e., during waste management operations and under current conditions). Potential impacts would result primarily from surface disturbances associated with excavation and disposal activities. Potential impacts to Columbia River riparian and aquatic resources could occur in the long term, i.e., up to 10,000 years following the conclusion of waste management operations. These would be primarily the result of the eventual migration of radionuclides and other hazardous chemicals through the vadose zone to groundwater and on to the Columbia River. Biological and ecological resources (vegetation, wildlife, aquatic ecology, and threatened and endangered species) potentially impacted by the proposed actions are assessed in Volume II Appendix I and summarized in Volume I Section 4.6. Wildlife and ecological resource impacts are summarized in Volume I Section 5.5.

DOE manages Hanford biological and ecological resources in accordance with the Biological Resource Management Plan (BRMaP; DOE-RL 2001) and the Biological Resource Mitigation Strategy (BRMiS; DOE-RL 2003). See Volume I Section 5.18.8 for discussion of resource management and impact mitigation plans.

Comments

L-0014/002, L-0022/002

We do not categorically oppose the importation, treatment, and disposal of wastes from other sites at Hanford, so long as assurance is provided that the wastes can be safely handled and disposed of in accordance with applicable rules and regulations. This must be accomplished without the delay of or budget impacts on Hanford cleanup programs.

Impact Evaluation

Response

The HSW EIS evaluates several alternatives for the storage, treatment, and processing of waste from onsite and offsite generators. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

Comments

E-0043/025, EM-0217/025, EM-0218/025, L-0056/025, LM-0017/025, LM-0018/025

Analysis of the cost of waste imports in light of the Hanford site cleanup budget. Will waste import detract from actual Hanford clean-up?

E-0051/004

Any money used to handle/treat outside waste takes away from on-site clean-up.

Response

The HSW EIS evaluates several alternatives for the storage, treatment, and processing of waste from onsite and offsite generators. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

DOE requests funds from Congress based on its cleanup schedules.

Comments

E-0010/003

And please encourage the USDOE to explore other safe options for storage of this waste… The healthy future of our state depends on it.

E-0047/017

The analyses do not address dangerous waste in Low Level Waste (LLW).

L-0019/006, TSE-0002/006

Full discussion of alternative methods of disposal [is a an open issue in the revised draft.]

L-0033/003

[This EIS must be revised to fully evaluate and share with the public] a comparison of the environmental impacts of radioactive and hazardous waste disposal at different sites; a discussion of the long-term management of this serious threat to human health and the environment[.]

TSE-0010/004

We already have a lot of waste there that needs to be focused on, and that's what the alternatives should have focused on in this Revised Environmental Impact Statement, and it did not do that.

TSP-0007/002

I think it is pretty ridiculous to put populations at risk if there is an alternative. I don't know what the alternatives are.

Response

The HSW EIS evaluates alternatives for disposal of LLW, MLLW, ILAW, and WTP melters in either independent or combined-use facilities that comply with RCRA and state standards for disposal of hazardous wastes. The alternatives have been configured consistent with the WM PEIS and its records of decision, the HSW EIS notice of intent, and comments received during public review periods. Descriptions of these alternatives are presented in Volume I Section 3. Volume I Figure 3.1 shows the many options possible for treatment, storage, and disposal of HSW EIS waste streams. Options include a No Action Alternative, waste disposal in LLBG trenches, waste disposal in the Environmental Restoration Disposal Facility (ERDF) and in ERDF-like mega-trenches at various locations, use of lined and capped facilities that would comply with Resource Conservation and Recovery Act (RCRA) Subtitle C hazardous waste requirements, and disposal of LLW in lined trenches with leachate collection systems that would meet the substantive requirements of federal and state hazardous waste management regulations. The HSW EIS does not evaluate any alternatives for the disposal of MLLW in trenches that are not lined and that do not fully meet RCRA Subtitle C requirements. The potential environmental impacts of the HSW EIS alternatives are presented in Volume I Section 5 and related Volume II appendixes.

Comments

L-0016/017

Long term plans can't be made about materials whose long-term survival is unknown (e.g. asphalt, or concrete).

L-0029/004

All containment designs will eventually fail sending dangerous poisons into the Columbia River.

L-0033/009

...install a weatherproof cap [over the burial trenches.]

L-0055/031

In most of the alternatives, a cap would be placed over waste sites consisting of soil, sand, gravel, and asphalt to reduce water infiltration, and human and animal intrusion. A cap made of these materials would do little to limit intrusion by humans. In addition, the life of these caps would be no greater than a few hundred years. The half life of some contaminants is much longer than this. There have already been occurrences of animal intrusion in areas with caps over waste sites. Landfills have used caps made of artificial materials. This is not considered at these sites. These artificial materials would very visually show when the ground is starting to erode and exposing the capping material.

L-0055/068

The long-term performance of our in-place waste site remedies and closure techniques is largely unproven. This is also a large area of uncertainty. For example, if the caps over the waste sites break down sooner than they predicted, then the waste will flow into the ground water quicker and at high radioactivity levels than they predicted using the SAC. It is well known that the caps over the waste sites will not last as long as the waste under them remains intrinsically dangerous. The waste stored at Hanford should be stored in containers or stabilized in a form with a lifespan as least as long as the waste form remains intrinsically dangerous. Otherwise, it is just a delay in the inevitable release of new contaminants. As an alternative, the waste could be kept in frequently monitored, easily retrievable locations.

THR-0008/004

So, this business of capping, capping is supposedly going to be a way of handling these dump sites, is just what it is. It's a veneer, a mask. Nothing is said about, you know, what's happening, where's the material in the ground go after the water gets to it? You put a hard cover on it, that means nothing.

TPO-0008/003

Has the EIS addressed all potential containment failures estimated over the next 50 to a hundred years?

TPO-0024/001

I just think these caps are just, you know -- it's just a cover-up, because -- so rain comes down the side of the cap, right? Well, what we know is soil isn't just like evenly dispersed, like a nice little sand pile. But there's columns and there's cracks and there's vertical as well as horizontal ways that things flow underground. And so to say that the only reason these -- you know, that's even more shocking that these liners are only about when it's not capped.

TPO-0025/001

However, it's commonly known, inside of NORAD, that about a week after it rains outside, it rains in NORAD [a facility several hundred feet underground in the mountains in Colorado Springs, under granite]. I was there it was raining on me. Sunny outside, raining in NORAD. So if you have a mountain that's several hundred feet high in granite -- designed for nuclear blasts, that kind of thing, I mean, it's a military facility -- I find it very difficult that these caps are going to be really effective at really mitigating thunderstorms, gully washes, things like this.

Response

The HSW EIS barrier performance analysis takes into account degradation of the modified RCRA Subtitle C barrier. No guidance is available for specifying barrier performance after the design life. However, it is likely that this specific barrier will perform as designed far beyond its design life. The modified RCRA Subtitle C barrier (see Volume I Section 2.2 for description of this barrier) has a design life of 500 years in the absence of any active institutional controls or maintenance 100 years after closure. The starting infiltration rate used in the release modeling begins at 0.01 cm/yr, after which the assumed rate increases in five steps over 500 years after the start of cover degradation (See Volume II Figure G.3). After 500 years of degradation, the infiltration rate used in the release modeling is assumed to be equivalent to the rate used to represent recharge for the natural surrounding environment (0.5 cm/yr). This rate was used during the remaining 9,000 years of this assessment. Groundwater impacts based on these assumptions are in Volume I Section 5.3 and Volume II Appendix G. A sensitivity analysis was also performed that assumed the cap would be maintained beyond 100 years after closure. Groundwater impacts from this sensitivity analysis are in Volume II Appendix G Section G.4.

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

Doses for intrusion scenarios at 10,000 years after disposal-site closure have been calculated and are included in the EIS.

Barriers over the contamination sources are used to inhibit radionuclide transport to the surface environment through deep rooted plants, such as Russian thistle, or burrowing insects and animals. There are components in the modified RCRA Subtitle C Barrier, illustrated in Volume I Section 2.2.3.2, to exclude burrowing insects/mammals and deep rooted plants from coming in contact with the waste. Details regarding surface contamination are documented in the Hanford Site Environmental Report 2001 (Poston et al. 2002).

Information about caps and barriers is presented in Volume I Section 2 and Volume II Appendix G.

DOE does not and will not rely solely on long-term stewardship to protect people and the environment. As indicated in the DOE sponsored report "Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites" (National Research Council 2000), "contaminant reduction is preferred to contaminant isolation and the imposition of stewardship measures." Contaminant reduction is a large part of the ongoing cleanup efforts at Hanford. Most of the analyses in the HSW EIS are based on the assumption that long-term institutional controls would no longer be in effect 100 years after closure (about 2150 AD). Long-term groundwater impacts and subsequent human health impacts were determined based on the assumption that caps would degrade and eventually provide no protection (see Volume I Sections 5.3 and 5.11 and Volume II

Appendices F and G). In addition, "intruder scenarios" are analyzed to determine the impacts of gaining access to the site (i.e., no institutional controls) and digging or drilling into waste sites. See Volume I Section 5.11.2.2 and Volume II Appendix F Section F.3. Further information on DOE's long-term stewardship activities can be found in the DOE Long-Term Stewardship Study (DOE 2001a). The discussions of long-term stewardship in Volume I Sections 2.2.7 and 5.18 of the HSW EIS have been revised in response to comments.

Comments

E-0043/015, EM-0217/015, EM-0218/015, L-0056/015, LM-0017/015, LM-0018/015

In selecting Alternative D as the preferred alternative, DOE should state 1) the cost savings of Alternative D over the other alternatives; 2) the land use savings of Alternative D over the other alternatives; 3) the risks associated with Alternative D over the other alternatives; and 4) the environmental advantages and disadvantages of Alternative D over the other alternatives.

L-0049/004

Second, the environmental consequences chapter reveals few differences among adopting different action alternatives. This limits the decisionmaker's and readers' ability to clearly distinguish between alternatives. CEQ NEPA Regulations at 40 CFR 1502.14 state that the affected environment and environmental consequences should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining issues and providing a clear basis for choice among the options by the decision-maker and the public. The EIS should present analyses extending beyond that found in the revised draft document. Complementary analyses should represent a range of assumptions and uncertainties and identify the most realistic predictions. The inclusion or absence of mitigation measures with the associated effectiveness of these measures included in the effects' analyses would also help define issues and provide a clearer basis for choice.

Response

Volume I Section 3.4 of the HSW EIS provides tables, graphics, and text discussion to summarize and compare the impacts of the alternatives. Volume I Section 3.6 discusses costs.

As a result of additional mitigation measures incorporated into the action alternatives, the impact of the proposed action on groundwater at the 1-km line of analysis would be below benchmark drinking water standards. The discussion of Irreversible and Irretrievable Commitments of Resources in Volume I Section 5.15 has been revised in this EIS.

Comments

E-0043/023, EM-0217/023, EM-0218/023, L-0056/023, LM-0017/023, LM-0018/023

Analysis of groundwater impact by all radionuclides "due to uncertainties in the inventory and modeling approach." These uncertainties need to be addressed, and a cumulative impact analysis of the impact on the groundwater by all radionuclides should be performed.

Response

The impact evaluation models (groundwater, air, exposure, transportation) are discussed in Volume I Section 5 and the Volume II appendices. The assessments in the HSW EIS are based on the data and assumptions used in these models. Limitations and uncertainties in modeling, data, and assumptions are discussed in Volume I Section 3.5 and throughout the HSW EIS Volumes I and II.

The LLBGs contain over 100 radioactive and non-radioactive constituents that potentially could impact groundwater. Screening of these constituents considered a number of aspects that included (1) their potential for dose or risk, (2) their decay or degradation rates, (3) their estimated inventories, and (4) their relative mobility in the subsurface system within a 10,000-year period of analysis. Establishing the relative mobility

Impact Evaluation

of each contaminant, they were grouped based on their mobility in the vadose zone and underlying unconfined aquifer. Contaminant groupings were used, rather than the individual mobility of each contaminant, primarily because of the uncertainty involved in determining the mobility of individual constituents. The waste constituents were grouped according to estimated or assumed Kd of each constituent.

Based on an assumed infiltration rate and estimated levels of sorption and associated retardation, the estimated travel times of a number of constituents through the thick vadose zone to the unconfined aquifer beneath the LLBGs were calculated well beyond the 10,000-year analysis. Thus, these constituents were eliminated from further consideration. Of the remaining constituents, technetium-99, iodine-129, carbon-14, and uranium isotopes were considered of sufficient quantity and mobility to warrant detailed analysis of groundwater impacts. Selenium and chlorine, while mobile, were screened out because their total inventories were less than 0.01 Ci. Tritium and cesium were not evaluated because of their relatively short half-lives. Plutonium was screened out because of its lack of mobility.

Comments

L-0055/011

The variability in human dose with regard to individual behavior and exposure affects the uncertainty even more than the inventory, release, or environmental transport. It is for these uncertainties that the environment must be protected to safeguard the populations living in this area in the future. This is why the Native American Subsistence Scenario (NASS) is important to be used in this EIS. Water quality was evaluated via an annual dose from a worker drinking 2 liters per day of the ground water. As addressed in the NASS, this amount may seem low. Drinking 3 liters per day may be more representative of a Native American or resident gardener for this area.

Response

The CRCIA (DOE-RL 1998) was a study initiated by DOE, Ecology, and EPA to assess the effects of Hanford-derived materials and contaminants on the Columbia River environment, river-dependent life, and users of river resources for as long as these contaminants remain intrinsically hazardous. CRCIA was developed to provide screening, impact, and risk assessment procedures to be used under the Hanford TPA, the RCRA, and CERCLA programs. The approach taken in the HSW EIS is consistent with the methods, characteristics, and controls associated with a composite analysis as described by the CRCIA team. Key elements of the approach include ensuring that factors that will dominate the risk are included and providing an understanding of the uncertainty of the results. Dominant factors were identified through scoping studies and the development of conceptual models for each of the analysis modules used. A stochastic modeling approach was taken to estimate uncertainty in the results. Aspects of uncertainty that could not be included in the calculation were considered in the analysis of the modeling results and discussed in the document presenting those results (Bryce et al. 2002). The analysis modules included in the System Assessment Capability parallel those identified by CRCIA and were developed through work group meetings that included regulator and stakeholder participation. Several key modules were adopted directly from the CRCIA including the module used to calculate human health impacts (the HUMAN code) and the module used to calculate impacts to ecological species (the ECEM code).

EPA safe drinking water standards are based on consumption of 2 liters of water per day. The onsite residence scenarios are hypothetical cases presented solely to provide comparative impacts to such a hypothetical individual. Consistent with Volume I Section 5.15, DOE intends to maintain appropriate restrictions on groundwater usage for as long as necessary. Concentrations in the Columbia River from the proposed action are expected to be indistinguishable from current river background levels. Therefore, assuming consumption of 3 liters per day would not change the conclusions in the EIS.

Comments

E-0047/033

Uranium is scheduled to be regulated as a toxic metal rather than as a radioactive element and should be assessed as such.

L-0041/050

In December 2003, uranium is scheduled to be regulated as a toxic metal rather than as a radioactive element. DOE should incorporate this change in regulatory status in both the final EIS and subsequent ROD.

Response

The HSW EIS risk assessment evaluates both radiological and non-radiological uranium toxicity.

Comments

E-0019/004, L-0026/004

The draft HSW-EIS has failed to evaluate the inventory and environmental impact of hazardous chemicals and has evaluated radionuclides only. The HSW-EIS should provide projected hazardous or dangerous waste inventories. Effective December 8, 2003, uranium will have a standard of 0.03 mg/L, based on chemical toxicity that is more restrictive than the radiological dose standard. The containerized grout supplemental technology may result in ground water concentrations of nitrate and nitrite greater than the regulatory limit. Evaluation of uranium, nitrate, nitrite, and other applicable hazardous or dangerous component concentrations in the groundwater should be provided in addition to uranium contribution to the calculated dose.

Response

The HSW EIS risk assessment evaluates both radiological and non-radiological uranium toxicity.

ILAW disposal has been evaluated in the HSW EIS based on the expectation that it will be a borosilicate waste form. Outside the scope of the HSW EIS, DOE has been considering adjustments to the ILAW waste form and its chemical and radionuclide composition. It is expected that potential environmental impacts associated with such changes in the ILAW waste form will be evaluated in the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site (68 FR 1052).

Hazardous chemicals in MLLW have been characterized and documented since the implementation of RCRA at DOE facilities beginning in 1987. MLLW currently in storage, and MLLW that may be received in the future, would be treated to applicable state or federal standards for land disposal. Therefore, disposal of that waste is not expected to present a hazard over the long term because the hazardous constituents would either be destroyed or stabilized by the treatment. Inventories of hazardous materials in stored and forecast waste are either very small, or consist of materials with low mobility. See Volume II Appendixes F and G.

Inventories of hazardous chemicals in waste were not generally maintained by industries in the United States prior to the implementation of RCRA. Consistent with these general practices, inventories of hazardous chemicals in radioactive waste were not required to be determined or documented before the application of RCRA to radioactive mixed waste at DOE facilities in late 1987. Wastes placed in the LLBGs before late 1987 have not been specifically characterized for hazardous chemical content, but they have been evaluated in the EIS alternatives relative to their radionuclide inventories. In addition, preliminary estimates of chemical inventories in this waste have been developed for analysis in the HSW EIS, and a summary of their potential impacts on groundwater has been added to Volume I Section 5.3 and Volume II Appendix G.

In addition, the October 23, 2003 Settlement Agreement contains proposed milestones in the M-91-03-01 Tri-Party Agreement Change Package for retrieval and characterization of suspect TRU waste retrievably stored in the Hanford LLBGs (United States of America and Ecology 2003). As part of that agreement, DOE will manage the retrievably stored LLBG waste under the following assumptions: (1) all retrievably stored suspect TRU waste in the LLBGs is potentially mixed waste; and (2) retrievably stored suspect TRU waste will be managed as mixed waste unless and until it is designated as non-mixed through the WAC 173-303 designation process.

Interactions among different types of waste that could potentially mobilize radionuclides have also been considered as part of the HSW EIS analysis. However, such interactions typically require specific chemical environments or large volumes of liquid as a mobilizing agent, neither of which are known to be present in the solid waste disposal facilities currently in use (see discussion in Volume II Appendix G). Possible effects of this type could be mitigated by selecting candidate disposal sites to avoid placing waste in locations where previous contamination exists.

Waste sites and residual soil contamination remaining at Hanford over the long term, and which are not specifically evaluated as part of the HSW EIS alternatives, have been evaluated previously as part of NEPA or CERCLA reviews. In those studies, the risks associated with older solid waste burials, tank waste residuals and leaks, and contaminated soil sites were found to be very small, even for alternatives that considered stabilization of the waste in place (DOE 1987, DOE and Ecology 1996, Bryce et al. 2002). Further evaluation of tank wastes is anticipated in the "Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single-Shell Tanks at the Hanford Site" (68 FR 1052). The cumulative groundwater impacts analysis in the HSW EIS also includes those wastes, as described in Volume I Section 5.14 and Volume II Appendix L.

DOE plans to characterize pre-1970 inactive burial grounds and contaminated soil sites, as well as the active LLBGs considered in the HSW EIS alternatives, under the RCRA past practice or CERCLA processes to determine whether further remedial action would be required before the facilities are closed. As part of that process, the long-term risks from these wastes would either be confirmed to be minimal, or the waste would be remediated by removal, stabilization, or other remedial actions to reduce its potential hazard. In all cases, the impacts from these previously disposed wastes would be the same for all alternative groups considered in the HSW EIS, and would not affect the comparisons of impacts among the alternatives or the decisions made regarding disposal of waste received in the future.

Comments

TSE-0012/004

The EIS does not address the interaction of hazardous chemicals such as carbon tetrachloride, the interaction with the radioactive chemicals. This is a serious and fatal flaw in the EIS.

Response

Discussion of the synergistic transport effects among organic and inorganic contaminants is provided in Volume I Section 5.3 and Volume II Appendix G. To establish the relative mobility of each contaminant, they were grouped based on their mobility in the vadose zone and underlying unconfined aquifer. Contaminant groupings were used, rather than the individual mobility of each contaminant, primarily because of the uncertainty involved in determining the mobility of individual constituents. The groups were selected based on relatively narrow ranges of mobility, and constituents were placed in the more mobile group when there was uncertainty concerning which group they should be placed in. Some of the constituents, such as iodine and technetium, would move at the rate of water whether in the vadose zone or underlying groundwater. The movement of other constituents in water, such as americium and cesium, would be slowed or retarded by the process of sorption onto soil and rock.

Comments

E-0055/005

USDOE fails to consider the impact of reasonably foreseeable fires or earthquakes involving wastes, especially TRU, stored now or proposed to be added to, the CWC. The CWC is really nothing more than light metal sheds with concrete floors. The WMPEIS and WIPP SEIS II predicted that an earthquake at Hanford would cause a release of Plutonium and other radionuclides from TRU imported to Hanford and stored in a designed storage facility, resulting in offsite fatal cancers. USDOE seeks to add more room for imported TRU by removing waste to ERDF without any consideration of the impacts of using CWC for storage of TRU

TSE-0028/004

In the event of an earthquake, the Waste Management Programmatic EIS said the number of latent cancer fatalities ranged to 200 at Hanford from the quantities of transuranic waste proposed to be imported, and said that the impacts of this will have to be considered in a site specific Environmental Impact Statement, and mitigation measures taken into account. Any future decisions regarding transfers of transuranic waste would be subject to appropriate review and the agreements DOE's entered into, and as Judge McDonald said, although DOE intends to select sites the Waste Management PEIS will not be the basis of selecting locations, and there will be a site specific review of all the impacts and the specific mitigation measures, including both the earthquake, the accidents, and the treatment required of imported transuranic waste. All of those things are missing from this EIS[.]

Response

Accident impacts are evaluated in Volume I Section 5.11.1 and Volume II Appendix F Section F.2. Scenarios include earthquake, fire, and explosion.

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS decisions regarding certain TRU, LLW, and MLLW streams. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

Comments

L-0055/046

DOE's ground water flow directions do not match some of the historical ground water flow directions. It is possible that there are different flow directions depending on the time scale used in the analysis. The regional flow has traditionally been to the south east. It is possible that this has changed with time as the mounding has dissipated, but it must still be evaluated as a contingency depending on the use of the land surface in the future. The ground water flow paths may still be in a state of flux since there is uncertainty in flow directions. In addition, the danger or radionuclide concentrations are much higher for a Native American practicing their traditional way of life.

Response

Given the expected long delay of contaminants reaching the water from the LLBGs, the hydrologic framework of all groundwater transport calculations was based on postulated post-Hanford steady-state water table as estimated with the three-dimensional model. These conditions would only reflect estimated boundary condition fluxes (for example, natural recharge and lateral boundary fluxes) and not the effect of past and current wastewater discharges on the unconfined aquifer system that are seen in current conditions. The current version of the sitewide model relies on a three-dimensional representation of the aquifer system that was calibrated to Hanford sitewide groundwater monitoring data collected during Hanford operations from 1943 to the present. The calibration procedure and results for this model are described in Cole et al. (2001b). This recent work is part of a broader effort to develop and implement a stochastic uncertainty estimation methodology in future assessments and analyses using the sitewide groundwater model (Cole et al. 2001a). The resulting distribution of hydraulic conductivities from this recent calibration effort is provided in Figures

Impact Evaluation

G.11 and G.12 in Volume II Appendix G of this HSW-EIS. DOE believes that modeling procedures and values used are consistent with those applied in the RCRA and CERCLA context at Hanford. The assessment benefits from preceding analyses and field observations, including the performance assessments for 200 West and 200 East post-1988 burial grounds (Wood et al. 1995, 1996), the remedial investigation and feasibility study of the ERDF (DOE-RL 1994), the disposal of ILAW originating from the single- and double-shell tanks (Mann et al. 1997) and (Mann et al. 2001), and the Composite Analysis of the 200 Area Plateau (Kincaid et al. 1998). These and other analyses, (for example, environmental impact statements) included development of inventory data and application of screening or significance criteria to identify the radionuclides that could be expected to substantially contribute to either the dose or risk calculated in the respective analysis. Clearly, those radionuclides identified as potentially significant in these published analyses are also expected to be key radionuclides in this assessment.

As stated in Volume I Section 6.13, none of the activities involved in the HSW EIS would occur on open and unclaimed lands.

Comments

L-0041/031

Groundwater modeling is predicated on an infiltration rate that increases with time. That is to say for the first 500 years DOE uses an infiltration rate of 0.01 cm/yr. This is reflective of an assumption about the system constructed to contain the waste. Between 500 years and 1,000 years, the infiltration rate increases to 0.5 cm/yr., which is thought to mimic cover failure. Beyond 1,000 years infiltration is modeled at 0.5 cm/yr. This is a coarse assumption, which should drive a requirement for a field-scale test to verify infiltration rates. Secondarily, this assumption should drive the need to plan redundant systems to assure meeting this modeling input, thus meeting expected performance parameters.

Response

Infiltration rates were based on field testing. Infiltration rate assumptions used in the groundwater analysis are contained in Volume II Appendix G, Section G.1.

Comments

L-0039/011

K-Basins sludges [are not adequately analyzed in this EIS.]

Response

The HSW EIS evaluates the impacts of K Basin sludge that will be stored, processed, and certified onsite prior to shipment to WIPP for disposal.

Comments

L-0041/039

Using four classes of Kds in the EIS appears appropriate for analyzing potential future risks, however the assignment of contaminants in the groups should be revised, based on the minimum known Kds for each contaminant. Using a minimum Kd will be conservative in that the contaminant(s) will be more readily released from the source term, which will tend to elevate risks in groundwater. For example, the SAC model included high estimates for the Kd values for neptunium. The observed Kd for neptunium at Hanford is typically about 2.5, making it highly mobile and a major risk driver.

Response

The Kd data used in the HSW EIS are based on site-specific analysis of adsorption and are consistent with general observations of contaminant mobility at Hanford.

Impact Evaluation

The HSW EIS has benefited from preceding analyses and field observations, including the performance assessments for 200 West and 200 East post-1988 burial grounds (Wood et al. 1995, 1996), the remedial investigation and feasibility study of the ERDF (DOE-RL 1994), the disposal of ILAW originating from the single- and double-shell tanks (Mann et al. 1997) and (Mann et al. 2001), and the Composite Analysis of the 200 Area Plateau (Kincaid et al. 1998). These and related environmental analysis documents have provided inventory data and screening or significance criteria to identify those radionuclides that could be expected to substantially contribute to either the dose or risk calculated in the respective analysis. The radionuclides identified as potentially significant in these published analyses are also expected to be key radionuclides in this assessment.

Comments

TSE-0031/004

It [the DEIS] does not include nuclear reactors from the Navy.

Response

The naval reactor compartments disposal is discussed as part of the cumulative impacts analysis. See Volume I Section 5.14 and Volume II Appendices G and L.

Comments

L-0044/018

Volume 3.5 Appendix L.2.8: Uncertainty is addressed in volume I (3.5) and volume II (L.2.8). Specifically, overall causes of error between modeled and observed data, uncertainty due to using different models, also natural variability and possible uncertainty due to lack of characterization are not addressed. This uncertainty needs to be addressed in some manner that explains the extent of its significance to this project. Uncertainty has been explained in the SAC. The September 2002, PNNL-14027 "An Initial Assessment of Hanford Impact Performed with the System Assessment Capability" document addresses uncertainty by determining the model parameters that contribute the most variability. An approach similar to this would be helpful in grasping the significance of variability with all the modeling parameter and data or lack of data used.

Ecology encourages the USDOE to incorporate the discussion of uncertainty in the Final SW EIS. Ecology supports National Council on Radiation Protection and Measurements publication no. 14, "A Guide for Uncertainty Analysis in Dose and Risk Assessments Related to Environmental Contamination," dated May 10, 1996. "Incorporating uncertainty analysis into a dose or risk assessment provides an essential ingredient for decision-making."

L-0044/126

The HSW-EIS SAC analysis does not address uncertainty due to the use of different models, nor does it differentiate between uncertainty due to lack of knowledge and the uncertainty due to natural variability in the parameters. The current uncertainty analysis identifies controlling sources of variability in the simulation estimates of performance measure, but not necessarily the source of overall magnitude of performance measure. The analysis should address the source of overall magnitude of uncertainty, as well as uncertainty due to lack of knowledge and natural variability in the parameters.

Response

The HSW EIS uses the best available data, computer modeling, assumptions, and related methods to produce estimates of reasonably foreseeable environmental impacts. The modeling approach was consistently applied to each alternative, and it provided information that allowed comparison of the alternatives.

The impact evaluation models (groundwater, air, exposure, transportation) are discussed in Volume I Section 5 and the Volume II appendices. The assessments in the HSW EIS are based on the data and assumptions used in these models. Limitations and uncertainties in modeling, data, and assumptions are discussed in

Impact Evaluation

Volume I Section 3.5 and throughout the HSW EIS Volumes I and II.

Comments

L-0055/055

The ESTP staff is uncertain about the nature and extent of some sources and types of contamination. The inventory of iodine-129 is uncertain by up to a factor or 2, and thus, so are the associated cumulative effects. Yet it is also stated that the cumulative impacts to the groundwater from the iodine-129 could be greater than the impacts presented in this EIS by a factor of up to 3. It again appears to be some discrepancies in these broad assumptions.

Response

The HSW EIS uses the best available data, computer modeling, assumptions, and related methods to produce estimates of reasonably foreseeable environmental impacts. The modeling approach was consistently applied to each alternative, and it provided information that allowed comparison of the alternatives.

The impact evaluation models (groundwater, air, exposure, transportation) are discussed in Volume I Section 5 and the Volume II appendices. The assessments in the HSW EIS are based on the data and assumptions used in these models. Limitations and uncertainties in modeling, data, and assumptions are discussed in Volume I Section 3.5 and throughout the HSW EIS Volumes I and II.

The evaluations in the HSW EIS were prepared using accepted standard methodologies, such as "Federal Guidance Report 13 Cancer Risk Coefficients for Environmental Exposure." DOE and EPA use FRG-13 for radiological risk assessment. EPA also uses FRG-13 and related guidance for chemical exposure health impact analysis in its Integrated Risk Information System (IRIS). See Volume I Section 5.11 and the Volume II appendices for more discussion on methodologies used in the HSW EIS.

Iodine-129 inventories have been estimated and included in the cumulative groundwater impacts analysis. See Volume I Section 5.14 and Volume II Appendix L.

Comments

E-0043/073, EM-0217/073, EM-0218/073, L-0056/073, LM-0017/073, LM-0018/073

Another example is the assumption that active institutional controls will be absent 100 years after site closure, and that caps and covers will not be maintained, and monitoring will not be performed. These assumptions set a dangerous precedent, regardless of what DOE claims the federal government intends to do. HSW EIS analysis requires accurate, quantitative data so that truly informed choices can be made. A full, quantitative EIS analysis is required on the issues of site closure and active institutional control stoppage. No assumptions can be made regarding those issues without a full quantitative EIS analysis. If DOE wishes to continue using this 'assumption' within the present HSW EIS, then DOE should treat this 'assumption' as separate action alternative, and give it full, quantitative EIS analysis now.

Response

The HSW EIS uses the best available data, computer modeling, assumptions, and related methods to produce estimates of reasonably foreseeable environmental impacts. The modeling approach was consistently applied to each alternative, and it provided information that allowed comparison of the alternatives.

The impact evaluation models (groundwater, air, exposure, transportation) are discussed in Volume I Section 5 and the Volume II appendices. The assessments in the HSW EIS are based on the data and assumptions used in these models. Limitations and uncertainties in modeling, data, and assumptions are discussed in Volume I Section 3.5 and throughout the HSW EIS Volumes I and II.

DOE does not and will not rely solely on long-term stewardship to protect people and the environment. As

Impact Evaluation

indicated in the DOE sponsored report "Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites" (National Research Council 2000), "contaminant reduction is preferred to contaminant isolation and the imposition of stewardship measures." Contaminant reduction is a large part of the ongoing cleanup efforts at Hanford. Most of the analyses in the HSW EIS are based on the assumption that long-term institutional controls would no longer be in effect 100 years after closure (about 2150 AD). Long-term groundwater impacts and subsequent human health impacts were determined based on the assumption that caps would degrade and eventually provide no protection (see Volume I Sections 5.3 and 5.11 and Volume II Appendices F and G). In addition, "intruder scenarios" are analyzed to determine the impacts of gaining access to the site (i.e., no institutional controls) and digging or drilling into waste sites. See Volume I Section 5.11.2.2 and Volume II Appendix F Section F.3. Further information on DOE's long-term stewardship activities can be found in the DOE Long-Term Stewardship Study (DOE 2001a). The discussions of long-term stewardship in Volume I Sections 2.2.7 and 5.18 of the HSW EIS have been revised in response to comments.

The HSW EIS barrier performance analysis takes into account degradation of the modified RCRA Subtitle C barrier. No guidance is available for specifying barrier performance after the design life. However, it is likely that this specific barrier will perform as designed far beyond its design life. The modified RCRA Subtitle C barrier (see Volume I Section 2.2 for description of this barrier) has a design life of 500 years in the absence of any active institutional controls or maintenance 100 years after closure. The starting infiltration rate used in the release modeling begins at 0.01 cm/yr, after which the assumed rate increases in five steps over 500 years after the start of cover degradation (See Volume II Figure G.3). After 500 years of degradation, the infiltration rate used in the release modeling is assumed to be equivalent to the rate used to represent recharge for the natural surrounding environment (0.5 cm/yr). This rate was used during the remaining 9,000 years of this assessment. Groundwater impacts based on these assumptions are in Volume I Section 5.3 and Volume II Appendix G. A sensitivity analysis was also performed that assumed the cap would be maintained beyond 100 years after closure. Groundwater impacts from this sensitivity analysis are in Volume II Appendix G Section G.4.

Comments

E-0044/003

More over, at the last meeting of the Groundwater/Vadose Zone Expert Panel, DOE's contractor presented a graphical representation of the health risk that a person would be exposed to if they were to drink two liters of water a day of water from various places on site over the next thousand years. That analysis contained a large though not dominant error. The analysis showed immense radiologic risks exceeding 400 millirem per year over much of the site.

The EIS does not reveal this earlier analysis or discuss the changes made to the model that reduce this risk by a factor of approximately 1,000 fold. This first analysis was based on DOE and DOE's contractors best evaluation of the data. Once the data was used and the analysis was completed, DOE changed the parameters used in the model. This is an invalid approach to modeling and provides no confidence that the model has anything whatsoever to do with reality.

E-0047/002

The EIS generally fails to provide the type of site-specific and high quality analysis required by NEPA. The EIS fails to adequately disclose and describe the direct, indirect and cumulative effects of the proposed alternatives. The EIS fails to properly disclose the effects of existing contamination at Hanford or clearly identify the magnitude of uncertainties or potential effects that may occur under the proposed alternatives.

E-0055/021

DOE asserts that the parameters used in its models are conservative. The numerical models used have not been validated, and are in conflict with site observations on the movement of wastes. EPA requires that site specific parameters be used in models. The parameters used in the model do not appear to reflect the best site knowledge of these parameters.

L-0044/005

The lack of inventory data leads to improper assessment of risk and impact to the environment.

L-0054/011

Fourth, characterization and inventory of waste streams is incomplete which contributes to a flawed assessment of cumulative impacts.

Response

The HSW EIS uses the best available data, computer modeling, assumptions, and related methods to produce estimates of reasonably foreseeable environmental impacts. The modeling approach was consistently applied to each alternative, and it provided information that allowed comparison of the alternatives.

The impact evaluation models (groundwater, air, exposure, transportation) are discussed in Volume I Section 5 and the Volume II appendices. The assessments in the HSW EIS are based on the data and assumptions used in these models. Limitations and uncertainties in modeling, data, and assumptions are discussed in Volume I Section 3.5 and throughout the HSW EIS Volumes I and II.

An expanded discussion of uncertainties associated with the HSW EIS impact analyses is included in Volume I Section 3.5.

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

Comments

E-0043/072, EM-0217/072, EM-0218/072, L-0056/072, LM-0017/072, LM-0018/072

Much of the EIS is based on generalities and assumptions. One example is that the EIS uses that assumption that the WIPP will receive remote-handled waste "within the 2005 timeframe." An accurate analysis cannot be performed without a more accurate date. Further, all possible impacts cannot be quantitatively determined without an analysis of other possible dates, including the possibility that the plant will not accept the waste at all.

Response

The HSW EIS uses the best available data, computer modeling, assumptions, and related methods to produce estimates of reasonably foreseeable environmental impacts. The modeling approach was consistently applied to each alternative, and it provided information that allowed comparison of the alternatives.

The impact evaluation models (groundwater, air, exposure, transportation) are discussed in Volume I Section

5 and the Volume II appendices. The assessments in the HSW EIS are based on the data and assumptions used in these models. Limitations and uncertainties in modeling, data, and assumptions are discussed in Volume I Section 3.5 and throughout the HSW EIS Volumes I and II.

These TRU wastes are not expected to be stored onsite for an extended period of time. However, they are expected to be stored above ground at the Central Waste Complex and T Plant and (in the case of remote handled, non-mixed TRU waste) underground in concrete boxes so that they will have no contact with the soil. The storage of these wastes will be monitored in compliance with applicable RCRA, State of Washington dangerous waste regulations, and/or DOE requirements.

EPA authorization to dispose of RH-TRU waste at WIPP is pending. Approval of the permit by New Mexico Environment Department is expected in the FY 2006 timeframe.

EPA has granted WIPP authorization to dispose of polychlorinated biphenyls (PCBs). In March 2002, WIPP applied for changes to its permit to allow it to dispose of waste containing PCBs. Approval of the permit revision by the New Mexico Environment Department is pending. Based on the assumption that the changes will be accepted, PCB treatment would not be required. See Volume I, Section 2.1.3.

Comments

E-0043/062, EM-0217/062, EM-0218/062, L-0056/062, LM-0017/062, LM-0018/062

The HWS EIS neglects to consider many necessary issues, including how best to analyze the impact of the imported waste and even what waste is under DOE'S jurisdiction.

Response

The HSW EIS uses the best available data, computer modeling, assumptions, and related methods to produce estimates of reasonably foreseeable environmental impacts. The modeling approach was consistently applied to each alternative, and it provided information that allowed comparison of the alternatives.

The impact evaluation models (groundwater, air, exposure, transportation) are discussed in Volume I Section 5 and the Volume II appendices. The assessments in the HSW EIS are based on the data and assumptions used in these models. Limitations and uncertainties in modeling, data, and assumptions are discussed in Volume I Section 3.5 and throughout the HSW EIS Volumes I and II.

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

Comments

L-0041/038

Use of the single portioning coefficient value (Kd) overlooks the complexity of the system of release action that may be occurring. It is likely that for each contaminant, Kd is multi-dimensional with discrete values existing within the waste form, in the vadose zone and then in groundwater. In those release instances where an extreme chemistry can be associated with the composition of the release, it is likely additional Kd values should be incorporated. Oregon expects that DOE will demonstrate, through appropriate field and laboratory investigations, that the values used in numerical models are conservative.

Response

The HSW EIS uses the best available data, computer modeling, assumptions, and related methods to produce estimates of reasonably foreseeable environmental impacts. The modeling approach was consistently applied to each alternative, and it provided information that allowed comparison of the alternatives.

What has been observed in the vadose zone beneath the Hanford tank farms were the results of leaks of large volumes of tank wastes containing extreme geochemical conditions of pH and salt content. The enhanced migration of complexed cobalt-60 originated from a discharge site in the B-BX-BY WMA that received large amounts of liquid wastes. LLBGs have not received tank wastes nor have they received large volumes of liquid wastes and there is no evidence that similar geochemical conditions persists beneath LLBGs.

The System Assessment Capability (SAC) has been designed as a stochastic capability with an option to perform deterministic simulations. SAC is a set of computer software tools that enables the user to model the movement of contaminants from all waste sites at Hanford through the vadose zone, groundwater, and the Columbia River, and to estimate the impact of contaminants on human health, ecology, local cultures, and economy. The results of initial runs of the model, including some 1,500 of the 2,100 identified sites, are provided in Volume II Appendix L and Volume I Section 5.14 of this HSW EIS. The SAC model has been through some verification and validation analysis in a process called "history matching" and continues to be developed and tested.

Comments

E-0049/010, L-0048/010

In summary, the Board believes that the revised EIS is based on incomplete and inadequate data. We are concerned that, lacking this data, DOE's proposed actions could result in devastating environmental damage to the area, and in particular, to the Columbia River. As a result, we urge DOE to hold off on issuing a final Record of Decision until these analyses can be completed.

Response

The HSW EIS uses the best available data, computer modeling, assumptions, and related methods to produce estimates of reasonably foreseeable environmental impacts. The modeling approach was consistently applied to each alternative, and it provided information that allowed comparison of the alternatives.

An expanded discussion of uncertainties associated with the HSW EIS impact analyses is included in Volume I Section 3.5.

Comments

F-0003/002

...so much of the document is based on assumptions

Impact Evaluation

Response

The HSW EIS uses the best available data, computer modeling, assumptions, and related methods to produce estimates of reasonably foreseeable environmental impacts. The modeling approach was consistently applied to each alternative, and it provided information that allowed comparison of the alternatives.

Inventory data and assumptions are addressed in Volume I Section 3 and Volume II Appendixes B and C. Modeling assumptions are addressed in several appendixes, including Volume II Appendix F for human health and Volume II Appendices G and L for groundwater.

Comments

TPO-0011/008

How many people is it okay to sacrifice? Did they come up with any numbers?

TPO-0026/002

It's fairly clear we don't have modeling that we really can understand the risks that we're dealing with.

Response

The HSW EIS uses the best available data, computer modeling, assumptions, and related methods to produce estimates of reasonably foreseeable environmental impacts. The modeling approach was consistently applied to each alternative, and it provided information that allowed comparison of the alternatives.

The HSW EIS comparison of human health and safety impacts among the alternatives is expressed in terms of worker dose, dose to the public from atmospheric releases, accidents during the operational period, and long-term impacts via the groundwater pathway in the post-closure period. The risks are expressed in many ways, including probability of latent cancer fatalities. Details of the analyses are provided in Volume I Section 5.11 and Volume II Appendix F.

Comments

E-0006/001

The US DOE has failed to properly address the human health & environmental impact of adding radioactive waste to Hanford in its Revised Draft Solid Waste Environmental Impact Statement (SW EIS).

F-0002/001

The Environmental Impact Statement adopts a negative definition of health that classifies only severe, clinically recognized forms of injury as health damage. This is derived from the current medical perspective that defines health as the absence of diagnosed disease. If disease or damage has not been identified by a qualified physician then a person is considered healthy. By this definition subtle impacts, like reduced functional capacity or increased susceptibility to disease are not a form of health damage because they do not reach the clinical severity that defines disease.

The Environmental Impact Statement conclusion, and therefore the document itself, does the community injustice because it does not accurately represent the health implications of the community's toxic exposure.

TSP-0003/001

The Environmental Impact Statement adopts a negative definition of health that classifies only severe clinical recognized forms of injury as health damaged. This is derived from the current medical perspective that defines health as the absence of diagnosed disease. If disease or damage has not been identified by a qualified physician, then a person is considered healthy. By this definition subtle impacts like reduced functional capacity or increased susceptibility to disease are not a form of health damage. Because they do not reach the clinical severity that defines disease. The Environmental Impact Statement conclusion, and therefore the document itself, does the community injustice because it does not adequately represent the health implications of this community's toxic exposure.

Response

The HSW EIS uses the best available data, computer modeling, assumptions, and related methods to produce estimates of reasonably foreseeable environmental impacts. The modeling approach was consistently applied to each alternative, and it provided information that allowed comparison of the alternatives.

The HSW EIS uses two exposure scenarios to evaluate the potential impacts to humans from solid waste management activities: industrial and resident gardener (agricultural). For waterborne pathways, an additional analysis has been performed for the resident gardener scenario to include a sauna/sweat lodge exposure pathway (indicated in the result tables of Volume II Appendix F as the hypothetical resident gardener with sauna/sweat lodge). These scenarios were chosen to represent a range of habits and conditions for potential exposures. The industrial and resident gardener scenarios are based on the recommendations presented in the Hanford Site Risk Assessment Methodology (HSRAM) as adopted by the TPA. These scenarios are based on the concept of reasonable maximum exposure as recommended by EPA for which the most conservative parameter is not always used. The resident gardener with a sauna/sweat lodge scenario also includes exposure to waterborne contamination used in a sweat lodge or sauna. The resident gardener with a sauna/sweat lodge scenario is only applied to waterborne pathways because the airborne pathways do not contribute to the sauna/sweat lodge exposure pathways. See Volume II Appendix F.

The HSW EIS comparison of human health and safety impacts among the alternatives is expressed in terms of worker dose, dose to the public from atmospheric releases, accidents during the operational period, and long-term impacts via the groundwater pathway in the post-closure period. The risks are expressed in many ways, including probability of latent cancer fatalities. Details of the analyses are provided in Volume I Section 5.11 and Volume II Appendix F.

Data on non-clinical health effects from radiological and chemical exposures are limited, and methods with which to model these impacts are generally not agreed upon.

Comments

TSP-0006/004

When the affects of mixtures of different chemicals are not known, are not analyzed, or taken into account. When affects on children. Possibly adults are studied. But the affects of various chemicals on children are not thoroughly considered. Or affects on the fish in the Columbia River, and the effects of dying fish will have on the Tribes and all the people along the banks down to the ocean.

Response

Estimates of cancer risk in populations represent composites that account for the range in sensitivities of various members of the population, including children as well as adults.

Design features built in to the alternatives and potential mitigation measures discussed in Volume I Section 5.18 are developed to protect all people, including children, and the environment. For further information on radiation risk results for children can be found in Volume II Appendix F Section F.1.8.

Hazardous chemicals in MLLW have been characterized and documented since the implementation of RCRA at DOE facilities beginning in 1987. MLLW currently in storage, and MLLW that may be received in the future, would be treated to applicable state or federal standards for land disposal. Therefore, disposal of that waste is not expected to present a hazard over the long term because the hazardous constituents would either be destroyed or stabilized by the treatment. Inventories of hazardous materials in stored and forecast waste are either very small, or consist of materials with low mobility. See Volume II Appendixes F and G.

Inventories of hazardous chemicals in waste were not generally maintained by industries in the United States prior to the implementation of RCRA. Consistent with these general practices, inventories of hazardous chemicals in radioactive waste were not required to be determined or documented before the application of RCRA to radioactive mixed waste at DOE facilities in late 1987. Wastes placed in the LLBGs before late 1987 have not been specifically characterized for hazardous chemical content, but they have been evaluated in the EIS alternatives relative to their radionuclide inventories. In addition, preliminary estimates of chemical inventories in this waste have been developed for analysis in the HSW EIS, and a summary of their potential impacts on groundwater has been added to Volume I Section 5.3 and Volume II Appendix G.

In addition, the October 23, 2003 Settlement Agreement contains proposed milestones in the M-91-03-01 Tri-Party Agreement Change Package for retrieval and characterization of suspect TRU waste retrievably stored in the Hanford LLBGs (United States of America and Ecology 2003). As part of that agreement, DOE will manage the retrievably stored LLBG waste under the following assumptions: (1) all retrievably stored suspect TRU waste in the LLBGs is potentially mixed waste; and (2) retrievably stored suspect TRU waste will be managed as mixed waste unless and until it is designated as non-mixed through the WAC 173-303 designation process.

Interactions among different types of waste that could potentially mobilize radionuclides have also been considered as part of the HSW EIS analysis. However, such interactions typically require specific chemical environments or large volumes of liquid as a mobilizing agent, neither of which are known to be present in the solid waste disposal facilities currently in use (see discussion in Volume II Appendix G). Possible effects of this type could be mitigated by selecting candidate disposal sites to avoid placing waste in locations where previous contamination exists.

Waste sites and residual soil contamination remaining at Hanford over the long term, and which are not specifically evaluated as part of the HSW EIS alternatives, have been evaluated previously as part of NEPA or CERCLA reviews. In those studies, the risks associated with older solid waste burials, tank waste residuals and leaks, and contaminated soil sites were found to be very small, even for alternatives that considered stabilization of the waste in place (DOE 1987, DOE and Ecology 1996, Bryce et al. 2002). Further evaluation of tank wastes is anticipated in the "Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single-Shell Tanks at the Hanford Site" (68 FR 1052). The cumulative groundwater impacts analysis in the HSW EIS also includes those wastes, as described in Volume I Section 5.14 and Volume II Appendix L.

DOE plans to characterize pre-1970 inactive burial grounds and contaminated soil sites, as well as the active LLBGs considered in the HSW EIS alternatives, under the RCRA past practice or CERCLA processes to determine whether further remedial action would be required before the facilities are closed. As part of that process, the long-term risks from these wastes would either be confirmed to be minimal, or the waste would be remediated by removal, stabilization, or other remedial actions to reduce its potential hazard. In all cases, the impacts from these previously disposed wastes would be the same for all alternative groups considered in the HSW EIS, and would not affect the comparisons of impacts among the alternatives or the decisions made regarding disposal of waste received in the future.

Comments

E-0044/002

The EIS risk analysis is based on the "Systems Assessment Capability" (SAC). This tool has never been tested, verified or validated and forms an inadequate and unproven basis upon which to build a risk assessment.

Contrary to the statements in the EIS, the SAC has no capability to assess uncertainty. It does possess a very limited capability to assess some potential estimation of the imprecision of the central tendency of the model.

To assess uncertainty, the analysis needs to estimate the likely potential range of errors. SAC does not do this.

SAC is based on a very crude and overly simplified one dimensional conceptual model of the vadose zone. This one dimensional purely vertical representation presumes that water flows downward uniformly through the entire volume of the soil. This is known to be false. Water and moisture flow in the subsurface at Hanford is known to follow preferential pathways.

These pathways are known to include:

Horizontal movement on the interfacial boundaries between soil layers. Hanford's geology is dominated by the catastrophic ice age floods. These occurred roughly every 55 years over a period of about 1,500 years. Each flood laid down sediments that graded from course to fine during the deposition. As the floods receded, the area returned to desert conditions with plant growth and desert pedologic processes. These no doubt involved periodic fires resulting in hydrophobic surface formation. The resulting landforms were not uniformly flat. They including the undulations expected in any such deposition. The resulting surfaces are resistant to the vertical movement of water. Instead, they tend to drive water movement laterally and lead to sheet and channel flow.

Vertical movement on clastic dikes. As the Hanford study and atlas on clastic dikes shows, these floods also resulted in the formation of massive subsurface vertical clastic dikes and horizontal sills. These dikes are composed of dozens of layers of fine clay materials that both wick moisture and prevent the lateral movement of water, moisture and waste.

Combined, these features describe a radically different subsurface conceptual model from that used in SAC. They describe a subsurface dominated by horizontal transport in thin layers on surface boundaries to vertical walls formed by the clastic dikes. These result in the rapid transport of water and waste from the near surface to the groundwater, bypassing the bulk of the soil volume.

This has been repeatedly documented in Hanford historical documents. It was noted in the 1950's in the 200 West area disposals west of Redox. In those disposals, the records even show that cesium and strontium at depth behaved differently depending on the type of waste they had been disposed in. These reports show deep migration of cesium, strontium, technetium, uranium and other radionuclides into the groundwater.

It has been documented in the 1960s and 1970s with tank leaks and gamma logs. Three Rivers Environmental analyzed these logs and clearly demonstrated the lateral movement of tank waste.

It is seen in the observation of the highest technetium levels ever found at Hanford in the groundwater near the SX tank farm as tank waste has moved across these surfaces, down a vertical surface (probably a dike) to the groundwater. SAC does not predict Technetium in the groundwater.

It is seen in the high uranium levels in groundwater in the 200 east area. SAC predicts no uranium in groundwater in the next 10,000 years in 200 east. Uranium is already in groundwater in 200 east.

The horizontal movement of water in the subsurface is clearly shown in the vadose zone observatory data (south of PUREX).

And, contrary to the belief of some of the technical staff, this horizontal movement is not spreading or lense formation (which might be viewed as retarding waste). It is instead preferential horizontal transport to vertical channels that bypass the soil column and short circuit to the groundwater.

The EIS should in no way be based on such a clearly flawed and inadequate model.

Should DOE proceed despite this evidence, it is incumbent on DOE to do large scale field tests of water and waste movement in the central plateau area to determine which conceptual model is correct. When DOE confirms that SAC is incorrect, it is incumbent on DOE to abandon any decision based upon it.

E-0047/032

SAC can not be used to assess cumulative risk because SAC is still in its early stages of development.

L-0012/002

Most of the alternatives to disposal, transportation and treatment of waste is based on assumptions. You state in different places in this EIS that the amount of waste that will be brought in is uncertain, unknown. That the long-term performance of our waste site remedies and closure techniques are unproven. That your risk modeling tool, the Systems Assessment Capability (SAC), is still very young, emerging; that each human's response to dose or exposure is uncertain. In other words, it all evens out according to your assumptions and modeling, thus the impacts of bringing more waste into Hanford are "minimal" - so benign - not to worry. Even cumulative impacts are painted as "small", but you also state that the SAC risk model has not yet completed the inventory and classification of waste forms.

L-0041/030

The EIS does not adequately deal with the uncertainties in the Systems Assessment Capability (SAC) conceptual model. This document should contain a detailed discussion of the affects of simplifying assumptions and the averaging of parameters in this model.

L-0044/027

Vol. I, Sec. 3.5, App. L. (Re: Comment # 170) Section 3.5 addresses uncertainty in a qualitative manner. Although the SAC addresses uncertainty quantitatively (Section L.2.8), this analysis is limited to the variation in modeled parameters and does not differentiate between uncertainty due to lack of knowledge vs. uncertainty due to natural variation.

L-0052/010

We realize that some risk models such as SAC do not predict major impacts to the river from the 200 Area, but we are also aware that SAC currently does not have an ecological risk module in the composite analysis. Also, the scientific community has not wholeheartedly endorsed the SAC and as we all know, models should only be used as one of the tools to assist with decision-making.

L-0055/022

Although all models have some uncertainty associated with them, the SAC is not a well tested tool. Other techniques such as using Modflow to model the ground water flow may be a better technique. This method is widely accepted in the industry, and has been peer-reviewed quite often. The SAC model has failed to accurately represent known ground water contamination in many locations.

TPO-0002/006

This EIS says that they've used CRCIA, [Columbia River Comprehensive Impact Assessment] I was the chair of the CRCIA team, it does not. It fails miserably.

Impact Evaluation

Response

The System Assessment Capability (SAC) is a set of assessment tools developed by DOE that enables its users to model the movement of contaminants from all waste sites at Hanford, through the vadose zone, through the groundwater, and into the Columbia River (DOE-RL 1999b, c; DOE-RL 2000). The HSW EIS uses the SAC to estimate cumulative impacts of contaminants on human health, ecology, and the local cultures and economy.

SAC, has been designed as a stochastic capability with an option to perform deterministic simulations. It uses the groundwater model of the Hanford Site produced and supported by the Groundwater Monitoring Program. DOE agrees that the one-dimensional vadose zone modeling does not capture the complexity needed to model clastic dikes. The current implementation of the one-dimensional model has been history matched to existing conditions. Currently, the groundwater portion of this model implements a three-dimensional conceptual model of the unconfined aquifer. This model has been inverse calibrated to Hanford Site water table measurements from 1944 to present, and uses knowledge of geohydrologic units and field measurements of hydraulic conductivity to condition the model calibration. Future revisions of the SAC will incorporate inverse calibrated alternate conceptual models of the aquifer. As of August 2003, uncertainty in groundwater contaminant migration and fate is represented by the uncertainty in contaminant mobility as reflected in uncertainties in linear sorption isotherm model parameters (for example, distribution coefficients for various contaminants). The HSW EIS provides a conservative analysis commensurate with the purpose of the HSW EIS, which is to bound and compare the consequences of the alternatives. Volume II Appendix L presents a 10,000 year post-closure assessment that was produced using the SAC.

As part of its development, the System Assessment Capability was reviewed by the DOE Integration Project Expert Panel, an eight (8) member panel that provided broad, independent oversight of many Hanford Groundwater/Vadose Zone Integration Project activities. A review of SAC Rev 0. and related groundwater integration issues at Hanford is summarized in the report "Integration Project Expert Panel - Closeout Report for Panel Meeting of September 26-28, 2001" (Integration Project Expert Panel 2001). The HSW EIS uses an updated version of SAC for cumulative groundwater impacts analysis.

For more details of SAC uncertainties see Bryce et al. (2002).

Comments

E-0043/030, EM-0217/030, EM-0218/030, L-0056/030, LM-0017/030, LM-0018/030

The Public Health prediction methods used by the HSW EIS are not professionally accepted methods. The Emergency Response Planning Guides (ERPGs) used in the HSW EIS were intended to set exposure limits, not predict public health impacts. The ERPGs have never gained any acceptance for prediction of public health impacts. Additionally, ERPG guidelines have been developed for fewer than 100 chemicals. The use of ERPGs in the HSW EIS is scientifically inappropriate and ethically misleading.

Response

Emergency Response Planning Guideline (ERPG) values published by the American Industrial Hygiene Association are widely accepted for emergency planning purposes. The definitions of the various ERPGs state they are "The maximum concentration in air below which it is believed nearly all individuals could be exposed for up to one hour without experiencing..." ...the given effect. These guides are applicable to nearly all individuals, possibly excluding only that very small percentage of hypersensitive individuals. ERPG values are intended to provide estimates of concentration ranges where one reasonably might anticipate observing adverse effects as described in the definitions for ERPG 1, ERPG 2, and ERPG 3 as a consequence of exposure to the specific substance.

The ERPG 1 is the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hr without experiencing other than mild transient adverse health effects or perceiving a clearly defined, objectionable odor.

The ERPG 2 is the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hr without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action.

The ERPG-3 is the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hr without experiencing or developing life-threatening health effects.

It is recognized by the committee that human responses do not occur at precise exposure levels but can extend over a wide range of concentrations. The values derived for ERPGs should not be expected to protect everyone but should be applicable to most individuals in the general population. In all populations there are hypersensitive individuals who will show adverse responses at exposure concentrations far below levels where most individuals normally would respond. Furthermore, since these values have been derived as planning and emergency response guidelines, not exposure guidelines, they do not contain the safety factors normally incorporated into exposure guidelines. Instead, they are estimates, by the committee, of the thresholds above which there would be unacceptable likelihood of observing the defined effects. The estimates are based on the available data that are summarized in the documentation. In some cases where the data are limited, the uncertainty of these estimates is large. Users of the ERPG values are encouraged strongly to review carefully the documentation before applying these values.

In developing these ERPGs, human experience has been emphasized to the extent data are available. Since this type of information, however, is rarely available, and when available is only for low level exposures, animal exposure data most frequently forms the basis for these values. The most pertinent information is derived from acute inhalation toxicity studies that have included clinical observations and histopathology. The focus is on the highest levels not showing the effects described by the definitions of the ERPG levels. Next, data from repeat inhalation exposure studies with clinical observations and histopathology are considered. Following these in importance are the basic, typically acute studies where mortality is the major focus. When inhalation toxicity data are either unavailable or limited, data from studies involving other routes of exposure will be considered. More value is given to the more rigorously conducted studies, and data from short-term studies are considered to be more useful in estimating possible effects from a single 1-hr exposure. Finally, if mechanistic or dose-response data are available, these are applied, on a case by case basis, as appears appropriate. It is recognized that there is a range of times that one might consider for these guidelines; however, it was the committee's decision to focus its efforts on only one time period. This decision was based on the availability to toxicology information and a reasonable estimate for an exposure scenario. Users who may choose to extrapolate these values to other time periods are cautioned to review the documentation fully since such extrapolations tend to hold only over very limited time frames, if at all.

DOE has developed Temporary Emergency Exposure Levels (TEELs; see Volume I Section 5.11) for chemicals for which ERPG are not available.

Comments

L-0041/040

For some wastes, colloidal transport is likely. This is particularly true for contaminants in tank wastes contacting soils, as evidenced by the principal investigators reports over the last several years. Colloidal transport must be included in the analyses of contaminant fate and transport.

Response

What has been observed in the vadose zone beneath the Hanford tank farms were the results of leaks of large volumes of tank wastes containing extreme geochemical conditions of pH and salt content. The enhanced migration of complexed cobalt-60 originated from a discharge site in the B-BX-BY WMA that received large amounts of liquid wastes. LLBGs have not received tank wastes nor have they received large volumes of liquid wastes and there is no evidence that similar geochemical conditions persists beneath LLBGs.

Comments

L-0052/007

In addition, the ERWM does not feel confident that current modeling efforts, which simplify the exposure pathway as vertical, with no lateral spreading or preferred pathways, provide a solid basis from which to make firm decisions regarding groundwater contamination. To the ERWM it appears DOE is proposing alternatives which allow not only highly toxic levels of radioactivity in the groundwater far in the future with no long-term stewardship structure in place to ensure safety (Figure 3.16, Volume I), but it appears willing to sacrifice the groundwater in the short-term as well.

Response

For the HSW EIS evaluations, the vadose zone has been modeled as a stratified one-dimensional column because of the large number of solid waste disposal facilities that needed evaluation. A one-dimensional approach yields more conservative results than multi-dimensional models that also consider lateral spreading of infiltration and contaminant transport. Multidimensional modeling of the vadose zone has been performed for some waste sources and types (Mann et al. 1997; Mann et al. 2001) but was not practical in this analysis for the large number of sites in question.

On the north side of the 200 East Area, in the Gable Mountain-Gable Butte Gap, there is evidence of erosional channels that may allow communication between the unconfined and the uppermost basalt-confined aquifer (Graham et al. 1984; Jensen 1987). Evidence that hydraulic intercommunication occurs in the Gable Mountain-Gable Butte Gap area, where erosional windows have been identified, includes: chemical composition of groundwater indicating mixing; presence in the uppermost confined aquifer of chemical species (i.e., nitrate ion) and radioisotopes (e.g., tritium and I-129) that are associated with near-surface waste water disposal; similarity of hydraulic heads in the unconfined and uppermost confined aquifers in the vicinity of the Gable Mountain-Gable Butte Gap where the Elephant Mountain basalt is absent; geologic information from borehole logs and geophysical information indicating an area where the Elephant Mountain basalt (confining layer) is absent, and within this area, locations where the underlying Rattlesnake Ridge interbed (water-bearing unit) and portions of the Pomona basalt (confining layer) are absent. The area where the Elephant Mountain basalt is absent represents an area where increased aquifer intercommunication occurs, unimpeded by a confining layer. Another area where increased leakage may occur is in the vicinity of fault zones. Springs are present in the Rattlesnake Hills along the western boundary of the Sitewide Groundwater Model domain that bring groundwater from the basalt-confined aquifer system to the surface. These springs are found where major thrust faults intersect the ground surface (DOE 1988). This provides evidence that the major thrust faults provide conduits for flow between aquifer systems. Anticlines may also be areas of increased communication because of fracturing. However, there is no direct evidence of intercommunication associated with anticlines other than in the area where erosional windows are also present. Elsewhere on the Hanford Site, the Elephant Mountain basalt provides a substantial impediment to vertical intercommunication between the aquifers owing to its thickness and low vertical hydraulic conductivity, which may range from 1E-8 m/d (3.3E-8 ft/d) to 2.6E-4 m/d (8.5E-4 ft/d). The effectiveness of the Elephant Mountain basalt as a confining layer and impediment to vertical communication between the unconfined and uppermost confined aquifers is evidenced by the hydraulic head difference between the two aquifers and difference in groundwater chemistry. However, the rate of pervasive flow through the confining unit may still be substantial because it takes place over a large area.

Comments

L-0044/063

The response describes transport mechanisms of contaminants evaluated. Section G.1.3.3.1 describes the soil-debris model and states: "The inventory was assumed to be perfectly mixed throughout the source volume during the entire release period assuming perfectly mixed conditions reduced the likelihood that solubility would control the release." If a contaminant inventory (e.g., technetium-99 for which Kd is assumed 0) were spread out into a thin layer (pancake-like) across a huge area (such as the LLBGs), the concentration at the water table (once the technetium-99 is driven through the vadose zone) will be lower than if all the contaminant inventory occurred in a compact or smaller area. A scenario by which contaminant inventory distribution yielding the model's approach is not provided in the description of the model. This approach is not conservative.

Response

For the HSW EIS evaluations, the vadose zone has been modeled as a stratified one-dimensional column because of the large number of solid waste disposal facilities that needed evaluation. A one-dimensional approach yields more conservative results than multi-dimensional models that also consider lateral spreading of infiltration and contaminant transport. Multidimensional modeling of the vadose zone has been performed for some waste sources and types (Mann et al. 1997; Mann et al. 2001) but was not practical in this analysis for the large number of sites in question.

The HSW EIS uses the best available data, computer modeling, assumptions, and related methods to produce estimates of reasonably foreseeable environmental impacts. The modeling approach was consistently applied to each alternative, and it provided information that allowed comparison of the alternatives.

Comments

L-0041/036

The EIS contaminant fate and transport modeling is predicated on one-dimensional vertical modeling that is presumed to be conservative and protective of future users. This assumption must also be field tested in a large-scale field test. The final ROD should include specific language requiring verification of numerical modeling assumptions.

Response

For the HSW EIS evaluations, the vadose zone has been modeled as a stratified one-dimensional column because of the large number of solid waste disposal facilities that needed evaluation. A one-dimensional approach yields more conservative results than multi-dimensional models that also consider lateral spreading of infiltration and contaminant transport. Multidimensional modeling of the vadose zone has been performed for some waste sources and types (Mann et al. 1997; Mann et al. 2001) but was not practical in this analysis for the large number of sites in question.

The Record(s) of Decision will comply with applicable NEPA requirements.

Comments

E-0043/031, EM-0217/031, EM-0218/031, L-0056/031, LM-0017/031, LM-0018/031

Second, in order to measure properly the public health impacts resulting from potential exposures to cancer causing hazardous chemicals and radionuclides, the professionally recognized EPA methodology utilizing cancer potency factors should be used in the HSW EIS. This methodology has been used extensively and is the most widely accepted method of predicting potential cancer impacts by risk assessment professionals and toxicologists. Further, the HSW EIS should consider the Washington Model Toxics Control Act risk standards for radionuclides, and the state and federal anti-degradation standards, when measuring public health impacts.

E-0043/032, EM-0217/032, EM-0218/032, L-0056/032, LM-0017/032, LM-0018/032

Third, to measure public health impacts resulting from potential exposures to disease causing chemicals and radionuclides, the professionally recognized EPA methodology utilizing reference dose values should be used. This is the most extensively used and widely accepted method used by risk assessment professionals and toxicologists.

L-0016/018

The information about the effects of radionuclides on humans is spotty at best. At the very longest we've only been playing with such things for a little more than a hundred years, and large-scale exposures have been more recent and often poorly documented. Drawing conclusions concerning 'safe' exposure levels is premature at best.

L-0041/021

Page F.54, Section F.3.2, line 10-12, describes a two step process for evaluating concentration ratios at the year 2046. Instead, we recommend you just decay the 2046 concentration ratios to the time of interest.

TSE-0027/002

I believe that the Draft EIS is just plain inaccurate and disingenuous. The numbers of people and animals that have been harmed over time must be greatly underestimated. It's like .005 or something like that.

Response

The evaluations in the HSW EIS were prepared using accepted standard methodologies, such as "Federal Guidance Report 13 Cancer Risk Coefficients for Environmental Exposure." DOE and EPA use FRG-13 for radiological risk assessment. EPA also uses FRG-13 and related guidance for chemical exposure health impact analysis in its Integrated Risk Information System (IRIS). See Volume I Section 5.11 and the Volume II appendices for more discussion on methodologies used in the HSW EIS.

Comments

TSE-0040/001

I'm just real curious, there wasn't any mention of it in the EIS that I read, I didn't read the whole thing, but I read a good part of it, that these exposures to radioactive materials and to toxic materials can result decades later in cancer. And, you know, those statistics just don't seem to be at all available. But there wasn't any real discussion about how this happens and how the groundwork is set early in workers' lives.

Response

The evaluations in the HSW EIS were prepared using accepted standard methodologies, such as "Federal Guidance Report 13 Cancer Risk Coefficients for Environmental Exposure." DOE and EPA use FRG-13 for radiological risk assessment. EPA also uses FRG-13 and related guidance for chemical exposure health impact analysis in its Integrated Risk Information System (IRIS). See Volume I Section 5.11 and the Volume II appendices for more discussion on methodologies used in the HSW EIS.

Impact Evaluation

The HSW EIS comparison of human health and safety impacts among the alternatives is expressed in terms of worker dose, dose to the public from atmospheric releases, accidents during the operational period, and long-term impacts via the groundwater pathway in the post-closure period. The risks are expressed in many ways, including probability of latent cancer fatalities. Details of the analyses are provided in Volume I Section 5.11 and Volume II Appendix F.

Comments

L-0055/049

The long-lived mobile radionuclides selected with which to make these estimates were technetium-99 and uranium isotopes using the SAC [System Assessment Capaility]. Other long-lived radionuclides occur in sufficient quantity in various Hanford sources to also be on interest (such as iodine-129). However, the SAC program had not completed the inventory and classification of waste forms in time to integrate these other radionuclides into the present analysis. This analysis does not include the contribution to cumulative impacts of all radionuclides because of the uncertainties in the inventory and modeling approach. For example, if all sources of iodine-129 were to be considered, the cumulative impacts to the groundwater could be greater by a factor of 3.

Response

The evaluations in the HSW EIS were prepared using accepted standard methodologies, such as "Federal Guidance Report 13 Cancer Risk Coefficients for Environmental Exposure." DOE and EPA use FRG-13 for radiological risk assessment. EPA also uses FRG-13 and related guidance for chemical exposure health impact analysis in its Integrated Risk Information System (IRIS). See Volume I Section 5.11 and the Volume II appendices for more discussion on methodologies used in the HSW EIS.

The SAC, as a groundwater modeling capability, is being continuously refined. The initial SAC assessment (Bryce et al. 2002) demonstrated that a relatively small number of input parameters could determine most of the variability in calculated performance measures. SAC has been updated since the initial assessment and, for purposes of the HSW EIS, an additional 25 runs were made for this EIS using the more refined model. It was observed that when the performance measure is human dose, variability with regard to individual behavior and exposure affects uncertainty in the estimated dose more than variability in inventory, release, or environmental transport of the contaminants. Based on this observation, the HSW EIS evaluated several different exposure scenarios to address this uncertainty. Exposure scenarios included: drinking water, resident gardener, resident gardener with sauna/sweat lodge, and industrial worker.

Iodine-129 inventories have been estimated and included in the cumulative groundwater impacts analysis. See Volume I Section 5.14 and Volume II Appendix L.

Comments

L-0055/020

This is a long term project that will also have impacts to the air shed. Several aspects of air quality should have been included. Transportation issues, Dust issues affect the air shed. Haze (Visibility) and PM-2.5 should also be examined in the HSW EI.

Cumulative air quality impact should also be examined. The HSW project will be adding emissions to an air shed that already has numerous point and area sources that are affecting air quality. The environmental impact of area sources and mobile sources of air emissions does not appear to have been addressed in the EIS. Are and mobile sources of air emissions may add significant levels of criteria pollutants to those air emission sources that have been considered.

The EIS fails to recognize, consider and assess the Pollution Prevention Act and DOE's policy on renewable energy with respect to air quality impacts from utilizing alternatives for diesel fuel.

Response

Volume II Appendix E provides information to support the non-radiological air quality impact analysis presented in Volume I Section 5.2. The analysis characterizes the routine emission of non-radiological pollutants by most Hanford Solid Waste Program activities, the atmospheric dispersion of these pollutants, and the maximum air quality impacts to the public. Pollutant sources include mobile sources (such as diesel engines), propane-fired equipment, and fugitive dust sources. Volume I Section 5.8 covers the air quality impacts associated with the transportation of radioactive and hazardous wastes. Volume I Section 5.11 and Volume II Appendix F report on the potential health impacts associated with the emission of chemicals and radionuclides.

The Pollution Prevention Act is discussed in Volume I Section 6.17. DOE's pollution prevention/waste minimization program is discussed in Volume I Section 2.2.5 and Volume II Appendix N. DOE will continue to follow its policies regarding renewable resources. Cumulative air quality impacts are discussed in Volume I Section 5.14. Effects on aesthetic and scenic resources are discussed in Volume I Section 5.12. Incremental impacts from proposed actions on haze and PM-2.5 are expected to be small.

Comments

F-0025/006

The potential reactions must be well studied before the environmental impact can be ascertained. The long term impacts to groundwater, the Columbia River, public health, and the complete ecosystem must be included. Omissions are unacceptable.

Response

Volume II Appendix G describes the analysis used to calculate concentrations of key contaminants that could potentially reach the groundwater from LLBG disposal units. The analysis also assesses the impacts to accessible surface water resources (the Columbia River) from contaminated groundwater. Concentrations of key contaminants are compared to drinking water standards as a benchmark against which water quality may be assessed. The calculations also provide the basis for estimates of potential human health risk and ecological risk for comparison among the alternative groups. Volume II Appendix G also discusses waste forms, release models, and how they were applied in modeling groundwater transport.

Volume II Appendix I provides information about potential impacts to terrestrial and aquatic ecological resources that may result from implementation of HSW EIS alternatives. Potential impacts to terrestrial resources were evaluated in the near term (i.e., during waste management operations and under current conditions). Potential impacts would result primarily from surface disturbances associated with excavation and disposal activities. Potential impacts to Columbia River riparian and aquatic resources could occur in the long term, i.e., up to 10,000 years following the conclusion of waste management operations. These would be primarily the result of the eventual migration of radionuclides and other hazardous chemicals through the vadose zone to groundwater and on to the Columbia River.

The human exposure scenarios described in Volume II Appendix F consider direct and indirect use of the Columbia River water and biota (e.g., swimming, consumption of fish). For those radiological and non-radiological contaminants that will reach the Columbia River bioaccumulation of contaminants and resulting impacts to non-human biota are also expected to be small. See Volume I Sections 5.5 and 5.11, and Volume II Appendix F and Appendix I.

Comments

F-0013/002

Where is the risk analysis regarding unlined soil trenches, cumulative waste analysis, and groundwater monitoring?

THR-0005/005

In addition, an in-depth analysis on the potential risk [has to be done].

Response

Risk analysis is used throughout the HSW EIS. See Volume I Section 5 in the EIS and Volume II Appendices F, G, H, I and L.

Comments

F-0025/004

By doubling the present radioactive waste at Hanford with a mixture of high level, low level, and transuranic waste, there are cumulative risks that need to be evaluated.

F-0030/003

What are the impacts of doubling the current waste?

TPO-0008/002

And this importing of additional waste, what are the hazards and, if any, benefits of adding to the waste storage at Hanford?

TPO-0010/002

We're haggling over the minimum questions. We argue where the trucks will run, how long the method of disposal, like, for example, in terms of interims of 30 to 50 years. I mean, what is that?

What about the future? We talk about limiting the impact. I can't even get my mind around the smallness of what we're talking about.

Response

The HSW EIS evaluates various forecast waste quantities that include only Hanford-generated waste, in addition to varying amounts of offsite waste. This evaluation reflects the uncertainty in waste quantities that Hanford might receive from offsite. The inclusion of a Hanford-only waste volume provides the basis for determining the incremental impacts of offsite waste. See Volume I Section 3.2 for a discussion of the different waste volumes addressed in the HSW EIS. The evaluations of groundwater impacts in Volume I Section 5.14 of the HSW EIS include the impacts of the wastes to be managed within the scope of the HSW EIS NEPA review, as well as the CERCLA wastes disposed in the Hanford ERDF. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

Impact Evaluation

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

Comments

E-0041/007

In response to a question about the longevity of asphalt, this is dismissed without answer as irrelevant, since (I'm paraphrasing here) 'nobody will ever dig that deep anyway'—a perilous assumption, and not an answer to the question.

Response

Intruder scenarios and consequences are essentially the same for all alternative groups. The exception would be for the basement excavation scenario in the No Action Alternative, where only the Trenches 31 and 34 containing MLLW are capped. The depth of capping material would be expected to preclude the occurrence of that scenario for those wastes. See Volume I Section 3.4.11 and Volume I Section 5.11.

Comments

E-0043/035, EM-0217/035, EM-0218/035, L-0056/035, LM-0017/035, LM-0018/035

…many Native American populations may by treaty right enter the Hanford Site. Therefore, they are not 'intruders.' Impacts on these specific populations should be analyzed quantitatively separate from the analysis of impacts on 'intruders' and the general public within the Hanford Site vicinity.

L-0041/053

Appendix F needs rationale for choosing parameters for analysis. The final EIS must explain why the Industrial and Resident Gardener exposure scenarios were chosen and what other scenarios were considered. DOE should explain why default values were used for Hanford soil density instead of actual values.

L-0041/054

Exposure scenarios in Appendix F are inconsistent. Resident Gardener is assumed to receive the same dermal soil exposure as an industrial worker (F.37). Resident Gardener scenario includes local game consumption but no Columbia River fish consumption. This inconsistency should be resolved.

L-0044/029

CRD, p. 3.113 (Re: Comment # 182) Three exposure scenarios were evaluated (i.e., industrial, residential gardener, and residential gardener with sweat lodge inhalation), along with several accident and intruder scenarios. Although this is a relatively limited suite of scenarios, in comparison to HSRAM [Hanford Site Risk Assessment Methodology] or CRCIA efforts, the three scenarios may effectively capture the range of risk. At the same time, however, it is surprising that a complete Native American scenario was omitted.

Impact Evaluation

L-0044/037

CRD, pp. 3.92-94 (Re: Comment # 85) It is surprising that a complete Native American scenario was omitted, considering its sensitivity (both in terms of risk and environmental justice issues). Although the comment response primarily addresses fish consumption, there are other exposure factors in the scenario that may lead to increased risks (e.g., Harris and Harper, 1997).

L-0044/038

CRD, pp. 3.94 (Re: Comment # 86) Three exposure scenarios were evaluated (i.e., industrial, residential gardener, and residential gardener with sweat lodge inhalation), along with several accident and intruder scenarios. This is a rather limited suite of scenarios in comparison to HSRAM or CRCIA efforts. For example, exposures to Native Americans were omitted, and children (as a subpopulation with unique exposure factors) were not explicitly modeled.

L-0055/054

The largest uncertainties for the HSW EIS surround the actual volumes of waste that DOE must treat, store, and dispose of and their associated levels of activity. This uncertainty is very critical to be able to get an accurate estimation of the potential impacts to the environment. Without this, the EIS is only guessing and doing a poor job at that. What goes into these sites has a large influence on altering the ground water chemistry and the mobility of the waste types.

Response

The HSW EIS uses two exposure scenarios to evaluate the potential impacts to humans from solid waste management activities: industrial and resident gardener (agricultural). For waterborne pathways, an additional analysis has been performed for the resident gardener scenario to include a sauna/sweat lodge exposure pathway (indicated in the result tables of Volume II Appendix F as the hypothetical resident gardener with sauna/sweat lodge). These scenarios were chosen to represent a range of habits and conditions for potential exposures. The industrial and resident gardener scenarios are based on the recommendations presented in the Hanford Site Risk Assessment Methodology (HSRAM) as adopted by the TPA. These scenarios are based on the concept of reasonable maximum exposure as recommended by EPA for which the most conservative parameter is not always used. The resident gardener with a sauna/sweat lodge scenario also includes exposure to waterborne contamination used in a sweat lodge or sauna. The resident gardener with a sauna/sweat lodge scenario is only applied to waterborne pathways because the airborne pathways do not contribute to the sauna/sweat lodge exposure pathways. See Volume II Appendix F.

Design features built in to the alternatives and potential mitigation measures discussed in Volume I Section 5.18 are developed to protect all people, including children, and the environment. For further information on radiation risk results for children can be found in Volume II Appendix F Section F.1.8.

Within this EIS, an intruder is identified as any individual who inadvertently excavates or drills through a waste site after active institutional controls are assumed, for purposes of analysis, to end.

The "default" values are representative of Hanford soil density values.

An expanded discussion of uncertainties associated with the HSW EIS impact analyses is included in Volume I Section 3.5.

Comments

L-0041/033

Contaminant fate and transport modeling to support the various alternatives does not consider lateral transport of water beneath the proposed surface barriers. Lateral movement in the vadose zone has been monitored and documented beneath the Hanford site. One-dimensional vertical movement should only be used if that can be shown to be conservative when compared to observed fast transport phenomena.

Impact Evaluation

Response

Lateral water movement, as a phenomenon that might affect contaminant transport, has not been evaluated in the HSW EIS. This is attributable to an absence of field observations of natural recharge events causing lateral movement of water under the solid waste burials. It is possible that liquid discharge waste sites, sewer tile fields, and unplanned releases located immediately adjacent to solid waste burial grounds could create higher moisture contents in and above some strata within the vadose zone profile, and that such water could move laterally. However, such events and effects would be local and short term (operational era), relative to the larger scale and longer term risk assessments (thousands of years).

For the SAC, the solid waste burial grounds have been simulated as aggregated solid wastes with a one-dimensional model that did not assume movement of water laterally under the burial grounds. Multidimensional analyses are conducted as part of the Solid Waste Burial Ground Performance Assessments. These analyses are based on a uniform recharge rate over the disposal region, and may project a buildup of moisture in and above some strata in the geohydrologic profile before drainage occurs. The performance assessment analyses do not indicate lateral migration. (Wood et al. 1995, Wood et al. 1996).

For the HSW EIS evaluations, the vadose zone has been modeled as a stratified one-dimensional column because of the large number of solid waste disposal facilities that needed evaluation. A one-dimensional approach yields more conservative results than multi-dimensional models that also consider lateral spreading of infiltration and contaminant transport. Multidimensional modeling of the vadose zone has been performed for some waste sources and types (Mann et al. 1997; Mann et al. 2001) but was not practical in this analysis for the large number of sites in question.

Comments

THR-0021/002

And the other thing that they refuse to assess is the combined effects of other plumes migrating into other plumes. For example, at the Strontium 90 plume at Hanford, which is at N-Area, which Strontium 90, if you are deficient in calcium, your body absorbs it like calcium, so think of fish. This is an extremely contaminated site. There is a sodium plume that is right beside it. Back in the old days, like '94, '93, they talked about the sodium plume eventually migrating into the strontium 90 plume, which would then dissorb it, make the strontium 90 release and go into the river. They refuse to model that.

Response

Sodium does not preferentially desorb strontium due to the fact that strontium, a divalent cation with a low radius of hydration, is above monovalent sodium, with a large radius of hydration, in the lyotropic series.

Comments

E-0043/016, EM-0217/016, EM-0218/016, L-0056/016, LM-0017/016, LM-0018/016

The alternatives should also encompass:

- Mounded soil covering the trenches, which would shed rainwater and create less leachate;
- Alternative cap types that will reduce the risk of human, animal, or plant intrusion;
- Concentration limits for radionuclides;
- Independent regulation of LLW disposal as an alternative;
- Megatrench disposal analysis that covers ILAW
- An alternative that charges generators the long-term, fully burdened costs of storage, treatment, or disposal;
- An alternative that shows the unlined burial grounds as closed.
- The storage and disposal of TRU waste in the event that the Waste Isolation Pilot Plant (WIPP) does not accept waste within the scope of the HSW EIS or does not open by 2005.

Response

Mounding soil is addressed in Volume I Section 5.18. The cap analyzed in the HSW EIS is designed to reduce the risk of human, animal, and plant intrusion. Concentration limits are set forth in the HSSWAC discussed in Volume I Section 2.1.1. LLW is regulated under the applicable requirements of the Atomic Energy Act, CERCLA, and other laws. The HSW EIS includes alternatives for the disposal of ILAW in megatrenches (see Volume I Section 3.1). All alternatives, except the No Action Alternative, include closure of unlined trenches in the LLBGs. DOE has already decided to send TRU waste to WIPP for disposal. Sufficient storage currently exists at Hanford should WIPP not be able to accept certain TRU waste streams before 2005.

Charging DOE waste generators higher disposal costs is not expected to reduce the amount of waste generated by DOE sites or to increase the amount of waste reduction already occurring under the DOE pollution prevention and waste minimization program. The Pollution Prevention Act, Section 6002 of RCRA and several executive orders were enacted, in part, because it was recognized that (1) government organizations should make efforts to minimize the amount of waste they generate and (2) economic incentives generally do not work for government entities. For waste being disposed of at Hanford, the waste generator and the disposal facility are both part of the same government organization, the DOE. Although private companies can collect money today for work to be performed in later years, government organizations like DOE are precluded from collecting money to cover future costs (such as closure costs and long-term monitoring costs) without specific congressional approval.

The recent "Report to Congress - The Cost of Waste Disposal: Life Cycle Cost Analysis of Disposal of Department of Energy Low-Level Radioactive Waste at Federal and Commercial Facilities" (DOE 2002d) explains that waste disposal decisions should be made based on the total life-cycle cost of waste disposal. These decisions need to consider the costs for treatment, inspection and verification, disposal, closure, and long-term monitoring. The DOE pollution prevention and waste minimization program already requires waste disposal decisions to be made based on life-cycle costs and other factors. See Volume I Section 2.2.5 for a discussion of the DOE pollution prevention/waste minimization program.

Comments

TSE-0027/003

I do not think all the truth about this matter [cancer incidence in Richland area] is in this EIS. How do we get it in there?

Response

Latent cancer fatalities are discussed in Volume I Section 5.11 and Volume II Appendix F.

Comments

L-0061/001

The revised DEIS includes additional alternatives as compared to your earlier DEIS; however, we recommend expanding the analysis of environmental effects to take into account non-radiological contaminants, include site-specific toxicological information, and more thoroughly address potential effects to biota.

L-0061/002

The Ecological Resources and Environmental Consequences sections should be revised to evaluate all anticipated contaminants associated with the various wastes. For instance, impacts to Columbia River aquatic and riparian resources were limited to key radionuclides (page I.27). All radiological and non-radiological hazardous waste should be identified and evaluated for exposure, effects, and risk. The risk analysis should include an evaluation of cumulative, additive, synergistic, and antagonistic effects of all potential contaminants in order to ascertain appropriate clean-up levels. We [United States Department of the Interior] also strongly suggest that site-specific toxicological data for local species be included in any risk assessments so effect levels can be customized to local conditions. We realize that many uncertainties exist for the Hanford site, but identifying which contaminants have the potential to be released and determining effect levels to biota are necessary to conduct a quality ecological risk assessment. We recommend that additional data be collected and that you coordinate with the Hanford Natural Resource Trustee Council on the evaluation of risk to ecological receptors.

Response

The LLBGs contain over 100 radioactive and non-radioactive constituents that potentially could impact groundwater. Screening of these constituents considered a number of aspects that included (1) their potential for dose or risk, (2) their decay or degradation rates, (3) their estimated inventories, and (4) their relative mobility in the subsurface system within a 10,000-year period of analysis. Establishing the relative mobility of each contaminant, they were grouped based on their mobility in the vadose zone and underlying unconfined aquifer. Contaminant groupings were used, rather than the individual mobility of each contaminant, primarily because of the uncertainty involved in determining the mobility of individual constituents. The waste constituents were grouped according to estimated or assumed Kd of each constituent.

Based on an assumed infiltration rate and estimated levels of sorption and associated retardation, the estimated travel times of a number of constituents through the thick vadose zone to the unconfined aquifer beneath the LLBGs were calculated well beyond the 10,000-year analysis. Thus, these constituents were eliminated from further consideration. Of the remaining constituents, technetium-99, iodine-129, carbon-14, and uranium isotopes were considered of sufficient quantity and mobility to warrant detailed analysis of groundwater impacts. Selenium and chlorine, while mobile, were screened out because their total inventories were less than 0.01 Ci. Tritium and cesium were not evaluated because of their relatively short half-lives. Plutonium was screened out because of its lack of mobility.

The approach taken in the HSW EIS is consistent with the methods, characteristics, and controls associated with a composite analysis as described by the Columbia River Comprehensive Impact Assessment (CRCIA) team. The analysis modules included in the SAC parallel those identified by CRCIA and were developed through work group meetings that included regulator and stakeholder participation. Several key modules were adopted directly from the CRCIA including the module used to calculate human health impacts (the HUMAN code) and the module used to calculate impacts to ecological species (the ECEM code).

Discussion of the synergistic transport effects among organic and inorganic contaminants is provided in Volume I Section 5.3 and Volume II Appendix G. To establish the relative mobility of each contaminant, they were grouped based on their mobility in the vadose zone and underlying unconfined aquifer. Contaminant groupings were used, rather than the individual mobility of each contaminant, primarily because of the uncertainty involved in determining the mobility of individual constituents. The groups were selected based on relatively narrow ranges of mobility, and constituents were placed in the more mobile group when there was uncertainty concerning which group they should be placed in. Some of the constituents, such as iodine and technetium, would move at the rate of water whether in the vadose zone or underlying groundwater. The movement of other constituents in water, such as americium and cesium, would be slowed or retarded by the process of sorption onto soil and rock.

The human exposure scenarios described in Volume II Appendix F consider direct and indirect use of the Columbia River water and biota (e.g., swimming, consumption of fish). For those radiological and non-radiological contaminants that will reach the Columbia River bioaccumulation of contaminants and resulting impacts to non-human biota are also expected to be small. See Volume I Sections 5.5 and 5.11, and Volume II Appendix F and Appendix I.

Comments

E-0026/009

It [the EIS] fails to disclose the impacts of hazardous chemical waste buried with radioactive waste.

E-0047/031

SAC - SWEIS must include all the potential COCs of radionuclides and chemicals. The current approach is limited to uranium and technetium. Contaminants such as I-129, Pu, Cs, etc.

E-0053/002

Incredibly, USDOE's Performance Assessment – relied upon for the HSWEIS – totally ignores the presence of hazardous wastes in the Low-Level Burial Grounds.

L-0044/010

The EIS addresses risk in terms of the risk from release of radiochemicals only. No explanation or justification is provided for USDOE's omission of risk from nonradioactive chemical wastes. The risk assessment cannot therefore be considered to be complete, absent an evaluation of risk from those wastes.

L-0044/017

Appendix I/I.29- I.35: Only risk from radiochemicals is addressed. There should be an explanation why USDOE believes non-radiochemical hazardous waste is addressed in the analysis of HSW EIS alternatives. 1998. GUIDELINES FOR ECOLOGICAL RISK ASSESSMENT. USEPA EPA/630/R095/002F. 01 Apr 1998. U.S. Environmental Protection Agency, Risk Assessment Forum, Washington, DC, 175 pp.

L-0044/032

CRD, p. 3.90 (Re: Comment # 74) With the exception of uranium, ecological risks to nonradionuclide chemicals (e.g., carbon tetrachloride, PCBs, nitrate, metals) appear not to have been evaluated. At least for inorganics (e.g., heavy metals), rationale for this omission is lacking.

TRI-0001/011

Some of the hazardous wastes known to be present in the burial grounds but not disclosed and not discussed again are mercury, beryllium, nitric acid, phosphoric acid, sulfuric acid, dibutyl phosphate, carbon tetrachloroethylene, trichlorethylene, xylene and toluene. And we also have asbestos. None of these are described, nor the hazards of working around them, which is a necessary part [of the HSW EIS impact analyses].

TSE-0008/001

One [concern] is that the EIS states that only uranium is considered for nonradiological as well as radiological risk. But I think Strontium also should be included, because Strontium is very near calcium in the tables, in fact it is right above it, it replaces calcium in the bones, and even if it is not radioactive, it is dangerous. Another thing is I don't think light pollution considerations and smells were addressed at all. I think there is probably incredible amounts of light out there and effects it has on the circadian, circadian cycles of plants and animals, there is very little research on that, from what I can tell. And the last thing was that I don't think that there's, I didn't see any comment at all about the effect of the groundwater contamination on micro-organisms in the air. I think that should be dealt with, too.

TSP-0001/005

Unlined trenches. When I saw pictures from the 1940s and 1950s about just dumping cans, 50 gallon cans of chemicals and radioactive materials into ditches, I thought that was just absurd. I was surprised to learn that this process continues to be going on. As pointed out, this is not something that's acceptable with chemicals in your backyard. It's not accepted by cities. It's not accepted by states. But it somehow continues to be accepted by the federal government.

Impact Evaluation

TSP-0015/005

And then finally is the mercury and other elements that might be leaking into the soil. Those need to be included. Their assessments need to be included in the EIS, because not too many people are aware of this, but Spokane has the second highest M.S. caseload in the entire world, and they don't know why, but mercury just happens to have the exact same symptoms, mercury poisoning, as M.S. So that's something else for you to look at.

Response

The LLBGs contain over 100 radioactive and non-radioactive constituents that potentially could impact groundwater. Screening of these constituents considered a number of aspects that included (1) their potential for dose or risk, (2) their decay or degradation rates, (3) their estimated inventories, and (4) their relative mobility in the subsurface system within a 10,000-year period of analysis. Establishing the relative mobility of each contaminant, they were grouped based on their mobility in the vadose zone and underlying unconfined aquifer. Contaminant groupings were used, rather than the individual mobility of each contaminant, primarily because of the uncertainty involved in determining the mobility of individual constituents. The waste constituents were grouped according to estimated or assumed Kd of each constituent.

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Hazardous chemicals in MLLW have been characterized and documented since the implementation of RCRA at DOE facilities beginning in 1987. MLLW currently in storage, and MLLW that may be received in the future, would be treated to applicable state or federal standards for land disposal. Therefore, disposal of that waste is not expected to present a hazard over the long term because the hazardous constituents would either be destroyed or stabilized by the treatment. Inventories of hazardous materials in stored and forecast waste are either very small, or consist of materials with low mobility. See Volume II Appendixes F and G.

Inventories of hazardous chemicals in waste were not generally maintained by industries in the United States prior to the implementation of RCRA. Consistent with these general practices, inventories of hazardous chemicals in radioactive waste were not required to be determined or documented before the application of RCRA to radioactive mixed waste at DOE facilities in late 1987. Wastes placed in the LLBGs before late 1987 have not been specifically characterized for hazardous chemical content, but they have been evaluated in the EIS alternatives relative to their radionuclide inventories. In addition, preliminary estimates of chemical inventories in this waste have been developed for analysis in the HSW EIS, and a summary of their potential impacts on groundwater has been added to Volume I Section 5.3 and Volume II Appendix G.

In addition, the October 23, 2003 Settlement Agreement contains proposed milestones in the M-91-03-01 Tri-Party Agreement Change Package for retrieval and characterization of suspect TRU waste retrievably stored in the Hanford LLBGs (United States of America and Ecology 2003). As part of that agreement, DOE will manage the retrievably stored LLBG waste under the following assumptions: (1) all retrievably stored suspect TRU waste in the LLBGs is potentially mixed waste; and (2) retrievably stored suspect TRU waste will be managed as mixed waste unless and until it is designated as non-mixed through the WAC 173-303 designation process.

Interactions among different types of waste that could potentially mobilize radionuclides have also been considered as part of the HSW EIS analysis. However, such interactions typically require specific chemical environments or large volumes of liquid as a mobilizing agent, neither of which are known to be present in the solid waste disposal facilities currently in use (see discussion in Volume II Appendix G). Possible effects of this type could be mitigated by selecting candidate disposal sites to avoid placing waste in locations where previous contamination exists.

Waste sites and residual soil contamination remaining at Hanford over the long term, and which are not specifically evaluated as part of the HSW EIS alternatives, have been evaluated previously as part of NEPA or CERCLA reviews. In those studies, the risks associated with older solid waste burials, tank waste residuals and leaks, and contaminated soil sites were found to be very small, even for alternatives that considered stabilization of the waste in place (DOE 1987, DOE and Ecology 1996, Bryce et al. 2002). Further evaluation of tank wastes is anticipated in the "Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single-Shell Tanks at the Hanford Site" (68 FR 1052). The cumulative groundwater impacts analysis in the HSW EIS also includes those wastes, as described in Volume I Section 5.14 and Volume II Appendix L.

DOE plans to characterize pre-1970 inactive burial grounds and contaminated soil sites, as well as the active LLBGs considered in the HSW EIS alternatives, under the RCRA past practice or CERCLA processes to determine whether further remedial action would be required before the facilities are closed. As part of that process, the long-term risks from these wastes would either be confirmed to be minimal, or the waste would be remediated by removal, stabilization, or other remedial actions to reduce its potential hazard. In all cases, the impacts from these previously disposed wastes would be the same for all alternative groups considered in the HSW EIS, and would not affect the comparisons of impacts among the alternatives or the decisions made regarding disposal of waste received in the future.

Iodine-129 inventories have been estimated and included in the cumulative groundwater impacts analysis. See Volume I Section 5.14 and Volume II Appendix L.

Potential adverse impacts posed by future releases of contaminants to aquatic and terrestrial species known to occur in the Columbia River and its riparian corridor were analyzed in an ecological risk assessment framework. The risk assessments conducted for this analysis of impacts generally follow U.S. Environmental Protection Agency (EPA) guidance for conducting such assessments (EPA 1992, 1998) and the corresponding Hanford Site risk assessment methodology (DOE-RL 1995).

Comments

L-0055/023

Other radionuclides could similarly have an impact. However, they were not included in the analysis. For example, even though tritium is short lived, it does have an effect on living tissue. But this is but one of many that was not included in this EIS analysis. Thus it seems this EIS may be flawed and should be withdrawn.

L-0055/043

Many of the other radionuclides were not included in this EIS. It is our belief that this may even be an understatement of the number of fatalities that would result from the disposal of the MLLW and the LLW at Hanford.

Response

The LLBGs contain over 100 radioactive and non-radioactive constituents that potentially could impact groundwater. Screening of these constituents considered a number of aspects that included (1) their potential for dose or risk, (2) their decay or degradation rates, (3) their estimated inventories, and (4) their relative mobility in the subsurface system within a 10,000-year period of analysis. Establishing the relative mobility of each contaminant, they were grouped based on their mobility in the vadose zone and underlying unconfined aquifer. Contaminant groupings were used, rather than the individual mobility of each contaminant, primarily because of the uncertainty involved in determining the mobility of individual constituents. The waste constituents were grouped according to estimated or assumed Kd of each constituent.

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Iodine-129 inventories have been estimated and included in the cumulative groundwater impacts analysis. See Volume I Section 5.14 and Volume II Appendix L.

An expanded discussion of uncertainties associated with the HSW EIS impact analyses is included in Volume I Section 3.5.

Comments

TSP-0010/004

It seems unreal not to have some idea of the half-life of low-level waste before it's stored.

Response

The half-lives of radionuclides are shown in the Volume I Reader's Guide. The majority of curies in waste are from strontium and cesium. Ten half-lives is the general rule of thumb to calculate when radioactivity will approach zero.

Comments

TSP-0007/001

The Record of Decision. I think that it should have an input that recognizes the vulnerability of children, and I think there should be a table that very simply lists what are every chemical, every chemical that is involved in all of the kinds of waste. Don't ignore some. Just because they are awkward. Every chemical. Every radioactive, every bad material. And list what are the generally accepted limits. And then give information as to how the DOE is going to protect the children of America from these hazardous things.

Response

Chemical and radionuclide contaminants in waste streams are listed in Volume II Appendix F.

Estimates of cancer risk in populations represent composites that account for the range in sensitivities of various members of the population, including children as well as adults.

Design features built in to the alternatives and potential mitigation measures discussed in Volume I Section 5.18 are developed to protect all people, including children, and the environment. For further information on radiation risk results for children can be found in Volume II Appendix F Section F.1.8.

Comments

L-0044/039

CRD, p. 3.94 (Re. Comment # 88) Although the revised document is improved, it remains difficult (in some cases) to link health assessment methods (e.g., source term characterization, COPC identification) with risk results. For example, which nonradionuclide contaminants contribute to cancer risk and noncancer HQ results in Tables 5.30, 5.50, and 5.68?

Response

Chemical and radionuclide contaminants in waste streams are listed in Volume II Appendix F.

The text in Volume II Appendix F describes the deviations from the Hanford Site Risk Assessment Methodology (DOE-RL 1995) guidance. Specifically, the HSW EIS analysis was performed for a one-year period instead of the 30-year HSRAM period, and the HSW EIS used radiation dose factors and health effects conversion factors instead of the slope factors suggested for use in the HSRAM. These deviations were required in order to evaluate radiation doses on an annual basis.

Comments

E-0038/002

Please, take this opportunity to make the right decisions by considering the impact on human life, our animals, our water supply and our soil.

Response

DOE will consider the impacts presented in this EIS in making decisions about the proposed action and alternatives.

Volume II Appendix F describes the methods used to evaluate health impacts of the HSW EIS alternative groups. Volume II Appendix F describes normal impact assessment methods, accident assessment impact methods, intruder impact assessment methods, and long-term impacts from waterborne pathways.

Volume II Appendix I provides information about potential impacts to terrestrial and aquatic ecological resources that may result from implementation of HSW EIS alternatives. Potential impacts to terrestrial resources were evaluated in the near term (i.e., during waste management operations and under current conditions). Potential impacts would result primarily from surface disturbances associated with excavation and disposal activities. Potential impacts to Columbia River riparian and aquatic resources could occur in the long term, i.e., up to 10,000 years following the conclusion of waste management operations. These would be primarily the result of the eventual migration of radionuclides and other hazardous chemicals through the vadose zone to groundwater and on to the Columbia River.

Comments

THR-0021/001

And do you know what I find that is just totally amazing, is that they refer in their risk assessment to assume that the river is ever going to change over time. They refuse to assume that the dams are going to come out and there could be catastrophic flooding. So, when you think of the waste that they are digging down 15 feet and cleaning up the first part of the contamination, the next 20 feet that's still highly contaminated is going to be affected if there is catastrophic flooding or if the river changes in elevation constantly, because let's say they want to save a lot of salmon and they increase the flow. But in their modeling they refuse to assess that.

Response

In the event of a catastrophic flood, the impacts from the flood itself, would be greater on the human populations and the environment than the consequences of releasing radionuclides and chemicals from waste sites. Evaluations of catastrophic flood scenarios (glacial floods, Grand Coulee Dam failure) in the HDW EIS Appendix R, "Assessment of Long-Term Performance of Waste Disposal Systems" (DOE 1987) indicated that catastrophic flooding would not be a plausible release event for sites within the 200 East or 200 West Areas.

Comments

L-0041/019

Appendix F, Section F.1.6, page F.44 discussed the fact that the EIS analysis deviated from the Hanford Site Risk Assessment Methodology Report (DOE-RL 1995), but does not explain why.

Response

The text in Volume II Appendix F describes the deviations from the Hanford Site Risk Assessment Methodology (DOE-RL 1995) guidance. Specifically, the HSW EIS analysis was performed for a one-year period instead of the 30-year HSRAM period, and the HSW EIS used radiation dose factors and health effects conversion factors instead of the slope factors suggested for use in the HSRAM. These deviations were required in order to evaluate radiation doses on an annual basis.

Comments

L-0041/020

Page F.47, Section F.2, lines 12-18 states that adjustments in Safety Analysis Report accident scenarios were needed for this analysis but doesn't discuss what adjustments were made or why they were necessary for this EIS.

Response

Based on the existing safety analyses, additional information required for NEPA analysis was provided. See Volume II Appendix F Section F.2.

Comments

L-0044/034

CRD, p. 3.91 (Re: Comment # 80) It would be helpful to specify a systematic method for extrapolating a literature-based toxicity value to a usable LOEC [Lowest Observed Effects Concentration] or NOEC [No Observed Effects Concentration] (i.e., quantifying an appropriate "uncertainty factor").

Response

The toxicity value endpoint extrapolation techniques used in the HSW EIS are based on the techniques used by Dourson and Stara in their report "Regulatory History and Experimental Support of Uncertainty (Safety) Factors" (Dourson and Stara, 1983). They are also consistent with the methods used in the "Final Screening Assessment and Requirements for a Comprehensive Assessment - Columbia River Comprehensive Impact Assessment" DOE-RL (1998).

Comments

L-0044/035

CRD, p. 3.92 (Re: Comment # 82) Although the comment is addressed for uranium isotopes in a qualitative manner, a quantitative assessment is lacking for release of contaminants in cementicious waste.

Response

See Volume II Appendix G, Section G.1.3.3.1 for discussion of uranium release model and Volume II Appendix G, Section G.1.3.3.2 for discussion of cement release model for other radionuclides.

Comments

L-0044/036

CRD, p. 3.92 (Re: Comment # 84) Although the inventory for Hg may be small, a Kd specific to the various forms of Hg (e.g., divalent, methylated, etc.) should be used, if available.

Response

The mercury waste would be chemically stabilized, consistent with land disposal restrictions, prior to disposal. See Volume II Appendix G Section G.1.3.1.

Comments

L-0044/122

The HSW EIS must separate the results of SAC-SW EIS assessment from the other site wide assessments (these may include the solid waste sites, as well) so that one can compare and contrast its impact. At present the SAC- REV0 and the current approach of SW-EIS differs not only in terms of time frames (10,000 yrs. for SW-EIS vs. 1,000 yrs. for SAC Rev.0), but also in other input parameters such as the inventories, release mechanisms, number of contaminants (cemented vs. non cemented), etc.

L-0044/123

The SAC results in the HSW EIS must come up with a credible assessment to compare results with historical field data (history match) specific to solid waste origin. This will be very challenging considering the lack of data/knowledge gaps and what SAC can achieve at this time.

L-0044/124

The concept of "aggregated areal foot print" may not provide a conservative picture for the calculation. One must examine these inventories carefully, and see how they were released and its impact.

Response

The SAC, as a groundwater modeling capability, is being continuously refined. The initial SAC assessment (Bryce et al. 2002) demonstrated that a relatively small number of input parameters could determine most of the variability in calculated performance measures. SAC has been updated since the initial assessment and, for purposes of the HSW EIS, an additional 25 runs were made for this EIS using the more refined model. It was observed that when the performance measure is human dose, variability with regard to individual behavior and exposure affects uncertainty in the estimated dose more than variability in inventory, release, or environmental transport of the contaminants. Based on this observation, the HSW EIS evaluated several different exposure scenarios to address this uncertainty. Exposure scenarios included: drinking water, resident gardener, resident gardener with sauna/sweat lodge, and industrial worker.

Comments

L-0044/120

The main purpose of the cumulative impact assessment is to have a broad assessment of the total collective cumulative impact on the human health and the environment. While the System Assessment Capability (SAC) seems to be the right tool for this analysis, the analysis failed to provide the desired results of total cumulative impacts from the current and future waste of these burial grounds under different alternative scenarios. The current analysis simply illustrates how the tool could provide a meaningful cumulative impact taking uranium and technetium as an example. A complete analysis with the aim of total cumulative impact assessment using the SAC tool would provide a better understanding and should be attempted in the future. We request that USDOE make the following revisions in the total cumulative impact assessment that will help make the HSW-EIS results more understandable.

The EIS must include all of the radionuclides and chemicals that are potential contaminants of concern (COC's). The current approach is limited to uranium and technetium. Contaminants such as I-129, Pu, and Cs should be addressed. The analysis ignores the inventories and associated impacts of the huge amount of chemicals known to be disposed at the solid waste burial grounds (e.g., one report shows the disposal of about 6.2 tons of nitrate at solid waste burial grounds). The report does mention sufficient data on chemical inventories are not available (p. 1-9, Appendix L.2.2) to carry out a broad assessment made by SAC. Ecology strongly disagrees with the approach and finds the current evaluation to be grossly inadequate. A complete collective cumulative assessment must include all known and expected waste inventories at the site. Ecology believes that there is significant impact on the human health and the environment not only from the inventories of radionuclides, but also from the chemicals. The cumulative impact of chemicals is expected to extend quite far from the facilities and the point of compliance, at least on a short term basis.

Response

The SAC, as a groundwater modeling capability, is being continuously refined. The initial SAC assessment (Bryce et al. 2002) demonstrated that a relatively small number of input parameters could determine most of the variability in calculated performance measures. SAC has been updated since the initial assessment and, for purposes of the HSW EIS, an additional 25 runs were made for this EIS using the more refined model. It was observed that when the performance measure is human dose, variability with regard to individual behavior and exposure affects uncertainty in the estimated dose more than variability in inventory, release, or environmental transport of the contaminants. Based on this observation, the HSW EIS evaluated several different exposure scenarios to address this uncertainty. Exposure scenarios included: drinking water, resident gardener, resident gardener with sauna/sweat lodge, and industrial worker.

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Impact Evaluation

Plutonium was screened out because of its lack of mobility.

Hazardous chemicals in MLLW have been characterized and documented since the implementation of RCRA at DOE facilities beginning in 1987. MLLW currently in storage, and MLLW that may be received in the future, would be treated to applicable state or federal standards for land disposal. Therefore, disposal of that waste is not expected to present a hazard over the long term because the hazardous constituents would either be destroyed or stabilized by the treatment. Inventories of hazardous materials in stored and forecast waste are either very small, or consist of materials with low mobility. See Volume II Appendixes F and G.

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Interactions among different types of waste that could potentially mobilize radionuclides have also been considered as part of the HSW EIS analysis. However, such interactions typically require specific chemical environments or large volumes of liquid as a mobilizing agent, neither of which are known to be present in the solid waste disposal facilities currently in use (see discussion in Volume II Appendix G). Possible effects of this type could be mitigated by selecting candidate disposal sites to avoid placing waste in locations where previous contamination exists.

Waste sites and residual soil contamination remaining at Hanford over the long term, and which are not specifically evaluated as part of the HSW EIS alternatives, have been evaluated previously as part of NEPA or CERCLA reviews. In those studies, the risks associated with older solid waste burials, tank waste residuals and leaks, and contaminated soil sites were found to be very small, even for alternatives that considered stabilization of the waste in place (DOE 1987, DOE and Ecology 1996, Bryce et al. 2002). Further evaluation of tank wastes is anticipated in the "Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single-Shell Tanks at the Hanford Site" (68 FR 1052). The cumulative groundwater impacts analysis in the HSW EIS also includes those wastes, as described in Volume I Section 5.14 and Volume II Appendix L.

DOE plans to characterize pre-1970 inactive burial grounds and contaminated soil sites, as well as the active LLBGs considered in the HSW EIS alternatives, under the RCRA past practice or CERCLA processes to determine whether further remedial action would be required before the facilities are closed. As part of that process, the long-term risks from these wastes would either be confirmed to be minimal, or the waste would be remediated by removal, stabilization, or other remedial actions to reduce its potential hazard. In all cases, the impacts from these previously disposed wastes would be the same for all alternative groups considered in the HSW EIS, and would not affect the comparisons of impacts among the alternatives or the decisions made regarding disposal of waste received in the future.

Impact Evaluation

Iodine-129 inventories have been estimated and included in the cumulative groundwater impacts analysis. See Volume I Section 5.14 and Volume II Appendix L.

Comments

E-0053/003

As noted earlier, the Maximum Concentration Limit (MCL) under the Safe Drinking Water Standard, utilized by EPA and Washington State for Superfund and MTCA standards, is based on a maximum dose of 4 mrem per year. At Table 4-22, USDOE provides "Radionuclide Dose Estimates for Groundwater Pathways". Doses exceeding 4 millirem per year are shown for: C14; Cl36; Tc99; I129; Se79; Np137; Pa231; U[.]

The total cumulative dose – not shown in the Performance Assessment – from the groundwater pathways would equal >9E+4 mrem/year. The MCL standard would be 4E+1. In plain language, the MCL will be exceeded by three magnitudes.

Response

Table 4-22 in the 200 West PA analysis provides an example of how doses are calculated for individual isotopes for a given set of assumed disposal conditions. An example calculation is provided in the following paragraph. For comparison with the 4-mrem/yr benchmark drinking water limit, the groundwater drinking water dose estimate for the total waste inventory currently disposed in the 200 West Area burial grounds is 0.22 mrem/yr, of which Tc-99 contributes 0.018 mrem/yr.

The groundwater doses in the Hanford Performance Assessment for the Disposal of Low-Level Waste in the 200 West Burial Grounds were calculated using a Unit Inventory Methodology, which can then be scaled to estimate doses for the actual LLBG inventory at any point in time. The Unit Inventory Methodology calculation for groundwater produced a dose of 76 mrem as listed in table 4-22 for TC-99, based on an assumed disposal of 1 Ci of Tc-99 with no mitigation credit taken for the waste form. To derive this value, one Ci of Tc-99 is assumed to be disposed in a 1 meter wide section of a trench with a Category 1 cover over the disposed waste which allows a 5 cm/yr infiltration rate. These conditions are described in the paragraph above the table on page 4-48. With these conditions assumed, the appropriate dilution factor is multiplied by the inventory (1 Ci) to determine the peak groundwater condition. Dilution factors for various disposal conditions are listed in several tables in Volume II Appendix D. For this example, the appropriate factor value is listed in Table D-2 for run 1a (page D-22). The dilution factor value is 7.96e-5 which means that 1 Ci of an isotope disposed in the facility results in a peak concentration of 7.96e-5 Ci/m^3 (7.96e+4 pCi/L).

To convert the peak concentration to a dose estimate, we assume that the exposed individual consumes 730 L/yr (also identified on page 4-48). If so, the individual ingests 5.8e +7 pCi in a year. The dose is determined by taking the product of activity ingested and the dose conversion factor for Tc-99 which is 1.3 e-6 mrem/pCi (page C-16). This yields the estimated dose of 76 mrem/yr.

Table 4-22 merely provides an example of how doses are calculated using the PA dose estimating methodology. The PA analysis evaluated numerous disposal conditions with this methodology, which is applicable to all disposal conditions considered. Actual disposal conditions (e.g., inventory, waste form performance, cover performance) are not represented by this table. However, this methodology has been and continues to be used to quantify dose estimates for actual conditions which remain in compliance with DOE Order 435.1 (DOE 2001b).

Comments

L-0044/137

Per WAC 197-11-440(6)(e), significant impacts on both the natural environment and the built environment listed in WAC 197-11-444 must be analyzed, if relevant. Ecology noted that the following areas lack the depth of analysis required to fully describe significant impacts:

• Groundwater movement/quantity/quality that would be affected by presence of chemicals known to have been buried in the Low Level Burial Grounds.

• Fragmentation or loss of habitat that could adversely affect both native vegetation and animals with the large areas designated as sites for modular combined use facilities.

• Use of a new waste treatment plant to treat wastes.

• Potential toxic air emissions resulting from the use of pulse driers to treat disposal facility leachate when ETF closes.

Response

An expanded discussion of impacts from chemicals in groundwater is included in Volume I Section 5.3 and Volume II Appendix G. Impacts on habitats are discussed in Volume I Section 5.5 and Volume II Appendix I. Impacts of constructing and operating the new waste processing facility are addressed in Volume I Section 5.11 and Volume II Appendix F. Impacts from air emissions are discussed in Volume I Section 5.2 and Volume II Appendix E. MLLW is treated to meet land disposal restrictions prior to disposal and toxic air emissions resulting from the use of pulse driers would not be a concern.

Comments

E-0043/071, EM-0217/071, EM-0218/071, L-0056/071, LM-0017/071, LM-0018/071

The HSW EIS accident analysis should include chemical waste and should not assume that all wastes are treated within land disposal restrictions.

Response

The accident analyses in the HSW EIS do address chemical constituents and do not assume all mixed wastes are treated (See Volume II, Appendix H).

Comments

E-0041/008

In response to a question about the long-term mutational effects of radionuclides, the answer makes clear that such a possibility has never been assessed.

Response

The human health impacts are discussed in Volume I Section 5.11 and Volume II Appendix F.

Comments

E-0041/009

A long answer about 'beyond design basis accidents' (Beyond DBAs) ends with the statement that 'Beyond DBAs are not evaluated for external events'; a foolhardy policy, and no mistake. Considering only the risks from sub-critical extraterrestrial impactors, for example, the Journal of the British Interplanetary Society has devoted several issues to assessing the likelihood and consequences of subcritical impactors (see, for example, the Dec 1998 issue—if you haven't access to a copy, let me know and I'll send you a copy of the table of contents via s-mail, and copy any requested articles.) These discussions make a casual dismissal of external risks unpardonable—Hanford is not in an alternate universe somewhere, after all—it's on Earth, and millions of people live in its shadow in the event of a catastrophic failure.

Impact Evaluation

Response

DOE believes it has evaluated the appropriate range of reasonably foreseeable accidents in the HSW EIS. See Volume I, Section 5.11 and Volume II, Appendix F.

Comments

L-0044/014

Ecology does not disagree with the USDOE's selection of the ILAW waste form with Tc-99 present; however, we would like to reiterate that the Tc-99 should be removed from the tank waste prior to vitrification. We have sent several letters to the Office of River Protection on this subject. If the Tc-99 is not removed from the waste, picking a ILAW disposal location in 200 West is not viable. Tc-99 is the contaminant of concern related to the ILAW as far as potential future groundwater impacts- it drives the groundwater risk.

Response

The HSW EIS evaluates, for all alternatives, a maximum inventory of Tc-99 in ILAW that assumes the Tc-99 is not removed prior to vitrification. For comparison, the preferred alternative evaluates both the maximum inventory of Tc-99 and a lower inventory of Tc-99 in ILAW that assumes the Tc-99 is removed prior to vitrification.

Comments

E-0044/004

It is deceptive to not clearly describe the risks portrayed and to include them as a part of the uncertainty analysis.

The SAC model includes a vast number of undocumented and untested assumptions. Each of these may drastically alter the results of the model.

The SAC model excludes the lessons learned from the detailed U-Code analysis of the groundwater model.

The risk analysis that forms the heart of the EIS is invalid and unreliable. The EIS should be withdrawn.

Response

DOE has embarked on an initiative to strengthen the technical defensibility of the site-wide groundwater flow and contaminant transport model. The initiative also involves developing a more robust capability to incorporate uncertainty into the models. One aspect of the initiative is developing and using a three-dimensional transient inverse model approach to estimate the hydraulic conductivities, specific yields, and other site-wide scale parameters, including their uncertainties. This is done by using data on the transient behavior of the unconfined aquifer system resulting from Hanford Site waste management practices since 1943.

The initial baseline transient inverse calibration effort (Cole et al. 2001b), which provides the basis for the model used in this EIS, substantially improved the capability of the baseline model over the prior model documented in Cole et al. (1997) in simulating historical trends in water-table changes over the entire site for the entire 1943-1996 period of calibration. The most notable improvements were in the historical trends of water table changes and mound building observed near major discharge facilities in the 200 West Area. The resulting baseline inversed model used in the HSW EIS assumes that the underlying basalt system provides an impermeable base to the unconfined aquifer. The inverse modeling analysis acknowledges the potential importance of the underlying basalt system to the overall flow system, and that quantification of this basalt leakage cannot be directly measured and is therefore uncertain.

More recent inverse modeling efforts (Vermeul et al. 2001) investigated the effects of inter-communication between the unconfined aquifer and the underlying upper basalt confined aquifer to determine whether the inclusion of basalt leakage could improve parameter estimates and results, and the overall model fit. Incorporating basalt leakage in the site-wide model was accomplished by adding the following intercommunication mechanisms to the baseline inverse model in steps designed to investigate each feature's sensitivity and relationship with other estimated parameters: (1) hydraulic head dependent, areal distributed leakage through the basalt confining layer; (2) increased leakage at an erosional window near Gable Mountain/Gable Butte; (3) increased leakage at a smaller erosional features near B-Pond; and (4) increased leakage along two fault zones.

Results of this inverse modeling effort showed that the simulated distribution of basalt leakage over the model domain was generally consistent with the conceptual model of basalt intercommunication described in Appendix B of Cole et al. (2001a), with downward leakage occurring throughout the area affected by the groundwater mounds resulting from 200 Area wastewater disposal activities and upward leakage occurring throughout the eastern portion of the site. The upward leakage throughout the eastern part of the site is consistent with the current conceptual understanding that the Pasco Basin represents a regional discharge point for the basalt system into the surficial sediments and eventually the Columbia River. Of the different types of basalt interaction mechanism, areal leakage was found to be the dominant intercommunication flux followed by the fault fluxes and the erosional windows flux. This is consistent with previous interpretations documented in Cole et al. (2001a).

It has been suggested in a comment on the HSW EIS that "the total volume of water upwelling through the basalt is approximately equal to the input from surface water infiltration, and that surface water infiltration is two to three times as large as had been previously believed." This is not consistent with the results of the model analysis. The time-weighted average basalt leakage flux contributing to aquifer recharge is only about 10 percent of flux associated with natural recharge (Vermeul et al. 2001). The flux for basalt interaction, which is dominated by areal leakage, ranged from 1,000 to 2,000 m3/d over the simulation period. The flux attributable to natural recharge over the modeled region is on the order of 25,000 m3./day.

Graphical and statistic comparisons illustrate that, over the entire prediction period, a slight measurable improvement in overall model fit was realized for the alternative conceptual model (ACM-1) with basalt interaction over that observed for the baseline inverse model. However, the most noteworthy improvements in the ACM-1 transient inverse calibrated model are not associated with overall model fit, but with incorporation of a more realistic conceptual model

The HSW EIS evaluates impacts using two alternative flow model conditions and a range of assumed flow conditions. DOE has used of this type of approach in previous analyses and intends to continue evaluation of additional alternative conceptual models for use in planned site-wide assessments such as the Composite Analysis. The baseline model was selected for use in the HSW EIS after it produced reasonable results of tritium plume transport when compared to historical tritium plume observations and interpretations in its application in the SAC Initial Assessment (Bryce et al. 2002). The ability of the alternative conceptual model incorporating intercommunication with the basalt system to simulate past tritium plume behavior is currently under evaluation. Comparisons of pre-Hanford water table conditions using the baseline model, and the alternative conceptual model with basalt interaction, suggest very similar flow conditions, and provide a general indication of expected post-operational Hanford water table conditions. See Volume II Appendix G.

Risk analysis is used throughout the HSW EIS. See Volume I Section 5 in the EIS and Volume II Appendices F, G, H, I and L.

An expanded discussion of uncertainties associated with the HSW EIS impact analyses is included in Volume I Section 3.5.

Comments

E-0043/042, EM-0217/042, EM-0218/042, L-0056/042, LM-0017/042, LM-0018/042

The HSW EIS should analyze the uncertainty of its analysis. Merely discussing the parametric sensitivity of the models is not a substitute for uncertainty analysis. Further, the large changes in results between the first 25 model runs and the runs DOE chose to use in support of the HSW EIS add to the uncertainty and should be disclosed.

L-0041/043

The existing groundwater model should be upgraded to reflect the inverse U-Code analysis of the groundwater model, which showed: a) large movements of water through the fractured basalt between the confined and unconfined aquifers, and b) large inputs of water from the confined aquifer to the unconfined aquifer from the various discontinuities across the site, including the Umtanum, Yakima and Rattlesnake ridges.

L-0044/033

CRD, p. 3.90 (Re: Comment # 76) Although a rationale is provided for "best estimate" of Kd values, the associated uncertainty should be described.

Response

DOE has embarked on an initiative to strengthen the technical defensibility of the site-wide groundwater flow and contaminant transport model. The initiative also involves developing a more robust capability to incorporate uncertainty into the models. One aspect of the initiative is developing and using a three-dimensional transient inverse model approach to estimate the hydraulic conductivities, specific yields, and other site-wide scale parameters, including their uncertainties. This is done by using data on the transient behavior of the unconfined aquifer system resulting from Hanford Site waste management practices since 1943.

The initial baseline transient inverse calibration effort (Cole et al. 2001b), which provides the basis for the model used in this EIS, substantially improved the capability of the baseline model over the prior model documented in Cole et al. (1997) in simulating historical trends in water-table changes over the entire site for the entire 1943-1996 period of calibration. The most notable improvements were in the historical trends of water table changes and mound building observed near major discharge facilities in the 200 West Area. The resulting baseline inversed model used in the HSW EIS assumes that the underlying basalt system provides an impermeable base to the unconfined aquifer. The inverse modeling analysis acknowledges the potential importance of the underlying basalt system to the overall flow system, and that quantification of this basalt leakage cannot be directly measured and is therefore uncertain.

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It has been suggested in a comment on the HSW EIS that "the total volume of water upwelling through the basalt is approximately equal to the input from surface water infiltration, and that surface water infiltration is two to three times as large as had been previously believed." This is not consistent with the results of the model analysis. The time-weighted average basalt leakage flux contributing to aquifer recharge is only about 10 percent of flux associated with natural recharge (Vermeul et al. 2001). The flux for basalt interaction, which is dominated by areal leakage, ranged from 1,000 to 2,000 m3/d over the simulation period. The flux attributable to natural recharge over the modeled region is on the order of 25,000 m3./day.

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An expanded discussion of uncertainties associated with the HSW EIS impact analyses is included in Volume I Section 3.5.

Comments

L-0041/032

The uncertainty in the groundwater flow directions (G.1.5.2) will dramatically increase the number of groundwater monitoring wells required to verify the impact the burial grounds will have on the underlying aquifer. Additionally, Oregon questions the assumption that basalt is impermeable. This assumption should be verified through additional characterization and continued monitoring. Previous analysis and estimates by Pacific Northwest National Laboratory (PNNL) of the aquifer indicate that water is moving through the basalt. PNNL's inverse U-Code analysis indicated that in most locations water is up-welling through the fractured basalt, but that in some locations the overlying water table is infiltrating downward, into the confined basalt aquifer. The inverse U-Code analysis indicates that the total volume of water upwelling through the basalt is approximately equal to the input from surface water infiltration, and that surface water infiltration is two to three times as large as had been previously believed. The EIS needs to incorporate these facts in its analyses or discuss why they are not being considered.

Response

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Groundwater monitoring is conducted according to TPA requirements, the Hanford Dangerous Waste Management permit, and DOE Orders. Groundwater monitoring will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations.

Comments

L-0055/019

DOE is assuming the basalt aquifer is impermeable. Hydraulically, this is incorrect. The Columbia River basalt group has shown to have both vertical and horizontal permeability. As an example, pumping out of the basalt aquifers in the Yakima Valley have resulted in an increase in the downward gradient of the shallow aquifers where there used to be recharge form the basalt. The hydraulic conductivity may at times be low, but with the basalt aquifer covering such a large area, this could be significant. In addition, some of the hydraulic gradients observed around Hanford can only be explained by discharge out of the basalt aquifers. DOE has also ignored lateral transport of waters throughout the burial grounds. The water could move laterally beneath the caps and infiltrate these burial grounds.

L-0055/025

Waste site inventories, both in terms of chemical and radioactive contaminates, are not precisely known for many of the solid and liquid waste sites present on the Central Plateau. Although the overall quantities of radionuclides generated at the Hanford Site are relatively well known, the actual amount in specific waste sites is uncertain. This uncertainty is very important. Various waste types could get into the ground water from sources, routes, and methods unknown to Hanford DOE. Thus the levels and rates of contamination could be faster or slower depending on many conditions such as geology, chemistry, precipitation, ground water gradient, location, etc.

Response

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Lateral water movement, as a phenomenon that might affect contaminant transport, has not been evaluated in the HSW EIS. This is attributable to an absence of field observations of natural recharge events causing lateral movement of water under the solid waste burials. It is possible that liquid discharge waste sites, sewer tile fields, and unplanned releases located immediately adjacent to solid waste burial grounds could create higher moisture contents in and above some strata within the vadose zone profile, and that such water could move laterally. However, such events and effects would be local and short term (operational era), relative to the larger scale and longer term risk assessments (thousands of years).

For the SAC, the solid waste burial grounds have been simulated as aggregated solid wastes with a one-dimensional model that did not assume movement of water laterally under the burial grounds. Multidimensional analyses are conducted as part of the Solid Waste Burial Ground Performance Assessments. These analyses are based on a uniform recharge rate over the disposal region, and may project a buildup of moisture in and above some strata in the geohydrologic profile before drainage occurs. The performance assessment analyses do not indicate lateral migration. (Wood et al. 1995, Wood et al. 1996).

An expanded discussion of uncertainties associated with the HSW EIS impact analyses is included in Volume I Section 3.5.

Comments

E-0047/005

The EIS is not based on adequate data regarding both on-site and off-site waste. For example, DOE lacks accurate data on the character of LLW, MLLW and ILAW despite the fact the EIS purports to assess the effects of managing these waste types at Hanford.

Question # 2- Does DOE acknowledge that it lacks accurate data about the characterization of the host of waste types covered by the EIS? If not, please explain. If so, please explain how absent accurate characterization data DOE can accurately assess the potential effects of managing this waste?

The EIS similarly fails to adequately consider the nature and character of the waste that would be generated from cleanup actions at Hanford.

Question # 3 - Does DOE recognize that it lacks significant information about the nature and character of waste that will be generated from proposed and ongoing cleanup actions at Hanford?

As specifically recognized by the HAB, the EIS does not adequately consider the effects of managing numerous wastes that should be considered in the EIS including:

1. Residual waste DOE proposes to leave in tanks,
2. Leaked tank wastes,
3. Wastes in related ancillary equipment and piping,
4. Hazardous or mixed wastes buried in the low-level burial grounds, and releases from the burial grounds;
5. Transuranic wastes in burial grounds,
6. Waste currently uncharacterized and stored in the PUREX tunnels, and
7. K-Basins sludges.

The draft EIS cannot ignore the potential cumulative effects from past, present and reasonably foreseeable actions that may and in fact are being cause caused by these waste types as required by NEPA and its implementing regulations. 40 C.F.R § 1508.25.

The draft EIS also appears inconsistent with DOE's previous commitment to treat all TRU waste as potentially mixed waste unless characterization supports that such waste is not mixed.

Question #4- On what basis does the EIS deviate from DOE's previous recognition that it is prudent to assume TRU waste is mixed unless actual characterization supports otherwise?

Question # 5- Absent assuming that all uncharacterized TRU waste is mixed waste, does DOE acknowledge that it could be failing to consider the potential effects of TRU waste that has a high likelihood of being mixed with hazardous waste?

Response

DOE has embarked on an initiative to strengthen the technical defensibility of the site-wide groundwater flow and contaminant transport model. The initiative also involves developing a more robust capability to incorporate uncertainty into the models. One aspect of the initiative is developing and using a three-dimensional transient inverse model approach to estimate the hydraulic conductivities, specific yields, and other site-wide scale parameters, including their uncertainties. This is done by using data on the transient behavior of the unconfined aquifer system resulting from Hanford Site waste management practices since 1943.

The initial baseline transient inverse calibration effort (Cole et al. 2001b), which provides the basis for the model used in this EIS, substantially improved the capability of the baseline model over the prior model documented in Cole et al. (1997) in simulating historical trends in water-table changes over the entire site for the entire 1943-1996 period of calibration. The most notable improvements were in the historical trends of water table changes and mound building observed near major discharge facilities in the 200 West Area. The resulting baseline inversed model used in the HSW EIS assumes that the underlying basalt system provides an impermeable base to the unconfined aquifer. The inverse modeling analysis acknowledges the potential importance of the underlying basalt system to the overall flow system, and that quantification of this basalt leakage cannot be directly measured and is therefore uncertain.

More recent inverse modeling efforts (Vermeul et al. 2001) investigated the effects of inter-communication between the unconfined aquifer and the underlying upper basalt confined aquifer to determine whether the inclusion of basalt leakage could improve parameter estimates and results, and the overall model fit. Incorporating basalt leakage in the site-wide model was accomplished by adding the following intercommunication mechanisms to the baseline inverse model in steps designed to investigate each feature's sensitivity and relationship with other estimated parameters: (1) hydraulic head dependent, areal distributed leakage through the basalt confining layer; (2) increased leakage at an erosional window near Gable Mountain/Gable Butte; (3) increased leakage at a smaller erosional features near B-Pond; and (4) increased leakage along two fault zones.

Results of this inverse modeling effort showed that the simulated distribution of basalt leakage over the model domain was generally consistent with the conceptual model of basalt intercommunication described in Appendix B of Cole et al. (2001a), with downward leakage occurring throughout the area affected by the groundwater mounds resulting from 200 Area wastewater disposal activities and upward leakage occurring throughout the eastern portion of the site. The upward leakage throughout the eastern part of the site is consistent with the current conceptual understanding that the Pasco Basin represents a regional discharge point for the basalt system into the surficial sediments and eventually the Columbia River. Of the different types of basalt interaction mechanism, areal leakage was found to be the dominant intercommunication flux followed by the fault fluxes and the erosional windows flux. This is consistent with previous interpretations documented in Cole et al. (2001a).

It has been suggested in a comment on the HSW EIS that "the total volume of water upwelling through the basalt is approximately equal to the input from surface water infiltration, and that surface water infiltration is two to three times as large as had been previously believed." This is not consistent with the results of the model analysis. The time-weighted average basalt leakage flux contributing to aquifer recharge is only about 10 percent of flux associated with natural recharge (Vermeul et al. 2001). The flux for basalt interaction, which is dominated by areal leakage, ranged from 1,000 to 2,000 m3/d over the simulation period. The flux attributable to natural recharge over the modeled region is on the order of 25,000 m3./day.

Graphical and statistic comparisons illustrate that, over the entire prediction period, a slight measurable improvement in overall model fit was realized for the alternative conceptual model (ACM-1) with basalt interaction over that observed for the baseline inverse model. However, the most noteworthy improvements in the ACM-1 transient inverse calibrated model are not associated with overall model fit, but with incorporation of a more realistic conceptual model

The HSW EIS evaluates impacts using two alternative flow model conditions and a range of assumed flow conditions. DOE has used of this type of approach in previous analyses and intends to continue evaluation of additional alternative conceptual models for use in planned site-wide assessments such as the Composite Analysis. The baseline model was selected for use in the HSW EIS after it produced reasonable results of tritium plume transport when compared to historical tritium plume observations and interpretations in its application in the SAC Initial Assessment (Bryce et al. 2002). The ability of the alternative conceptual model incorporating intercommunication with the basalt system to simulate past tritium plume behavior is currently under evaluation. Comparisons of pre-Hanford water table conditions using the baseline model, and the alternative conceptual model with basalt interaction, suggest very similar flow conditions, and provide a general indication of expected post-operational Hanford water table conditions. See Volume II Appendix G.

Hazardous chemicals in MLLW have been characterized and documented since the implementation of RCRA at DOE facilities beginning in 1987. MLLW currently in storage, and MLLW that may be received in the future, would be treated to applicable state or federal standards for land disposal. Therefore, disposal of that waste is not expected to present a hazard over the long term because the hazardous constituents would either be destroyed or stabilized by the treatment. Inventories of hazardous materials in stored and forecast waste are either very small, or consist of materials with low mobility. See Volume II Appendixes F and G.

Inventories of hazardous chemicals in waste were not generally maintained by industries in the United States prior to the implementation of RCRA. Consistent with these general practices, inventories of hazardous chemicals in radioactive waste were not required to be determined or documented before the application of RCRA to radioactive mixed waste at DOE facilities in late 1987. Wastes placed in the LLBGs before late 1987 have not been specifically characterized for hazardous chemical content, but they have been evaluated in the EIS alternatives relative to their radionuclide inventories. In addition, preliminary estimates of chemical inventories in this waste have been developed for analysis in the HSW EIS, and a summary of their potential impacts on groundwater has been added to Volume I Section 5.3 and Volume II Appendix G.

In addition, the October 23, 2003 Settlement Agreement contains proposed milestones in the M-91-03-01 Tri-Party Agreement Change Package for retrieval and characterization of suspect TRU waste retrievably stored in the Hanford LLBGs (United States of America and Ecology 2003). As part of that agreement, DOE will manage the retrievably stored LLBG waste under the following assumptions: (1) all retrievably stored suspect TRU waste in the LLBGs is potentially mixed waste; and (2) retrievably stored suspect TRU waste will be managed as mixed waste unless and until it is designated as non-mixed through the WAC 173-303 designation process.

Interactions among different types of waste that could potentially mobilize radionuclides have also been considered as part of the HSW EIS analysis. However, such interactions typically require specific chemical environments or large volumes of liquid as a mobilizing agent, neither of which are known to be present in the solid waste disposal facilities currently in use (see discussion in Volume II Appendix G). Possible effects of this type could be mitigated by selecting candidate disposal sites to avoid placing waste in locations where previous contamination exists.

Waste sites and residual soil contamination remaining at Hanford over the long term, and which are not specifically evaluated as part of the HSW EIS alternatives, have been evaluated previously as part of NEPA or CERCLA reviews. In those studies, the risks associated with older solid waste burials, tank waste residuals and leaks, and contaminated soil sites were found to be very small, even for alternatives that considered stabilization of the waste in place (DOE 1987, DOE and Ecology 1996, Bryce et al. 2002). Further evaluation of tank wastes is anticipated in the "Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single-Shell Tanks at the Hanford Site" (68 FR 1052). The cumulative groundwater impacts analysis in the HSW EIS also includes those wastes, as described in Volume I Section 5.14 and Volume II Appendix L.

DOE plans to characterize pre-1970 inactive burial grounds and contaminated soil sites, as well as the active LLBGs considered in the HSW EIS alternatives, under the RCRA past practice or CERCLA processes to determine whether further remedial action would be required before the facilities are closed. As part of that process, the long-term risks from these wastes would either be confirmed to be minimal, or the waste would be remediated by removal, stabilization, or other remedial actions to reduce its potential hazard. In all cases, the impacts from these previously disposed wastes would be the same for all alternative groups considered in the HSW EIS, and would not affect the comparisons of impacts among the alternatives or the decisions made regarding disposal of waste received in the future.

Impact Evaluation

An expanded discussion of uncertainties associated with the HSW EIS impact analyses is included in Volume I Section 3.5.

Comments

L-0044/042

Since there are huge differences in the inventory of the waste, based on what is in the record vs. what can be estimated using the fuel-ratio method for fission product inventories not reported on original records or prior estimates ((please see Table L.1, e.g. for Tc-99 inventory: 9.1 Ci [curie(s)] vs. 26.3 Ci)), the SAC-SW EIS should take both into consideration in one of their 25 realization analyses. The results of the comparison should be presented for comparison.

Response

Volume II Appendix L Table L.1 shows a comparison of the inventories used in the 10,000-year post-closure period System Assessment Capability initial assessment and those used elsewhere in the HSW EIS. The initial assessment inventory values are median values from a stochastic simulation of inventory estimates that are based on original records, prior inventory estimates, and a fuel-ratio method for estimating fission product inventories. To account for substantial uncertainties, a 20-fold uncertainty factor was assigned to inventories disposed from the time of Hanford startup in 1944 through 1969. That is, the inventory simulated in a single realization of the stochastic model for a waste site ranges from 1/20th to 20 times the inventory disposed during the 1944 to 1969 period. From 1970 until site closure, a two-fold uncertainty was assigned, thus simulating inventories ranging from one-half to double the estimated inventory for this period. Because only 25 realizations are employed in the stochastic simulation, only the central tendency median values are reported.

As of September 2003, sensitivity cases based on individual estimates of inventory have not been produced with the SAC. However, substantial uncertainty is captured in the SAC initial assessment representation of inventory. The substantial variability in inventory estimates seen in Volume II Appendix L Table L.1 derives from the key assumptions used to develop the SAC initial assessment and HSW EIS inventory estimates. For example, the HSW EIS inventory uses the Solid Waste Information Forecast Tool, a methodology developed and maintained at Hanford to estimate future solid waste disposals, including those from the Waste Treatment Plant (WTP). For the same estimates of future WTP disposals, the initial assessment instead relied on the Hanford Tank Waste Operation Simulator, a model of WTP waste processing and resultant waste streams. Other bases for inventory estimates and variability are noted in the Volume II Appendix L Table L.1 footnotes.

Comments

L-0044/134

Based upon our reviews of the first draft of the HSW-EIS and this revision, we continue to be concerned about certain significant issues. For this document to be satisfactory to support the Ecology's environmental reviews required by the State Environmental Policy Act (SEPA) prior to the issue of dangerous waste permits, as implemented in WAC 197- 11 and WAC 173-802, the issues identified below must be resolved.

A provision in WAC 197-11-400(3) requires that environmental impact statements be "concise, clear, and to the point". The complexity of the RHSW EIS and its supporting Appendixes preclude ease of review by the public and the agencies.

Per WAC 197-11-440(5)(b)(i), selection of reasonable alternatives is "intended to limit the number and range of alternatives, as well as the amount of detailed analysis for each alternative." The multiplicity and complexity of alternatives for disposal based upon waste streams and locations precludes a concise explanation of the environmental impacts.

Response

The HSW EIS summarizes its analyses in seven (7) sections in a first volume. The supporting technical detail is presented in fifteen (15) appendixes in a second volume. The Comment Response Document makes up the third and fourth volumes of the HSW EIS.

The summary has been substantially revised in response to comments and consistent with CEQ regulations (40 CFR 1502.12). The summary presents the major conclusions, areas of controversy, including issues raised by the public, and highlights of the analyses of the EIS. Subject matter references have been added where they are considered helpful to the general reader.

DOE believes this HSW EIS complies with applicable NEPA requirements.

Comments

E-0043/033, EM-0217/033, EM-0218/033, L-0056/033, LM-0017/033, LM-0018/033

Fourth, the EIS should quantitatively analyze all possible air and noise quality impacts compared to current air and noise quality. Instead the EIS merely states that certain standards have not been exceeded. To show quantitative impact, the EIS should quantitatively compare present noise and air quality to that of the noise and air quality of the alternatives.

P-0143/003

So far the USDOE EIS has not adequately addressed the serious issues.

TRI-0001/003

Description of the existing conditions needed to be adequate in order to describe alternatives for solid waste that include description of the alternatives for mitigation and remediation and bring facilities into compliance.

Response

Volume I Section 4 provides a description of the environment that might be affected by the alternatives described in Volume I Section 3. The results of analyses performed to assess potential environmental consequences of implementing the alternatives are presented in Volume I Section 5. Volume II Appendix A through Appendix O provide information to support the analyses in Volume I Section 1 through Section 6.

Comments

L-0021/003, TSE-0015/003

And what effect would that [disposal of additional radioactive solid waste at Hanford] have on the region? Without an adequate EIS, we honestly don't know. The Department of Energy needs to fully disclose potential impacts on the Columbia River and the fishery. It needs to determine the baseline data, and have monitoring in place before any more waste is brought in. Before we can know the total impact of adding more, USDOE must disclose the impacts from the burial grounds and other wastes already in the soil.

Response

Volume I Section 4 provides a description of the environment that might be affected by the alternatives described in Volume I Section 3. The results of analyses performed to assess potential environmental consequences of implementing the alternatives are presented in Volume I Section 5. Volume II Appendix A through Appendix O provide information to support the analyses in Volume I Section 1 through Section 6.

DOE maintains an extensive radiological and hazardous chemical monitoring network for groundwater, surface water, air, and biological resources. The results of these analyses are summarized in the annual Hanford Site Environmental Report (Poston et al. 2002) and the annual Groundwater Monitoring Report (Hartman et al. 2002).

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

Comments

E-0043/007, EM-0217/007, EM-0218/007, L-0056/007, LM-0017/007, LM-0018/007

NEPA mandates that "no material may be incorporated by reference unless it is reasonably available for inspection by potentially interested persons within the time allowed for comment." 40 CFR 1502.21. DOE has failed to follow this requirement. DOE should provide pinpoint citations for many references.

Information Content

E-0043/008, EM-0217/008, EM-0218/008, L-0056/008, LM-0017/008, LM-0018/008

The EIS reference list should summarize and discuss the underlying assumptions, definitions, and prior documentation behind the referenced documents, which may be different than the assumptions made in the HSW EIS. Any conflicting assumptions should be pointed out and addressed.

E-0043/049, EM-0217/049, EM-0218/049, L-0056/049, LM-0017/049, LM-0018/049

Further, DOE has provided Internet addresses for only some of the referenced documents. DOE has shown that providing Internet addresses for referenced documents is reasonable by providing such addresses for some documents. Therefore, DOE should provide Internet addresses for all referenced documents.

E-0043/059, EM-0217/059, EM-0218/059, L-0056/059, LM-0017/059, LM-0018/059

A purpose of the HSW EIS is to help those with an interest in Hanford Site, the public and the workers among others, fully understand the consequences of DOE's proposal. This purpose can only be fulfilled by user-friendly data and a summary with a table of contents that is keyed for easy reference to the corresponding text of the full EIS.

For example, figure S.8 of the summary lumps existing disposal facilities with the proposed disposal facilities, combines key storage facilities with key processing facilities. Further, this figure shows only key storage and processing facilities, rather than all storage and processing facilities for proposed actions. This graphic should differentiate between the different types of facilities and further differentiate those facilities by the alternative with which it is associated.

A second example is table S.2, which claims to show the range of impacts during the operational period. The EIS should make clear that this range is not all inclusive, but merely an approximation.

A third example is also found in table S.2. There the EIS states the 'number' of latent cancer fatalities in the public, while stating the 'probability' of latent cancer fatalities in non-involved workers. The actual number and the overall probability are important to the readers understanding; Each should be reported for both the public data and the worker data. The HSW EIS should compare 'apples to apples,' not 'apples to oranges.' Forcing the reader to do math in order to accurately compare data is not user-friendly. Further, DOE should state the data regarding latent cancer fatalities in involved workers at all. DOE should state the actual number and overall probability of latent cancer fatalities of involved workers in order for the reader to fully understand the consequences of DOE's proposal.

A fourth example is table S.3. There the EIS states the 'chances in a million' of a fatality to a lifetime onsite resident gardener, while stating the fatality data to a lifetime onsite resident gardener with a sauna/sweat lodge in terms of seven different denominators, none of which are 'chances in a million:' 'chances in 2000,' 'chances in 400,' 'chances in 300,' 'chances in 200,' 'chances in 100,' 'chances in 50,' 'chances in 10.' This is another 'apples to oranges' comparison. When the 'chances in 10' data is converted to 'chances in a million' data, the reader would see that in the Upper Bound range of waste volume, there '100,000 chances in a million' that a fatality to a lifetime onsite resident gardener with a sauna/sweat lodge would occur in the 200 area.

DOE provided Internet addresses to only some, but not all, for the documents incorporated by reference. DOE should provide an internet address in the reference list for all references. Additionally, the reference list should direct the reader to the page number(s) within the HSW EIS where the document is referenced, and provide a short summary of the reference's use in this EIS.

E-0043/075, EM-0217/075, EM-0218/075, L-0056/075, LM-0017/075, LM-0018/075

The HSW EIS states that DOE did not address the many "areas of controversy" identified during the public interaction process merely because "they reflect either differing points of views or uncertainties." Page S.42. Areas of controversy, whether resolved or not, should be accounted for within the HSW EIS quantitative analysis. Ignoring points of view different from that held by DOE is unacceptable. Accounting for areas of controversy within the EIS provides the reader with a more accurate picture of the many issues presented by the proposed actions.

L-0016/010

Concerning the difficulty in getting access to secondary sources, the response was simply not adequate. Saying that the sources are available in your reading room in Richland is about as useful as saying they're in the sub-basement of the library at the University of Illinois-they're very nearly as inaccessible. In simple self-defense, I've been forced to develop a reference library at home, taking up precious shelf space that I'd rather be using for books that are interesting to read. This isn't sufficient, however, as sources I don't have are constantly (and incompletely) cited, and even the ones I have are poorly indexed if they're indexed at all. Documents must be available in all repository libraries in the area, and at least one copy of each must be circulating.

Response

All references were available during the public comment periods in the Hanford Reading Room in Richland, Washington, and by request through the NEPA document manager. See the Summary of the HSW EIS for example. While not required under NEPA, website addresses, for many references, were provided as an additional aid to the reader. In addition, several major references, such as the Waste Management Programmatic Environmental Impact Statement, were available on compact disc upon request.

DOE has followed CEQ requirements (40 CFR 1502.21) regarding incorporating material by reference.

The summary has been substantially revised in response to comments and consistent with CEQ regulations (40 CFR 1502.12). The summary presents the major conclusions, areas of controversy, including issues raised by the public, and highlights of the analyses of the EIS. Subject matter references have been added where they are considered helpful to the general reader.

Comments

L-0044/026

Vol. I, Sec.5.11 and Vol.II, App. F. Section 5.11 and Appendix F report an enormous quantity of results for several scenarios and several alternatives. It would benefit the reader to summarize the results and present the most significant findings.

Response

Results are summarized in the Summary and in Volume I Section 3.4 of the EIS. The HSW EIS summary has been revised in response to comments and to incorporate new information. The summary presents the major conclusions, areas of controversy, including issues raised by the public, and highlights of the analyses of the EIS. Subject matter references have been added where they are considered helpful to the general reader.

Comments

F-0008/001

Without Columbia Riverkeeper and other concerned entities to help translate the issues many of us would be lost in analyzing a 3000 page document.

Response

In an effort to help the reader, and consistent with CEQ regulations, a summary was prepared.

Comments

L-0044/067

The DOE has attempted to define the purpose of the HFFACO here. The three items provided (20-23) are unclear and not entirely consistent with the purposes provide in the TPA. (e.g., "and sets due dates," is not clear what the due dates are for). DOE should change this text to be consistent with the purposes provided in the HFFACO on page 5 of the Executive Summary.

L-0044/069

DOE makes a statement that "CERCLA is a federal statute designed to respond to past disposal of hazardous substances." CERCLA is intended to address releases or threatened releases of hazardous substances. The text should be corrected on both lines 32 and 33.

L-0044/070

DOE should list all of the dates that the State of Washington received authority from the EPA for programs, including the most recent one for LDR authority.

L-0044/092

Sec. 2.1.3, p. 2.9 The statement should be amended to indicate that storage of RH TRU at Hanford will continue after WIPP is certified to receive such wastes if any characterization, treatment or packaging is required at Hanford, since Hanford's capability to undertake these tasks is not scheduled until well after DOE's scheduled 2005 WIPP RH TRU acceptance date.

L-0044/099

Vol. I, Sec. 3.1.2.3, p. 3.9, Sec. 5.3.4.1, p. 5.39 Disposal determinations are inconsistent for Alternative A in the sections cited. P. 3.9, Sec. 3.1.2.3, states "The large WTP melters would be taken to a dedicated lined trench near PUREX for disposal." In contract, Sec. 5.3.4.1, p. 5.39, states "Melters disposed of after 2007 in 21-m (69-ft) deep trenches in LLBG 218-E-12B." Clarify which trench is included in Alternative A for the melters.

L-0044/109

Sec. 4.8.5, p. 4.91 The statement on line 9 "Route 11A from SR 240 near its intersection with SR 240" is confusing, and may contain an error.

L-0050/005

Page 4.70, Table 4.13. WDFW disagrees with DOE's response on the vaux's swift, and it should be included. The vaux's swift was included in TNC's inventory of bird species of conservation concern, and was documented on the Arid Lands Ecology Reserve.

L-0050/006

Page 4.71, paragraph 1. The statement "Washington State considers pristine shrub-steppe habitat as priority habitat." This is an incorrect statement; please remove the word "pristine". All shrub steppe habitat, regardless of condition, is considered by WDFW as a priority habitat.

L-0050/011

Page 5.75, second paragraph last sentence, indicates survey's for rare plants were performed during the summer field survey of 2002. Rare plants of the Columbia Basin are not identifiable in late July and early August. The best time of the year to survey for rare plants in the Central Hanford area is during the month of May (Caplow, personal communication).

Response

The relevant portions of the HSW EIS have been revised in response to these comments.

Information Content

Comments

L-0041/005

Complete additional analyses in the HSW-EIS as outlined in this letter and attached detailed comments.

Complete the Tanks Retrieval and Closure EIS and assess its impacts on the HSW-EIS.

Response

The relevant portions of the HSW EIS have been revised in response to these comments.

DOE is preparing the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site (68 FR 1052), which will address the potential environmental impacts from retrieving and processing tank wastes. DOE will conduct appropriate environmental review to support future decisions for closing the vitrification plant (i.e., Waste Treatment Plant) and other existing treatment and associated facilities.

Comments

E-0043/019, EM-0217/019, EM-0218/019, L-0056/019, LM-0017/019, LM-0018/019

There are conflicting statements about groundwater plumes from disposal sites. For examples, see summary pages 32, 35, 36, and 37.

Response

DOE could not identify any conflicts in these pages.

Comments

L-0016/004

...[there was] no index at all in the comment volume[.]

Response

The CRD index of comments and persons commenting is located in Volume III Section 4.

Comments

L-0044/019

Vol. I, Sec. 3.5.3: One assumption made in the uncertainty section (3.5.3) is that variability in contaminant behavior and exposure effects are greater than inventory, release and environmental transport. This needs further explanation, especially since this EIS has large variability in inventory, release and transport data.

Response

The text in Volume I Section 3.5 has been revised to clarify this.

Comments

L-0044/081

S.4, p. S.13 The last sentence in the first paragraph (lines 14-15) is not helpful or informative to the public. It should say what alternatives for waste types are and are not included.

Response

The waste types evaluated in the HSW EIS are summarized in Section S.2 of the Summary, please refer to the text boxes in this section. The waste alternatives are summarized in Section S.6 of the Summary and described in more detail in Volume I Section 3.1.

Comments

L-0044/088

Secs. 1.4.3 and 1.4.4, p. 1.14 Reading these sections, one would never know that or how these activities relate to the EIS. Some of the alternatives considered arose out of the C3T process, and decisions made based on the EIS are essential to the PMP.

Response

Volume II Appendix N in the revised draft EIS and the final HSW EIS expand on the C3T process and the HPMP (DOE-RL 2002). See also Volume I Section 1.4.

Comments

L-0050/003

Page 4.66. Please update the reptile discussion by adding the following reference: "Herpetofauna of the Hanford Nuclear Reservation, Grant, Franklin, and Benton Counties, Washington," Lisa A. Hallock, submitted to The Nature Conservancy, December 1998.

Response

The HSW EIS uses all relevant references and reflects a long history of ecological monitoring at Hanford. This report did not add or delete any species and, therefore, was not used as a reference.

Comments

L-0044/079

S.2, p. SA.6 The statement in the first bullet (line 21) that sites with existing capability will continue to dispose of their own MLLW is misleading. Only Hanford and NTS [Nevada Test Site] have such capability and they were selected in the 2000 ROD as the sites for other DOE sites to use for MLLW disposal.

Response

The text in the Summary has been revised to clarify use of MLLW disposal capability.

Comments

L-0016/002

One preliminary suggestion - that new text should be marked off somehow - in a different font, in parentheses, something - so that the new comments can focus on what hasn't already been covered.

Response

Non-editorial changes in HSW EIS Volumes I and II are noted by change bars in the side margin.

Comments

L-0016/003

...the comments and answers were not adjacent [in the comment response volume.]

L-0016/005

To begin on a minor note, I would expect an agency that deals w/radionuclides to have a printer that can handle Greek letters. One of my suggestions was to add notations of the type of radiation each radionuclide produced - but the symbols α (alpha), β (beta) & γ (gamma) were replaced by dashes in the response volume

L-0016/006

...the comment #s and the response #s were badly matched, making it very difficult to say which response was to which comment- sometimes the comment # was as much as ten off from the response #.

L-0016/011

I made 553 (or 544-the numbering is not consistent) comments

Response

The Comment Response Document has been revised for easier reading.

Comments

L-0044/040

CRD, p. 3.95 (Re: Comment # 91) Adequately addressed, although the response should presumably reference Table G.3 (not Table G.4).

L-0044/041

CRD, p. 3.95-96 (Re: Comment #101) adequately addressed, although the Table number in the response appears incorrect (correct Table number is 5.34). According to this table (i.e., Radiological Consequences of Accidents at CWC), a "design-basis" earthquake may result in 3 LCFs, whereas a "beyond-design basis" earthquake results in 30 LCFs in an offsite population.

Response

DOE regrets the error in the revised draft HSW EIS.

Comments

L-0044/050

Vol. I, Sec. 6.19, p. 6.19 Table 6-1. DOE includes a superscript that reads, "(a) Interim status currently, final status in process." Interim status permits at Hanford were effectively terminated when the final Hanford RCRA Permit was issued in 1994. Several TSD units have been allowed to operate under interim status standards until final status standards could be developed and added to the Hanford RCRA Permit. DOE's superscript should be deleted or revised to read, "currently operating under interim status standards; final status standards being developed." (Reference: Letter, Greg Sorlie, Ecology, to Joel Hebdon, USDOE, "Rulemaking petition to amend the Dangerous Waste Regulations, Chapter 173-303 Washington Administrative Code," dated December 19, 2002).

Response

This table has been revised in response to the comment.

Comments

L-0044/084

Appendix A, pp. A.1 and A.28 It would helpful to the reader to include a clear statement as to whether, and if so, where, Section A.2 has changed from the first draft HSW-EIS. Also, the labeling of "Part 1" and "Part 2", with the latter then opening as section A.1, though the tables in Part 1 are labeled A.1 and A.2 , is quite confusing to the reader.

Response

The only notable changes made in Volume II Appendix A between the draft and the revised draft HSW EIS were the addition of scoping comments for the Immobilized Low Activity Waste Disposal Supplemental Environmental Impact Statement (67 FR 45104).

Information Content

Comments

TLG-0012/004

And I especially appreciate those graphics that you showed that rendered the volumes of materials that we're talking about. But I would like to see, in future documents, also some kind of graphic that shows this waste in terms of actual danger rather than volume, like if you could measure it in -- I notice there's a diagram here that talks about megacuries of different kinds of materials. And if you could show a graphic that, like your football field diagram, shows the actual radioactivity of these different kinds of waste so that those of us that don't really understand what this stuff is, we can at least grasp the danger of it and the potential risks involved, not necessarily just in terms of the volume of material that's going through here, but the different kinds of materials represent different levels of risk. And it's a bit misleading to just talk about cubic yards of material as if it's all the same risk.

TPO-0005/001

It [waste in the ground] has an effect on all of our lives. Not just the humans, but all the other creatures that live in our society.

TSE-0036/001

...whenever someone from the Department of Energy says the word risk, it sends chills up and down my spine. I mean, they have been deciding the risk for us for 50 years, and we are feeling the brunt of that right now.

Response

A synopsis of risks and impacts is presented in the Summary and are compared in Volume I Section 3.4.

Comments

L-0055/052

Transport of TRU to WIPP might result in 18 additional accidents. Is this figure still valid in light of the recent three incidences that occurred when waste was being transferred down to WIPP?

Response

Yes, the figure is still valid.

Comments

L-0044/101

Ecology received a copy of the West Valley Demonstration Project Waste Management Environmental Impact Statement for comment. Ecology noted that both the preferred Alternative A and the other Alternative B assume that LLW and MLLW will be transported to Hanford or the Nevada Test Site for disposal. Searching through the information provided in the RHSW EIS and SWIFT, reviewers could not determine if the volume of waste to be sent was included in the volume calculations for the Lower or Upper Bound volumes. Ecology requests that the USDOE add the volumes to those already in the RHSW EIS and analyze the impacts of receipt of those wastes for disposal.

Response

Volume I Section 1.5 and Volume II Appendix C have been revised to clarify this.

Comments

L-0055/067

DOE considers that many engineered structures and administrative or institutional controls have remained in place for several hundreds of years, in Europe for example, that this is considered a very conservative assumption. But if you look at examples in this country of places such as the Love Canal, you can see that off times, these waste sites are forgotten or lost. Even Hanford is replete with examples of lost burial sites with no records of what or where materials have been buried.

Response

Long-term stewardship activities are discussed in Volume I Section 2.2.7.

Comments

E-0043/066, EM-0217/066, EM-0218/066, L-0056/066, LM-0017/066, LM-0018/066

Measures such as establishing easements and deed restrictions or zoning and land-use restrictions have the potential for environmental impact; ecological, geological, and socio-economic to name just a few. Mitigation measures and activities should be quantitatively analyzed within the HSW EIS.

Response

The Hanford Central Plateau is expected to remain an industrial-exclusive zone as described in the Hanford Comprehensive Land-Use Plan Environmental Impact Statement (DOE 1999).

DOE does not and will not rely solely on long-term stewardship to protect people and the environment. As indicated in the DOE sponsored report "Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites" (National Research Council 2000), "contaminant reduction is preferred to contaminant isolation and the imposition of stewardship measures." Contaminant reduction is a large part of the ongoing cleanup efforts at Hanford. Most of the analyses in the HSW EIS are based on the assumption that long-term institutional controls would no longer be in effect 100 years after closure (about 2150 AD). Long-term groundwater impacts and subsequent human health impacts were determined based on the assumption that caps would degrade and eventually provide no protection (see Volume I Sections 5.3 and 5.11 and Volume II Appendices F and G). In addition, "intruder scenarios" are analyzed to determine the impacts of gaining access to the site (i.e., no institutional controls) and digging or drilling into waste sites. See Volume I Section 5.11.2.2 and Volume II Appendix F Section F.3. Further information on DOE's long-term stewardship activities can be found in the DOE Long-Term Stewardship Study (DOE 2001a). The discussions of long-term stewardship in Volume I Sections 2.2.7 and 5.18 of the HSW EIS have been revised in response to comments.

An expanded discussion of potential mitigation measures is in Volume I Section 5.18.

Comments

L-0035/003

I don't need to recite to you what's happening with all the radioactive trash that is currently at Hanford and the dangers to our Northwest region, the groundwater and the Columbia. You well know the dangers. ... I am concerned for your and my children, grandchildren and future generations, if they are to be.

L-0037/001

...it is apparent to me that you are not concerned about your or my grandchildren.

L-0055/009

In the EIS discussion long-term stewardship activities are intended to continue isolating hazards from people and the environment. Long term stewardship of nuclear waste is another large uncertainty that is untested and unknown. This is not a management strategy currently working at Hanford DOE. The tanks were never originally designed to leak and contaminate the ground water. The uranium spikes being seen in the ground water are not intentional. What guarantee will be available that funding is permanently and perpetually available for long-term stewardship? And what contingency funding is available if a leak is discovered from some of these isolated waste sites?

P-0098/002

They [the federal government] are creating a lethal, poisoned future for our children.

TSP-0010/005

How will future populations know how long to avoid this site.

Response

The Hanford Central Plateau is expected to remain an industrial-exclusive zone as described in the Hanford Comprehensive Land-Use Plan Environmental Impact Statement (DOE 1999).

A discussion of long-term stewardship is presented in Volume I Sections 2.2.3 and 2.2.7. Evaluations in the HSW EIS are based on the assumption of active institutional controls for 100 years after site closure. Passive institutional controls would be implemented after that time.

Radioactive waste disposal areas at Hanford and other DOE sites will remain under restricted access government control for as long as necessary.

Comments

E-0043/068, EM-0217/068, EM-0218/068, L-0056/068, LM-0017/068, LM-0018/068

Because the risks of nuclear waste release are so great, long-term stewardship is necessary regardless of where or how the waste is stored. At risk are natural resources such as the coastal oceans (fed by rivers running through the Savannah River Site and Hanford), irrigated farm lands, groundwater aquifers, and fisheries. Human health risks include increased incidence and severity of cancer and other diseases. For example, just one nuclear weapon processing site has the potential to induce cancer in every person currently on the planet, 208 million times over. The impacts on the regions designated as "national sacrifice areas" and their buffer zones also should be considered.

L-0044/075

2.2.7, pp. 2.40-41 There is no recognition that the "can include" list is incomplete when compared to DOE's own documents on long-term stewardship. Those documents recognize the need for information maintenance and management, public involvement and accountability, and contingency planning. See, for instance, the National Research Council's report Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites, Ch. 5.

L-0044/076

2.2.7, pp. 2.40-41 While actual requirements "are dependent on rules and regulations under which the specific cleanup and post-cleanup activities are performed," both USEPA and Ecology, using both CERCLA and closure under Washington's Hazardous Waste Management Act, have been clear that reliability of institutional controls is a requirement. There is no discussion of the reliability of institutional controls (e.g., there is no recognition that the Federal Government has refused to register contaminated sites under Colorado's environmental easement law.)

L-0044/078

Summary, Sec. S.1, pp. S.3 The fifth bullet (line 16) implies that the EIS is about closure and post-closure stewardship of on-site facilities. But the discussion of post-closure stewardship in the EIS (Sec. 2.2.7) is inadequate and contains no real information about specific actions and facilities at Hanford.

Long Term Stewardship

L-0044/140

Ecology also does not support the USDOE's statements that due to administrative controls, individuals will be prevented from drilling wells, drinking water, and living over buried waste for an extended time.

Response

DOE does not and will not rely solely on long-term stewardship to protect people and the environment. As indicated in the DOE sponsored report "Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites" (National Research Council 2000), "contaminant reduction is preferred to contaminant isolation and the imposition of stewardship measures." Contaminant reduction is a large part of the ongoing cleanup efforts at Hanford. Most of the analyses in the HSW EIS are based on the assumption that long-term institutional controls would no longer be in effect 100 years after closure (about 2150 AD). Long-term groundwater impacts and subsequent human health impacts were determined based on the assumption that caps would degrade and eventually provide no protection (see Volume I Sections 5.3 and 5.11 and Volume II Appendices F and G). In addition, "intruder scenarios" are analyzed to determine the impacts of gaining access to the site (i.e., no institutional controls) and digging or drilling into waste sites. See Volume I Section 5.11.2.2 and Volume II Appendix F Section F.3. Further information on DOE's long-term stewardship activities can be found in the DOE Long-Term Stewardship Study (DOE 2001a). The discussions of long-term stewardship in Volume I Sections 2.2.7 and 5.18 of the HSW EIS have been revised in response to comments.

Comments

E-0043/039, EM-0217/039, EM-0218/039, L-0056/039, LM-0017/039, LM-0018/039

Any plan to clean up nuclear waste in incomplete without a long-term stewardship plan. The HSW EIS fails to address the need for an ongoing, long-term funding mechanism in order to ensure that long-term stewardship continues for hundreds of years into the future.

Response

DOE does not and will not rely solely on long-term stewardship to protect people and the environment. As indicated in the DOE sponsored report "Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites" (National Research Council 2000), "contaminant reduction is preferred to contaminant isolation and the imposition of stewardship measures." Contaminant reduction is a large part of the ongoing cleanup efforts at Hanford. Most of the analyses in the HSW EIS are based on the assumption that long-term institutional controls would no longer be in effect 100 years after closure (about 2150 AD). Long-term groundwater impacts and subsequent human health impacts were determined based on the assumption that caps would degrade and eventually provide no protection (see Volume I Sections 5.3 and 5.11 and Volume II Appendices F and G). In addition, "intruder scenarios" are analyzed to determine the impacts of gaining access to the site (i.e., no institutional controls) and digging or drilling into waste sites. See Volume I Section 5.11.2.2 and Volume II Appendix F Section F.3. Further information on DOE's long-term stewardship activities can be found in the DOE Long-Term Stewardship Study (DOE 2001a). The discussions of long-term stewardship in Volume I Sections 2.2.7 and 5.18 of the HSW EIS have been revised in response to comments.

Charging DOE waste generators higher disposal costs is not expected to reduce the amount of waste generated by DOE sites or to increase the amount of waste reduction already occurring under the DOE pollution prevention and waste minimization program. The Pollution Prevention Act, Section 6002 of RCRA and several executive orders were enacted, in part, because it was recognized that (1) government organizations should make efforts to minimize the amount of waste they generate and (2) economic incentives generally do not work for government entities. For waste being disposed of at Hanford, the waste generator and the disposal facility are both part of the same government organization, the DOE. Although private companies can collect money today for work to be performed in later years, government organizations like DOE are precluded from collecting money to cover future costs (such as closure costs and long-term monitoring costs) without specific congressional approval.

The recent "Report to Congress - The Cost of Waste Disposal: Life Cycle Cost Analysis of Disposal of Department of Energy Low-Level Radioactive Waste at Federal and Commercial Facilities" (DOE 2002d) explains that waste disposal decisions should be made based on the total life-cycle cost of waste disposal. These decisions need to consider the costs for treatment, inspection and verification, disposal, closure, and long-term monitoring. The DOE pollution prevention and waste minimization program already requires waste disposal decisions to be made based on life-cycle costs and other factors. See Volume I Section 2.2.5 for a discussion of the DOE pollution prevention/waste minimization program.

Comments

L-0055/033

We are not able to resolve many of these issues because they reflect either differing points of view or uncertainties in predicting the future. DOE can not predict the future. Nor can they make statements like the ground water will not be used in the future. Nor that institutional control will adequately protect the people who choose to live in this area in the future.

Response

DOE does not and will not rely solely on long-term stewardship to protect people and the environment. As indicated in the DOE sponsored report "Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites" (National Research Council 2000), "contaminant reduction is preferred to contaminant isolation and the imposition of stewardship measures." Contaminant reduction is a large part of the ongoing cleanup efforts at Hanford. Most of the analyses in the HSW EIS are based on the assumption that long-term institutional controls would no longer be in effect 100 years after closure (about 2150 AD). Long-term groundwater impacts and subsequent human health impacts were determined based on the assumption that caps would degrade and eventually provide no protection (see Volume I Sections 5.3 and 5.11 and Volume II Appendices F and G). In addition, "intruder scenarios" are analyzed to determine the impacts of gaining access to the site (i.e., no institutional controls) and digging or drilling into waste sites. See Volume I Section 5.11.2.2 and Volume II Appendix F Section F.3. Further information on DOE's long-term stewardship activities can be found in the DOE Long-Term Stewardship Study (DOE 2001a). The discussions of long-term stewardship in Volume I Sections 2.2.7 and 5.18 of the HSW EIS have been revised in response to comments.

An expanded discussion of uncertainties associated with the HSW EIS impact analyses is included in Volume I Section 3.5.

Comments

E-0041/005

In response to a question about how long the site will be curated, the responder says that it will be under DOE control 'indefinitely'. Isn't this a rather too cavalier assertion of the immortality of bureaucracies? To date, no known bureaucracy has survived more than ~3000 yrs—and yet parts of this document, at least, purport to describe the future of the site out to 10,000 years from now—by which time the wastes at Hanford will not have become harmless—but the people who put them there will likely be long decayed themselves.

E-0043/067, EM-0217/067, EM-0218/067, L-0056/067, LM-0017/067, LM-0018/067

The nuclear waste at Hanford has an average half-life of 3,000 years, and therefore, "clean-up" at best means "safe storage." Long-term stewardship that extends over the next several centuries and millennia is necessary to ensure that the storage is safe and that human health and the environment are protected.

L-0044/020

Vol. I, Sec. S.7, p. S.26: The statement that the failure of institutional controls is very, if not overly conservative, is not well-supported. The National Research Council's report Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites, p. 52 says: "Often the real issue is not whether use restrictions will eventually fail, but when and what the consequences will be when they do."

L-0044/043

With regard to institutional controls and long term stewardship, the RHSW EIS takes a very cursory approach. Instead of mentioning the longevity of European society and buildings, please reference the vast number of documents that describe average time elapsed prior to institutional control failures.

Response

A discussion of long-term stewardship is presented in Volume I Sections 2.2.3 and 2.2.7. Evaluations in the HSW EIS are based on the assumption of active institutional controls for 100 years after site closure. Passive institutional controls would be implemented after that time.

Comments

L-0061/003

In the Waste Streams and Waste Management Facilities section, the DEIS states that waste will be disposed of in lined and unlined facilities based on whether the waste is considered to be low-level, mixed low level, or transuranic. The Department [of the Interior] recommends that any in-ground disposal of waste be in lined facilities that are designed to last as long as the waste is hazardous and/or radioactive. Operation and maintenance and monitoring plans should be clearly described in the FEIS to ensure that waste disposal sites do not result in unforeseen impacts to natural resources and to provide better data for analysis. We recommend that compliance sampling and monitoring be done at the anticipated release sites for groundwater and surface water, as opposed to the downstream location described in the DEIS. We also suggest that cleanup and monitoring be conducted based on effect concentrations of the various contaminants rather than the general definitions of low-level, mixed low level, and transuranic wastes provided in the DEIS.

Response

The preferred alternative as described in Volume I Section 3.7 is to dispose of low level waste in newly constructed lined disposal facilities as soon as they are available. For purposes of analysis the HSW EIS assumes this would occur by 2007. MLLW is currently being, and will continue to be, disposed of in lined facilities.

However, the use of unlined trenches for disposal of low level waste is an established, legal, and environmentally protective method of low level waste disposal at both DOE and commercial facilities. As such, it is a reasonable alternative, under CEQ regulations, and must be analyzed. The HSW EIS considers a wide range of alternatives for disposal of low level waste in both lined and unlined facilities. Lined trench alternatives include leak detection and leachate collection capabilities. In addition, groundwater monitoring would be done in compliance with applicable RCRA and State hazardous waste, TPA, and DOE requirements to validate the performance of the disposal facilities.

DOE does not and will not rely solely on long-term stewardship to protect people and the environment. As indicated in the DOE sponsored report "Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites" (National Research Council 2000), "contaminant reduction is preferred to contaminant isolation and the imposition of stewardship measures." Contaminant reduction is a large part of the ongoing cleanup efforts at Hanford. Most of the analyses in the HSW EIS are based on the assumption that long-term institutional controls would no longer be in effect 100 years after closure (about 2150 AD). Long-term groundwater impacts and subsequent human health impacts were determined based on the assumption that caps would degrade and eventually provide no protection (see Volume I Sections 5.3 and 5.11 and Volume II Appendices F and G). In addition, "intruder scenarios" are analyzed to determine the impacts of gaining access to the site (i.e., no institutional controls) and digging or drilling into waste sites. See Volume I Section 5.11.2.2 and Volume II Appendix F Section F.3. Further information on DOE's long-term stewardship activities can be found in the DOE Long-Term Stewardship Study (DOE 2001a). The discussions of long-term stewardship in Volume I Sections 2.2.7 and 5.18 of the HSW EIS have been revised in response to comments.

DOE maintains an extensive radiological and hazardous chemical monitoring network for groundwater, surface water, air, and biological resources. The results of these analyses are summarized in the annual Hanford Site Environmental Report (Poston et al. 2002) and the annual Groundwater Monitoring Report (Hartman et al. 2002).

Groundwater monitoring is conducted according to TPA requirements, the Hanford Dangerous Waste Management permit, and DOE Orders. Groundwater monitoring will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations.

Comments

L-0044/073

2.2.7, pp. 2.40-41 This section is inadequate. First, its three examples provide no information about the metrics to be used in making the choices relating to closure of burial grounds and facilities dealt with in this EIS. Nor do the examples indicate the metrics that might be used in making such decisions (e.g., it may or may not be impossible to get 100 per cent of the waste out of a tank, but it is technically possible to remove the tank and dispose of it somewhere else.) There is no indication of what measures would be used to assess relative risk of retrieving waste from "old burial grounds". There is no effort to connect this abstract discussion to the decisions that will be made under the umbrella of this EIS. How does this generic discussion of tanks and old burial grounds relate to closure of currently operating burial grounds and decommissioning and closure or removal of treatment and storage facilities?

Response

The long term stewardship discussions in Volume I Sections 5.18.9 and 2.2.7 have been revised.

Comments

E-0043/060, EM-0217/060, EM-0218/060, L-0056/060, LM-0017/060, LM-0018/060

Since DOE recognizes that area C may contain archeological sites, DOE should provide quantitative analysis of area C alternatives that present a lower risk of potential cultural resource impacts. DOE should also acknowledge that construction would be halted not simply until a professional evaluation was made, but until a non-biased professional evaluation was made that either determined that their would be no cultural resource impact or would provide a mitigation strategy satisfactory to all involved parties.

Response

Area C is not in the National Monument (65 FR 37253). In consultation with the U.S. Fish and Wildlife Service and the Washington State Department of Fish and Wildlife, Area C was designated for "conservation mining" land use in the Hanford Comprehensive Land-Use Plan EIS (DOE 1999). Area C was selected to avoid damaging an essential wildlife corridor between the Hanford Site and the Yakima Training Center.

An expanded discussion of potential mitigation measures is in Volume I Section 5.18.

Comments

L-0061/004

Habitat restoration is not directly discussed in the list of potential mitigation measures. The FEIS [Final Environmental Impact Statement] should identify habitat restoration as a mitigation method when existing habitats are impacted by construction activities associated with the solid waste program or where contaminants adversely affect habitat quality.

Response

Potential mitigation measures for addressing ecological impacts are described in Volume I Section 5.18.3, the Biological Resources Management Plan (BRMaP, DOE-RL 2001), and the Biological Resources Mitigation Strategy (BRMiS, DOE-RL 2003).

Comments

L-0041/017

Engineering design optimization must reflect the uncertainty in the contaminant inventory, waste form behavior, temporal variability, range of leaching behaviors, infiltration, and cap failure modes. Key redundancy features must be incorporated into the designs.

L-0041/052

DOE should ensure that engineering design optimization reflects the uncertainty in the contaminant inventory, waste form behavior, temporal variability, range of leaching behaviors, infiltration, and cap failure modes. For example, DOE should present a reasonable worst case scenario that indicates the amount of material that could be released in a year. If the design is effective, the modeled release should not adversely affect human health and the environment. DOE should not optimize the design to the extent that key redundancy features are not incorporated.

L-0041/055

Engineering design optimization must be reflective of the uncertainty in the contaminant inventory, waste form behavior, temporal variability, range of leaching behaviors, infiltration, and cap failure modes. DOE should not optimize the design to the extent that key redundancy features are not incorporated.

TSE-0031/011

The document does note that there is a lot of uncertainty about the cumulative impacts, but it does very little towards resolving those uncertainties.

Mitigation Measures

Response

An expanded discussion of uncertainties associated with the HSW EIS impact analyses is included in Volume I Section 3.5.

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated releases and levels of groundwater contamination. As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater at 1 km from the disposal facilities are expected to be below the benchmark drinking water standards. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

Comments

TLG-0002/006

We will urge the U.S. Department of Energy to adopt a defense, in-depth system, which must include line disposal trenches, which Mike says they're favoring now; extensive environmental monitoring at the points; and performance criteria for the waste form, the capping system and the disposal sites.

Response

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated releases and levels of groundwater contamination. As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater at 1 km from the disposal facilities are expected to be below the benchmark drinking water standards. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

Groundwater monitoring is conducted according to TPA requirements, the Hanford Dangerous Waste Management permit, and DOE Orders. Groundwater monitoring will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations.

Comments

L-0041/026

Page 5.244, Line 7-9 implies that federal Drinking Water Standards don't apply to Hanford groundwater. However, Washington Administrative Code 173-340 requires groundwater be restored to the highest beneficial standards, which it defines as meeting drinking water standards. It further clarifies an aquifer is considered a drinking water source unless it meets a set of criteria which the Hanford aquifer does not.

Response

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated releases and levels of groundwater contamination. As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater at 1 km from the disposal facilities are expected to be below the benchmark drinking water standards. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

Mitigation Measures

Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. The CERCLA process considers legally applicable Federal, State, and local laws or relevant and appropriate requirements (ARARs). Any decisions reached by DOE on the basis of analysis in the HSW EIS would be implemented in accordance with applicable Federal, State, and local laws and regulations. See Volume II Appendix N, Section N.2.4.

Comments

F-0024/007

Use Washington State standards for groundwater protection. At this rate, DOE "standards" will soon be non-existent!

L-0032/002, LM-0005/002, LM-0006/002, LM-0007/002, LM-0008/002, LM-0009/002, LM-0010/002, LM-0011/002, LM-0012/002, LM-0013/002, LM-0014/002, LM-0015/002, LM-0016/002

We will not accept the federal government's blatant disregard for the desires and laws of Washington State!

L-0039/019

DOE fails to address either the specific EPA or MTCA carcinogen-risk standards for radionuclides, or the State and Federal anti-degradation standards, which are applicable to this analysis.

Response

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated releases and levels of groundwater contamination. As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater at 1 km from the disposal facilities are expected to be below the benchmark drinking water standards. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

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It should be noted that the long-term impact analyses presented in the EIS are based upon conservative assumptions including loss of institutional control, barrier (cap) failure, and no continuing maintenance. CERCLA and MTCA standards and other comparative benchmarks used in the EIS are based upon different assumptions such as continuing institutional control and maintenance of barriers. When these types of assumptions are applied to the disposal action evaluated in the HSW EIS the long-term impacts are substantially reduced. The HSW EIS has been revised in response to comments concerning the overly conservative nature of the EIS evaluations, to provide perspective on long-term performance when assumptions of continuing human ability to maintain barriers and controls are utilized. See for example, discussion of assumption of intact barriers, Volume I Section 5.3.5 and Volume II Appendix G Section G.4.

Volume I Section 6 identifies the major statutes, permits, compliance agreements, and regulatory requirements followed in conducting operations at Hanford Site. Statutes include AEA, CERCLA, RCRA and the State of Washington Hazardous Waste Management Act. Volume I Section 6.3 discusses the TPA. Volume I Section 6.4 discusses the Dangerous Waste Management permit. Volume I Section 6.19 provides a summary of existing and potential permits (including state approved permits where state decision-making will be necessary) required to construct and operate treatment, storage, and disposal facilities related to the HSW EIS alternatives. Volume I Section 6 has been updated and revised in response to comments in the final HSW

EIS.

Comments

E-0047/022

Mitigation measures for vadose zone and groundwater protection from the effects of long-term disposal impacts are not addressed.

Response

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated releases and levels of groundwater contamination. As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater at 1 km from the disposal facilities are expected to be below the benchmark drinking water standards. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

An expanded discussion of potential mitigation measures is in Volume I Section 5.18.

Comments

TPO-0013/004

We have no adequate plan for prevention or mitigation of the risks involved, the ones of which we're already aware. And we will continue to discover, in the future, many additional risks of which we're not now aware.

Response

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW.

DOE does not and will not rely solely on long-term stewardship to protect people and the environment. As indicated in the DOE sponsored report "Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites" (National Research Council 2000), "contaminant reduction is preferred to contaminant isolation and the imposition of stewardship measures." Contaminant reduction is a large part of the ongoing cleanup efforts at Hanford. Most of the analyses in the HSW EIS are based on the assumption that long-term institutional controls would no longer be in effect 100 years after closure (about 2150 AD). Long-term groundwater impacts and subsequent human health impacts were determined based on the assumption that caps would degrade and eventually provide no protection (see Volume I Sections 5.3 and 5.11 and Volume II Appendices F and G). In addition, "intruder scenarios" are analyzed to determine the impacts of gaining access to the site (i.e., no institutional controls) and digging or drilling into waste sites. See Volume I Section 5.11.2.2 and Volume II Appendix F Section F.3. Further information on DOE's long-term stewardship activities can be found in the DOE Long-Term Stewardship Study (DOE 2001a). The discussions of long-term stewardship in Volume I Sections 2.2.7 and 5.18 of the HSW EIS have been revised in response to comments.

TPA Milestone M-15-00C requires all 200 Area, non-tank farm, pre-record of decision site investigation activities to be completed by December 31, 2008. Site characterization information generated from TPA remedial investigation and LLBG RCRA permitting activities has been used in development of the HSW EIS.

An expanded discussion of potential mitigation measures is in Volume I Section 5.18.

Comments

E-0043/037, EM-0217/037, EM-0218/037, L-0056/037, LM-0017/037, LM-0018/037

The HSW EIS lists some possible mitigation measures, but does not adequately analyze or consider them. Merely stating that "any mitigation plan(s), if necessary, would be prepared after the Record(s) of Decision is published" is not enough. DOE is presently able to quantitatively analyze the specific actions needed to redo or avoid potential environmental impacts for each of the alternatives, and should include this analysis within the HSW EIS analysis.

THR-0004/006

One of the things we do really want to recommend to the Department of Energy as they go through and finalize the EIS is that they go back and they look at themselves for some of the engineering accomplishments they have had in the past. One of the phrases that the Department of Energy use to use was a defense in depth. When you develop nuclear reactors, you develop redundant systems so you have defense in depth. We want to encourage them as they design landfills, as they design waste forms, and as they make performance specifications to their contractors, that they use a defense in depth concept. It's a way to help with the uncertainty that was talked about in the numerical models.

Response

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW.

An expanded discussion of potential mitigation measures is in Volume I Section 5.18.

Comments

E-0043/020, EM-0217/020, EM-0218/020, L-0056/020, LM-0017/020, LM-0018/020

All action alternatives are predicted to contaminate groundwater that flows to the Columbia River. Additional alternatives that do not contaminate groundwater that flows to the Columbia River should also be quantitatively analyzed, and strong mitigation measures reducing or contaminate groundwater that flows to the Columbia River should also be quantitatively analyzed, and strong mitigation measures reducing or stopping the contamination should be added to all the present action alternatives.

E-0043/056, EM-0217/056, EM-0218/056, L-0056/056, LM-0017/056, LM-0018/056

Analysis of the fact that the maximum containment [contaminant] levels are exceeded in all action alternatives or the cumulative impact of this upon existing contamination at Hanford [should be included in the cumulative impact analysis].

L-0062/004

We [Hanford Communities] share the concerns of the State of Washington regarding inadequate analysis of groundwater contamination and measures necessary to mitigate contamination in the groundwater. The conclusion that groundwater at Hanford is irretrievably and irreversibly committed due to long lived mobile radio nuclides is extremely troubling. We are concerned that in drawing this conclusion the Department of Energy will justify decisions to terminate efforts to capture and remove soil and groundwater contamination. Water in this region is a precious resource. We expect the Department of Energy to follow state and federal law and to continue to remove sources of contamination and mitigate contamination in the groundwater, both now and in the future, as new technologies become available.

Response

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS for future disposal of waste, including installation of barriers, liners, and leachate collection systems in disposal

Mitigation Measures

facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of high integrity containers (HICs) for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated levels of groundwater contamination.

As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater for previously disposed of waste and waste to be disposed of in the future are expected to be below the benchmark drinking water standards at 1-km from the disposal facilities. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

At disposal facility boundaries, benchmark drinking water standards would not be exceeded as a result of future disposal of waste. However, these standards could potentially be exceeded due to previously disposed of waste. Previously disposed of waste will be addressed by CERCLA or RCRA past-practice remedial action processes prior to closure of the LLBGs.

Comments

L-0044/119

Ecology does not support the USDOE's contention that levels of contamination in groundwater will be remain below 4 mrem for more than 12,000 years. The USDOE reported drinking water dose as committed effective dose equivalent, then compared it with the Drinking Water Standard for a 4 mrem per year committed dose equivalent limit promulgated by the USEPA for beta and gamma emitting radionuclides. The dose equivalent and effective dose equivalent differ by organ weighting factors; therefore, the comparison is invalid.

Ecology does not support the USDOE's contention that tank residuals will contribute less than 1 mrem to the drinking water dose 7,000 years onward.

Response

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS for future disposal of waste, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of high integrity containers (HICs) for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated levels of groundwater contamination.

As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater for previously disposed of waste and waste to be disposed of in the future are expected to be below the benchmark drinking water standards at 1-km from the disposal facilities. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

At disposal facility boundaries, benchmark drinking water standards would not be exceeded as a result of future disposal of waste. However, these standards could potentially be exceeded due to previously disposed of waste. Previously disposed of waste will be addressed by CERCLA or RCRA past-practice remedial action processes prior to closure of the LLBGs.

Drinking water doses reported in Volume I Section 5.11 are reported as CEDE for comparison with the DOE standard for dose to members of the public in DOE Order 5400.5 (DOE 1993). The 4 mrem/y DOE drinking water standard is intended to provide a level of protection comparable to the 4 mrem/y total body standard in 40 CFR 141. For a direct comparison to the 40 CFR 141 standards, groundwater concentrations are compared to the MCLs, as reported in Volume I Section 5.3 and Volume II Appendix G. That comparison is equivalent to calculating the total body CEDE or specific organ CDE, which is the basis for the MCLs.

The evaluations in the HSW EIS were prepared using accepted standard methodologies, such as "Federal Guidance Report 13 Cancer Risk Coefficients for Environmental Exposure." DOE and EPA use FRG-13 for radiological risk assessment. EPA also uses FRG-13 and related guidance for chemical exposure health impact analysis in its Integrated Risk Information System (IRIS). See Volume I Section 5.11 and the Volume II appendices for more discussion on methodologies used in the HSW EIS.

Comments

L-0049/002

The draft HSW EIS discusses mitigation measures in greater detail but proposes delaying adoption of these measures until reviews of performance measures following project implementation indicate the need to use them. In lieu of this approach, we strongly recommend that action alternatives incorporate these mitigation measures (which largely focus on treatment) as integral elements and factor the reduced impacts arising from use of these measures into the effects' analysis. We also believe that including prescriptive mitigation measures as part of action alternatives might be necessary to meet groundwater standards when groundwater impacts are evaluated at the correct point of compliance.

Response

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS for future disposal of waste, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of high integrity containers (HICs) for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated levels of groundwater contamination.

As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater for previously disposed of waste and waste to be disposed of in the future are expected to be below the benchmark drinking water standards at 1-km from the disposal facilities. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

At disposal facility boundaries, benchmark drinking water standards would not be exceeded as a result of future disposal of waste. However, these standards could potentially be exceeded due to previously disposed of waste. Previously disposed of waste will be addressed by CERCLA or RCRA past-practice remedial action processes prior to closure of the LLBGs.

The maximum point of impact from multiple and widely dispersed sources may not necessarily be directly underneath the Low Level Burial Grounds or at the Low Level Burial Ground boundary. To model the groundwater impacts from multiple and widely dispersed disposal units over long periods of time, a 1-km point of analysis location was deemed to be more appropriate and representative than a regulatory point of compliance well location, for purposes of NEPA analysis. The point of analysis approach is considered technically appropriate for a NEPA evaluation of groundwater impacts over the long-term (10,000 years) time period analyzed. The 1-km point of analysis is not intended to represent the proposed locations for actual monitoring wells that would be used during the operational and closure time period. Groundwater impacts at the facility boundary (about 100 meters) have been added to the impacts identified for the preferred alternative and are discussed qualitatively for the other alternatives. A discussion of the differences between the 1-km point of analysis and the disposal facility boundary is provided in Volume I Section 5.3 and Volume II Appendix G.

Comments

L-0049/001

U.S. EPA is pleased that the revised draft HSW EIS significantly addresses issues that we raised during our review of the earlier draft HSW EIS. The revised draft analyzes alternatives that we recommended, including the use of single, deep, lined trenches (i.e. megatrench), and provides more information on mitigation measures. While these changes have improved the quality of the EIS, we do have some environmental concerns due to the document's lack of information and analyses highlighting the differences in environmenta effects among alternatives (including effects of mitigation measures) and ensuring compliance with applicable environmental standards. We have consequently rated the revised draft EIS, EC-2 (Environmental Concerns-Insufficient Information).

Specific information that should be contained in the final EIS includes:

· additional groundwater analyses reflecting a wider range of prediction that would complement existing analysis;

· more detailed analyses allowing the decision-maker and readers to understand the difference in environmental effects among alternatives.

· additional analysis of groundwater effects at the point of compliance, the facility boundary; and

· prescribed mitigation measures with the effects of such measures incorporated into the effects analysis.

We believe that the evaluating groundwater impacts at the correct point of compliance (i.e. facility boundary as required by 40 CFR 264.95) may compel inclusion of prescriptive mitigation measures as part of action alternatives to ensure that groundwater standards are met. In contrast, the revised draft HSW EIS discusses mitigation measures in a general way and states that the decision to implement these measures would be based on reviews of performance assessments. The final EIS should demonstrate that the agency-preferred alternative would comply with groundwater standards, as required by the Record of Decision for the Department of Energy's Waste Management Program: Treatment and Disposal of Low-Level Waste and Mixed Low-Level Waste (65 FR 10061).

Response

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS for future disposal of waste, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of high integrity containers (HICs) for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated levels of groundwater contamination.

As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater for previously disposed of waste and waste to be disposed of in the future are expected to be below the benchmark drinking water standards at 1-km from the disposal facilities. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

At disposal facility boundaries, benchmark drinking water standards would not be exceeded as a result of future disposal of waste. However, these standards could potentially be exceeded due to previously disposed of waste. Previously disposed of waste will be addressed by CERCLA or RCRA past-practice remedial action processes prior to closure of the LLBGs.

The maximum point of impact from multiple and widely dispersed sources may not necessarily be directly underneath the Low Level Burial Grounds or at the Low Level Burial Ground boundary. To model the groundwater impacts from multiple and widely dispersed disposal units over long periods of time, a 1-km point of analysis location was deemed to be more appropriate and representative than a regulatory point of compliance well location, for purposes of NEPA analysis. The point of analysis approach is considered technically appropriate for a NEPA evaluation of groundwater impacts over the long-term (10,000 years) time period analyzed. The 1-km point of analysis is not intended to represent the proposed locations for actual monitoring wells that would be used during the operational and closure time period. Groundwater impacts at the facility boundary (about 100 meters) have been added to the impacts identified for the preferred alternative and are discussed qualitatively for the other alternatives. A discussion of the differences between the 1-km point of analysis and the disposal facility boundary is provided in Volume I Section 5.3 and Volume II Appendix G.

An expanded discussion of potential mitigation measures is in Volume I Section 5.18.

DOE evaluates the performance of each disposal facility in detail to ensure the facility meets the DOE Performance Assessment requirements. If groundwater contamination in excess of applicable limits were predicted by the Performance Assessment process, changes in the waste acceptance criteria would be made to limit disposal of the waste causing the groundwater contamination. The waste would require further treatment prior to disposal or would be stored until a method was found to treat or dispose of the waste.

Comments

L-0044/113

It appears to us that USDOE is asserting that the groundwater under Hanford is irretrievable and irreversible committed due to long-lived mobile radionuclides in existing disposal areas. If this is DOE's assertion, it is not supported by data, and more importantly, such a claim is not a basis to avoid mitigation.

Response

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS for future disposal of waste, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of high integrity containers (HICs) for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated levels of groundwater contamination.

As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater for previously disposed of waste and waste to be disposed of in the future are expected to be below the benchmark drinking water standards at 1-km from the disposal facilities. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

At disposal facility boundaries, benchmark drinking water standards would not be exceeded as a result of future disposal of waste. However, these standards could potentially be exceeded due to previously disposed of waste. Previously disposed of waste will be addressed by CERCLA or RCRA past-practice remedial action processes prior to closure of the LLBGs.

The discussion of Irreversible and Irretrievable Commitments of Resources in Volume I Section 5.15 has been revised in this EIS.

Comments

L-0039/018

This draft EIS analysis shows all alternatives exceed regulatory limits. DOE uses as its benchmark in the HSW EIS the DOE 25 millirem all sources limit. This dose, however, is not the legally controlling standard for cleanup decisions or for permitting of mixed waste facilities. This dose is greater than the EPA's and State's required regulatory risk ranges.

L-0055/013

In addition, the levels that DOE sets for protecting human health are questionable. They use a level of 25 millirems, yet EPA's formal finding was that 25 millirem is not protective of human health and the environment as CERCLA cites. 15 millirems per year is the agreed upon exposure limit.

Response

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS for future disposal of waste, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of high integrity containers (HICs) for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated levels of groundwater contamination.

As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater for previously disposed of waste and waste to be disposed of in the future are expected to be below the benchmark drinking water standards at 1-km from the disposal facilities. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

At disposal facility boundaries, benchmark drinking water standards would not be exceeded as a result of future disposal of waste. However, these standards could potentially be exceeded due to previously disposed of waste. Previously disposed of waste will be addressed by CERCLA or RCRA past-practice remedial action processes prior to closure of the LLBGs.

DOE and NRC regulated LLW disposal facilities are subject to the 25 mrem per year standard in DOE Order 435.1 (DOE 2001b) and 10 CFR 61, respectively. The Washington State Department of Health has adopted the NRC standard. EPA has not promulgated a 15 mrem per year standard.

Comments

E-0047/007

DOE's reliance on a 25 millirem dose standard is inconsistent with EPA's guidelines that recognize that this level of exposure is not protective of human health.

Question # 11- What is the maximum radioactive exposure that DOE assumes will be protective of human health and the environment?

Question # 12- Does DOE recognize that under State law (MTCA) contamination that is not protective of human health and the environment would be illegal and thus DOE must consider the level at which such an impact would occur? Please explain.

DOE is legally obligated to consider the MTCA and EPA carcinogen-risk standards for radionuclides and should revise the draft EIS with these standards as the applicable benchmark for considering effects.

Response

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS for future disposal of waste, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of high integrity containers (HICs) for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated levels of groundwater contamination.

As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater for previously disposed of waste and waste to be disposed of in the future are expected to be below the benchmark drinking water standards at 1-km from the disposal facilities. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

At disposal facility boundaries, benchmark drinking water standards would not be exceeded as a result of future disposal of waste. However, these standards could potentially be exceeded due to previously disposed of waste. Previously disposed of waste will be addressed by CERCLA or RCRA past-practice remedial action processes prior to closure of the LLBGs.

DOE and NRC regulated LLW disposal facilities are subject to the 25 mrem per year standard in DOE Order 435.1 (DOE 2001b) and 10 CFR 61, respectively. The Washington State Department of Health has adopted the NRC standard. EPA has not promulgated a 15 mrem per year standard.

DOE believes that it has considered the applicable legal requirements in evaluating the potential impacts of proposed action and its alternatives. See Volume I Section 6.

It should be noted that the long-term impact analyses presented in the EIS are based upon conservative assumptions including loss of institutional control, barrier (cap) failure, and no continuing maintenance. CERCLA and MTCA standards and other comparative benchmarks used in the EIS are based upon different assumptions such as continuing institutional control and maintenance of barriers. When these types of assumptions are applied to the disposal action evaluated in the HSW EIS the long-term impacts are substantially reduced. The HSW EIS has been revised in response to comments concerning the overly conservative nature of the EIS evaluations, to provide perspective on long-term performance when assumptions of continuing human ability to maintain barriers and controls are utilized. See for example, discussion of assumption of intact barriers, Volume I Section 5.3.5 and Volume II Appendix G Section G.4.

Comments

L-0052/003

The Nez Perce Tribe considers the protection, preservation and perpetuation of cultural resources at Hanford for future generations in a spirit of stewardship to be of the utmost priority. It should be noted that biological resources and other natural resources are considered cultural resources by the Nez Perce Tribe [NPT].

DOE recognizes there is a disproportionate impact of the alternatives in this EIS on the natural and cultural resources of the tribal nations (as stated in Section 5.13, Volume I). The NPT recognizes an inherent right to those resources, and understands DOE has the obligation to honor and protect those resources. How does DOE intend to mitigate the inequities caused by these impacts? Furthermore, can we truly expect LTS [long-term stewardship] measures to last 8,000 to 10,000 years?

The ERWM is concerned about the future of the LTS and Institutional Control (IC) decisions made by DOE Office of Environmental Management, when this responsibility will be deferred to the DOE Office of Legacy Management (OLM) beginning in FY 2004. The HSW EIS makes no mention of how the LTS functions will transition into the new OLM. Where is the infrastructure for LTS, and what insures its viability? The 2004 budget for the OLM is not sufficient to give the ERWM confidence that long-term stewardship issues will be adequately addressed regarding the waste being discussed in this EIS.

Because of these long-term stewardship concerns, the HSW-EIS in its current configuration is insufficient to persuade the NPT and the ERWM to support the activities proposed in any of the alternatives. The decisions determined within these alternatives will not protect the resources, including water, which are sacred to the NPT. ERWM does not feel that the level of awareness of LTS as expressed by DOE in this EIS is adequate.

Response

DOE is cognizant of the concern of Native Americans and others regarding operations at Hanford. Extensive effort has been made to provide quantitative analysis of potential impacts.

DOE does not and will not rely solely on long-term stewardship to protect people and the environment. As indicated in the DOE sponsored report "Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites" (National Research Council 2000), "contaminant reduction is preferred to contaminant isolation and the imposition of stewardship measures." Contaminant reduction is a large part of the ongoing cleanup efforts at Hanford. Most of the analyses in the HSW EIS are based on the assumption that long-term institutional controls would no longer be in effect 100 years after closure (about 2150 AD). Long-term groundwater impacts and subsequent human health impacts were determined based on the assumption that caps would degrade and eventually provide no protection (see Volume I Sections 5.3 and 5.11 and Volume II Appendices F and G). In addition, "intruder scenarios" are analyzed to determine the impacts of gaining access to the site (i.e., no institutional controls) and digging or drilling into waste sites. See Volume I Section 5.11.2.2 and Volume II Appendix F Section F.3. Further information on DOE's long-term stewardship activities can be found in the DOE Long-Term Stewardship Study (DOE 2001a). The discussions of long-term stewardship in Volume I Sections 2.2.7 and 5.18 of the HSW EIS have been revised in response to comments.

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and Volume II Appendixes F and L.

Comments

E-0043/061, EM-0217/061, EM-0218/061, L-0056/061, LM-0017/061, LM-0018/061

DOE should recognize that the impacts of sauna/sweat lodge scenario shown in table S.3 will likely have a disproportional impact on Native Americans. This is an environmental justice impact and should be quantitatively analyzed and reported on as such for all alternatives. Native Americans residing in the areas near the Hanford Site use saunas/sweat lodges as part of their cultural and religious practices and traditions. Additionally, all possible impacts on Native American populations who by treaty right may enter the Hanford Site should be analyzed quantitatively separate from the analysis of impacts on 'intruders' and the general public within the Hanford Site vicinity.

Response

DOE is cognizant of the concerns of Native Americans and others that operations at Hanford, including those discussed in this HSW EIS, could potentially adversely impact Native Americans and their lifestyle. This HSW EIS includes discussion of potential impacts to cultural resources in Volume I Section 5.7, aesthetic and scenic resources in Volume I Section 5.12, and environmental justice in Volume I Section 5.13.

The HSW EIS uses two exposure scenarios to evaluate the potential impacts to humans from solid waste management activities: industrial and resident gardener (agricultural). For waterborne pathways, an additional analysis has been performed for the resident gardener scenario to include a sauna/sweat lodge exposure pathway (indicated in the result tables of Volume II Appendix F as the hypothetical resident gardener with sauna/sweat lodge). These scenarios were chosen to represent a range of habits and conditions for potential exposures. The industrial and resident gardener scenarios are based on the recommendations presented in the Hanford Site Risk Assessment Methodology (HSRAM) as adopted by the TPA. These scenarios are based on the concept of reasonable maximum exposure as recommended by EPA for which the most conservative parameter is not always used. The resident gardener with a sauna/sweat lodge scenario also includes exposure to waterborne contamination used in a sweat lodge or sauna. The resident gardener with a sauna/sweat lodge scenario is only applied to waterborne pathways because the airborne pathways do not contribute to the sauna/sweat lodge exposure pathways. See Volume II Appendix F.

Comments

L-0055/012

This EIS is just evaluating new MLLW and LLW brought in for disposal at Hanford. It is not looking at all the other waste currently buried or disposed of on site. This new waste will result in an exposure of up to 3000 mrem per year and a 1 in 10 fatality of Native Americans and others living on this site who wishes to practice their Native American way of life. The death of 10 percent of our population is not acceptable. This will result in not only the death of our people, but also the disruption in our ability to pass on our culture. These deaths are principally associated from exposure to uranium.

L-0055/032

The disposal of solid waste would add only a small contribution to projected doses for people in the highly unlikely event that they were to drink from groundwater. However, the “unlikely” use of saunas and sweat lodges would result in doses at about 8,000 years hence that “might” be of concern. Mitigation plans include land-use covenants and active and passive institutional controls for as long as needed in the future. This just reflects DOE’s lack of concern for the Native Americans and the Native American lifestyle. It is DOE’s assumption that a sweat lodge is unlikely.

Response

DOE is cognizant of the concerns of Native Americans and others that operations at Hanford, including those discussed in this HSW EIS, could potentially adversely impact Native Americans and their lifestyle. This HSW EIS includes discussion of potential impacts to cultural resources in Volume I Section 5.7, aesthetic and scenic resources in Volume I Section 5.12, and environmental justice in Volume I Section 5.13.

Native American Concerns

As stated in Volume I Section 6.13, none of the activities involved in the HSW EIS would occur on open and unclaimed lands.

Comments

L-0054/004

USDOE's non-responsiveness has denied Tribal policy makers from ensuring that Treaty rights and resources are protected as part of the action. USDOE's actions are inappropriate given the significance of impacts associated with the proposed action that include: tribal human health, cultural and ecological resources, direct and indirect cumulative impacts, and environmental justice.

Response

DOE is cognizant of the concerns of Native Americans and others that operations at Hanford, including those discussed in this HSW EIS, could potentially adversely impact Native Americans and their lifestyle. This HSW EIS includes discussion of potential impacts to cultural resources in Volume I Section 5.7, aesthetic and scenic resources in Volume I Section 5.12, and environmental justice in Volume I Section 5.13.

Uranium migrates very slowly through the ground and is not expected to impact areas much greater than one kilometer beyond the disposal facility boundaries within the next 10,000 years. In addition, access to the groundwater at depths of several hundred feet would require industrial techniques.

As stated in Volume I Section 6.13, none of the activities involved in the HSW EIS would occur on open and unclaimed lands.

Comments

L-0054/001

In developing the SWEIS, USDOE failed to implement its trust responsibility to consult with the Yakama Nation (YN). Such consultation is mandatory, and is to be initiated by USDOE as a partial fulfillment of the legally enforceable trust obligation. … Provision of draft EIS documents to a Tribal government does not constitute consultation. Consultation entails government-to-government interactions in accordance with formal communication protocols.

Response

DOE has made efforts to involve and coordinate with the Yakama Nation during the development of the HSW EIS. After informal discussions, DOE formally agreed on April 13, 1998 to a Yakama Nation request to help prepare the HSW EIS. Yakama Nation staff participated in the preparation of the HSW EIS for a time. After formal and informal inquiries from DOE regarding continued participation the Yakama Nation formally decided on February 27, 2003 it no longer wanted to help prepare the HSW EIS. Correspondence between DOE and the Yakama Nation on the HSW EIS is included in Volume I Section 7 of the HSW EIS and in the administrative record. Copies of the HSW EIS were formally and informally provided to the Yakama Nation for comment. DOE is working and will continue to work with the Yakama Nation to improve timeliness, regularity, and frequency of communication at the staff and higher levels on all matters including preparation of environmental impact statements.

Comments

L-0055/035

For these reasons we believe the estimate of 10% death rate for our [Umatilla Indian] future generations living at Hanford is an underestimate. However, even if we were to assume that the 10% death rate were accurate, it is still extremely unacceptable. One must ask themselves if they would be willing to assume this risk for their families. I think the answer for each of us would be a resounding NO! Such a decision by DOE represents the worst kind of environmental injustice imaginable as they are knowingly and willingly establishing conditions that will kill a major portion of a minority people.

L-0055/036

To our [Umatilla Indian] nation the death of 10% of our future generation represents to us not just the death of our people, but also the disruption in our ability to pass on our culture. These deaths are principally associated from exposure to uranium. Many of the other radionuclides were not included in this EIS. It is our belief that this may even be an understatement of the number of fatalities that would result from the disposal of the MLLW and the LLW at Hanford. In addition, we believe that the time-scale may be in error. The migration of radionuclides into the ground water has consistently occurred much sooner than DOE has predicted or modeled, we believe that the peak in the dosage may also occur sooner than DOE has lead us to believe. Institutional Controls would be inadequate to protect our people from these hazards. This area is the traditional homeland of the Tribes of this area. Our Tribes would like to reoccupy these lands when DOE has left. They must be protected from these hazards for all time.

L-0055/044

In Table S.3, that for the Native American or resident gardener who has a sweat lodge or sauna, the chance of getting cancer from the upper bound waste scenario is 1 in 10. This is not an acceptable risk to the Native Americans. Even the other communities have a 1 in 50 or 1 in 200 chance. These are still unacceptable risk numbers. For fatalities greater than 10,000, the analysis only looked at the areas in the Tri-Cities, WA and in Portland, OR. In addition, the risk is understated since the analysis was for a hypothetical well located 1 km from the boundary of the burial site. This understates the potential contamination. For regulatory purposes, the danger should be calculated at the burial grounds boundary.

L-0055/047

A hypothetical Native American or resident gardener with a sweat lodge or sauna, has, within a 10,000 year period, a chance of a cancer fatality of 1 in 10. This is primarily due to uranium in the ground water. There is currently uranium in the ground water under the 200 area and there has been a recent increase in the uranium plume in the 300 area. In addition, scenarios should be evaluated for other radionuclides. A 1 in 10 fatality from cancer in unacceptable and shocking that this would be allowed.

Response

Uranium migrates very slowly through the ground and is not expected to impact areas much greater than one kilometer beyond the disposal facility boundaries within the next 10,000 years. In addition, access to the groundwater at depths of several hundred feet would require industrial techniques.

The maximum point of impact from multiple and widely dispersed sources may not necessarily be directly underneath the Low Level Burial Grounds or at the Low Level Burial Ground boundary. To model the groundwater impacts from multiple and widely dispersed disposal units over long periods of time, a 1-km point of analysis location was deemed to be more appropriate and representative than a regulatory point of compliance well location, for purposes of NEPA analysis. The point of analysis approach is considered technically appropriate for a NEPA evaluation of groundwater impacts over the long-term (10,000 years) time period analyzed. The 1-km point of analysis is not intended to represent the proposed locations for actual monitoring wells that would be used during the operational and closure time period. Groundwater impacts at the facility boundary (about 100 meters) have been added to the impacts identified for the preferred alternative and are discussed qualitatively for the other alternatives. A discussion of the differences between the 1-km point of analysis and the disposal facility boundary is provided in Volume I Section 5.3 and Volume II Appendix G.

DOE does not and will not rely solely on long-term stewardship to protect people and the environment. As indicated in the DOE sponsored report "Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites" (National Research Council 2000), "contaminant reduction is preferred to contaminant isolation and the imposition of stewardship measures." Contaminant reduction is a large part of the ongoing cleanup efforts at Hanford. Most of the analyses in the HSW EIS are based on the assumption that long-term institutional controls would no longer be in effect 100 years after closure (about 2150 AD). Long-term groundwater impacts and subsequent human health impacts were determined based on the assumption that caps would degrade and eventually provide no protection (see Volume I Sections 5.3 and 5.11 and Volume II Appendices F and G). In addition, "intruder scenarios" are analyzed to determine the impacts of gaining access to the site (i.e., no institutional controls) and digging or drilling into waste sites. See Volume I Section 5.11.2.2 and Volume II Appendix F Section F.3. Further information on DOE's long-term stewardship activities can be found in the DOE Long-Term Stewardship Study (DOE 2001a). The discussions of long-term stewardship in Volume I Sections 2.2.7 and 5.18 of the HSW EIS have been revised in response to comments.

As stated in Volume I Section 6.13, none of the activities involved in the HSW EIS would occur on open and unclaimed lands.

Comments

E-0055/022

DOE lacks basic knowledge about subsurface fate and transport. DOE has been repeatedly embarrassed by the failure of models to withstand the tests of time. The Board has little confidence that DOE can predict the future impacts or risks from its proposed actions with any certainty. Lacking such analysis capability for impacts to the soil and groundwater immediately beneath the proposed waste disposal facilities, DOE lacks the basic information required to make decisions about the sizes, locations or designs of these facilities.

L-0044/028

[Vol. I, Sec. 3.5, App. L.] (Re: Comment # 171) Although cumulative impacts are discussed (e.g., SAC model), limitations of the assessment are not described in a meaningful way.

TLG-0011/001

The plain fact of the matter is all those pretty differential equations, and I taught them, have to do with homogeneous media, in other words, everything looks the same. It's all sand or it's all nice soil and all of that stuff. When you start looking at anybody that's rafted these rivers or climbed these canyons understands perfectly what the situation is. You see all those cracks, those fissures. It [predicting the amount of radioactive material that has reached the Columbia River] would be like trying to predict what a marble shot up into a pinball machine is going to do. I dare anyone to do that. Of course, it's undoable. That's exactly the situation we face, which we're faced with. That's why it's crucial to get the water stopped. All the leakage has to be stopped. There will be no predicting this, let's be clear about that. All of that stuff needs to be kept into account. A lot of this stuff is, in fact, fairly easy in intuit. The other one that needs to be mentioned, any solution that talks about incasing, storing, or shielding, this stuff's energetic. It's radiation. It transmutes by definition. Anything it hits starts to get brittle, starts to crack, starts to change. It denatures stuff. Literally, that's what it does. And that's why there's a lot of unknowables in all of this

Response

The impact evaluation models (groundwater, air, exposure, transportation) are discussed in Volume I Section 5 and the Volume II appendices. The assessments in the HSW EIS are based on the data and assumptions used in these models. Limitations and uncertainties in modeling, data, and assumptions are discussed in Volume I Section 3.5 and throughout the HSW EIS Volumes I and II.

Comments

L-0034/005

The SEIS provides sophisticated modeling output data, as well as a cumulative risk analysis, but does not present a complete inventory of either radionuclides or conventional hazardous waste contamination already at Hanford. In fact, because of the lack of characterization of much contamination, both on site and from imported waste streams, which provide input data to the models, model output data would appear to be suspect.

Response

The impact evaluation models (groundwater, air, exposure, transportation) are discussed in Volume I Section 5 and the Volume II appendices. The assessments in the HSW EIS are based on the data and assumptions used in these models. Limitations and uncertainties in modeling, data, and assumptions are discussed in Volume I Section 3.5 and throughout the HSW EIS Volumes I and II.

Hazardous chemicals in MLLW have been characterized and documented since the implementation of RCRA at DOE facilities beginning in 1987. MLLW currently in storage, and MLLW that may be received in the future, would be treated to applicable state or federal standards for land disposal. Therefore, disposal of that waste is not expected to present a hazard over the long term because the hazardous constituents would either be destroyed or stabilized by the treatment. Inventories of hazardous materials in stored and forecast waste are either very small, or consist of materials with low mobility. See Volume II Appendixes F and G.

Inventories of hazardous chemicals in waste were not generally maintained by industries in the United States prior to the implementation of RCRA. Consistent with these general practices, inventories of hazardous chemicals in radioactive waste were not required to be determined or documented before the application of RCRA to radioactive mixed waste at DOE facilities in late 1987. Wastes placed in the LLBGs before late 1987 have not been specifically characterized for hazardous chemical content, but they have been evaluated in the EIS alternatives relative to their radionuclide inventories. In addition, preliminary estimates of chemical inventories in this waste have been developed for analysis in the HSW EIS, and a summary of their potential impacts on groundwater has been added to Volume I Section 5.3 and Volume II Appendix G.

In addition, the October 23, 2003 Settlement Agreement contains proposed milestones in the M-91-03-01 Tri-Party Agreement Change Package for retrieval and characterization of suspect TRU waste retrievably stored in the Hanford LLBGs (United States of America and Ecology 2003). As part of that agreement, DOE will manage the retrievably stored LLBG waste under the following assumptions: (1) all retrievably stored suspect TRU waste in the LLBGs is potentially mixed waste; and (2) retrievably stored suspect TRU waste will be managed as mixed waste unless and until it is designated as non-mixed through the WAC 173-303 designation process.

Interactions among different types of waste that could potentially mobilize radionuclides have also been considered as part of the HSW EIS analysis. However, such interactions typically require specific chemical environments or large volumes of liquid as a mobilizing agent, neither of which are known to be present in the solid waste disposal facilities currently in use (see discussion in Volume II Appendix G). Possible effects of this type could be mitigated by selecting candidate disposal sites to avoid placing waste in locations where previous contamination exists.

Waste sites and residual soil contamination remaining at Hanford over the long term, and which are not specifically evaluated as part of the HSW EIS alternatives, have been evaluated previously as part of NEPA or CERCLA reviews. In those studies, the risks associated with older solid waste burials, tank waste residuals and leaks, and contaminated soil sites were found to be very small, even for alternatives that considered stabilization of the waste in place (DOE 1987, DOE and Ecology 1996, Bryce et al. 2002). Further evaluation of tank wastes is anticipated in the "Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single-Shell Tanks at the Hanford Site" (68 FR 1052). The cumulative groundwater impacts analysis in the HSW EIS also includes those wastes, as described in Volume I Section 5.14 and Volume II Appendix L.

DOE plans to characterize pre-1970 inactive burial grounds and contaminated soil sites, as well as the active LLBGs considered in the HSW EIS alternatives, under the RCRA past practice or CERCLA processes to determine whether further remedial action would be required before the facilities are closed. As part of that process, the long-term risks from these wastes would either be confirmed to be minimal, or the waste would be remediated by removal, stabilization, or other remedial actions to reduce its potential hazard. In all cases, the impacts from these previously disposed wastes would be the same for all alternative groups considered in the HSW EIS, and would not affect the comparisons of impacts among the alternatives or the decisions made regarding disposal of waste received in the future.

Comments

TPO-0007/003

We're concerned about the tone of the Environmental Impact Statement also. This statement was intended to tier down from the Programmatic EIS, and should have analyzed whether the decisions made in the Programmatic EIS were right for Hanford. Instead, it assumes they are right for Hanford and tries to analyze the impacts.

NEPA Compliance

Response

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS decisions regarding certain TRU, LLW, and MLLW streams. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

Comments

L-0039/002

The Board has previously advised the Department of Energy (DOE) to analyze the cumulative impacts from all Hanford wastes on Hanford soil, groundwater, the Columbia River and the people living downstream from Hanford. DOE has promised this analysis since 1997 in the Waste Management Programmatic EIS (WMPEIS). This HSW EIS provided DOE the appropriate opportunity to conduct that analysis. DOE chose not to.

L-0039/003

The revised draft HSW EIS is not a site-wide EIS. We advise DOE to first integrate all Hanford-specific actions into a Hanford site-wide EIS to determine the aggregate impacts from all Hanford cleanup actions and decisions. Once that is done, then DOE can perform an analysis of the impacts of receiving, treating and disposing of offsite wastes destined for Hanford, combining the results of that analysis with the Hanford-only waste analysis to achieve a truly cumulative analysis of the impact of DOE's proposals.

Response

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS decisions regarding certain TRU, LLW, and MLLW streams. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

Comments

L-0055/037

There is very little discussion on the capacities of the remainder of the waste complex and a comparison and projection of waste, final treatment and disposition and location to be stored. It is very difficult to understand this decision without knowledge of the total volume of waste nation wide[;] how much existing capacity is at the Waste Isolation Pilot Plant in New Mexico, Yucca Mountain and the Nevada Test Site and what the limits may be. Decisions at those facilities will ultimately translate into waste either staying at Hanford or coming to Hanford. What is the projected volume of commercial high level waste as opposed to federally owned? What is the capacity at Yucca Mountain? Will WIPP be able to receive all of Hanford TRU waste including remote handled and oversized containers?

Response

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS decisions regarding certain TRU, LLW, and MLLW streams. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

Retrieval of TRU waste from the LLBGs has already started. Shipments of TRU waste from Hanford to WIPP have also started. As indicated in the Hanford Performance Management Plan (HPMP, DOE-RL 2002), approximately one-third of the containers (fifteen thousand containers) of suspect TRU waste from the LLBGs are scheduled to be retrieved by 2006 . No substantial releases are expected to occur before the waste is retrieved.

Project volumes of HLW and available disposal capacity at Yucca Mountain are addressed in the Repository EIS. The WIPP SEIS-2 (DOE 1997c) addresses the capacity to dispose of TRU waste, including the projected inventories from Hanford.

Comments

TPO-0018/003

Certainly the information that was presented in the EIS, it's very clear, it's not going to solve anything.

Response

The HSW EIS provides important environmental information to assist DOE in making decisions about site-specific storage, treatment, and disposal actions at Hanford.

Comments

L-0041/003

Oregon finds the revised HSW-EIS a significant improvement to the previous draft document. Many of the comments we submitted in August 2002 were sufficiently addressed in the revised document.

TSE-0025/003

And so if the Department of Energy is not going to produce an Environmental Impact Statement that honestly says what the costs of producing that waste are, what the costs of mishandling that waste are, then the people are going to have to do it ourselves, are going to have to take the law into your own hands and use the initiative process to do what Congress has failed to do.

Response

The HSW EIS provides important environmental information to assist DOE in making decisions about site-specific storage, treatment, and disposal actions at Hanford.

NEPA Compliance

DOE believes this HSW EIS complies with applicable NEPA requirements.

Comments

TLG-0012/002

I, for one, favor a new document that addresses the concerns raised by both the citizen groups and the state agencies here [the LaGrande Public Meeting].

TSE-0011/009

I would suggest that it be put in abeyance, and that at such time as the current waste can be both analyzed in a proper manner and cared for properly, then it could be reinstituted.

Response

DOE believes this HSW EIS complies with applicable NEPA requirements.

Comments

L-0041/063

Oregon is concerned that critically important assessments of human health and ecological effects are based upon incomplete analyses. National Environmental Policy Act (NEPA) guidance says an EIS must examine the impacts of proposed actions – in this case, the impacts of additional waste disposal at Hanford – in order to demonstrate there will be no major adverse environmental impacts from the proposed actions. Otherwise, other proposed alternatives must be developed. The analyses and information provided are not sufficient to know whether the proposed actions meet this test.

Response

DOE believes this HSW EIS complies with applicable NEPA requirements.

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

Comments

E-0043/026, EM-0217/026, EM-0218/026, L-0056/026, LM-0017/026, LM-0018/026

Analysis of the possibility that the Yucca Mountain facility may not accept the cesium-strontium capsules for disposal. DOE admits that the disposal path for these capsules has not been determined, and merely assumes the disposition to be Yucca Mountain. The EIS should quantitatively analyze and report on alternative disposal paths so the reader can understand the impact in the event that these capsules are not disposed at Yucca Mountain. Further, Yucca Mountain could fill up quickly with commercial HLW, leaving no room for the cesium-strontium capsules or Hanford waste assumed to be disposed there.

NEPA Compliance

Response

DOE NEPA decisions and actions regarding the cesium and strontium capsules are not within the scope of the Hanford Solid Waste EIS. Disposal of cesium and strontium capsules at Yucca Mountain were evaluated in the Yucca Mountain Repository EIS (DOE 2002c).

Comments

L-0044/013

In the way that this EIS is constructed, no information shows the groundwater impact differences for disposing ILAW in 200 East versus 200 West. Until this level of analysis is demonstrated, this EIS cannot be used as a basis for any siting study picking the best disposal locations. Ecology will need this kind of information prior to making permit decisions. We expect that this information would be in this NEPA document or to be provided to us to support the permit application.

Response

The HSW EIS, as a NEPA document, is not intended to function as, or contain the same information as, a compliance agreement, a permit application, or a management plan under other Hanford regulatory programs. The HSW EIS provides information to support DOE's decision-making process at Hanford, and DOE recognizes that additional specific information will be needed to support future regulatory processes.

The EIS evaluates four different disposal locations for ILAW, including locations in the 200 East and 200 West Areas.

Comments

TSE-0031/010

It [the DEIS] does not include TRU waste.

Response

The scope of the HSW EIS is to evaluate the potential environmental impacts of ongoing activities of the Hanford Solid Waste Program and to evaluate implementation of alternatives consistent with the WM PEIS. The HSW EIS evaluates reasonably foreseeable treatment, storage, and disposal facilities and activities for LLW, MLLW, and TRU waste. It also evaluates disposal of ILAW in a form that has performance characteristics equivalent to borosilicate glass.

Comments

TSE-0010/001

This Draft Solid Waste Environmental Impact Statement does include an alternative, to stop off-site waste import to Hanford. But only as part of an alternative that stops all cleanup work at Hanford. This stop work alternative is not realistic. It's not a realistic alternative at all. The U.S. Department of Energy does admit this. They do admit that it's also noncompliant with the law. But it is included.

Response

The Hanford Only waste volume has been evaluated in all action alternatives and the No Action Alternative to provide a better comparison with the impacts of adding offsite waste. The incremental impacts of offsite waste are the differences between the Lower and Upper Bound Volumes and the Hanford Only impacts for a given alternative.

DOE agrees that the stop work scenario (which is not the same thing as the No Action Alternative) is unrealistic and it has been dismissed from consideration. See Volume I Sections 3.1 and 3.2.

Comments

E-0048/001

Thank you for extending the comment period so more members of the public, including me, could participate.

E-0056/001

As a member of our local community I would like to offer my full support of the Department of Energy's decision to repackage complex wide radioactive wastes including transuranic wastes.

F-0029/001

Thank you for the DOE's public meeting today in Portland to receive comments regarding the revised EIS for Hanford and for this second EIS's inclusion of issues brought up by citizens at earlier meetings and comment periods.

L-0014/012, L-0022/012

We support the continued disposal of naval reactor compartments at Hanford and the disposal of commercial nuclear wastes in the US Ecology burial ground.

L-0018/001, TSE-0001/001

First of all, I would like to thank the Department of Energy for having this hearing in Seattle today, and recognizing that decisions we make at about managing radioactive wastes at the Hanford site have state-wide implications and draw state-wide concerns. Decisions we make in the Environmental Impact Statement will contribute to the legacy that we leave our children and future generations.

L-0029/001

I am grateful to be allowed to express my observations of the Hanford Waste Program E.I.S. I love my state and am thankful for all the effort work that has gone into the project so far to clean up 60 years of the most poisonous substances known to man.

L-0029/002

The document correctly states that unknown factors are many and the future outcome can only be guessed at.

L-0041/001

Thank you for the opportunity to comment on the Revised Draft Hanford Solid Waste EIS (HSW-EIS, DOE/EIS-0286D, March 2003). Thank you; also, for recognizing the high degree of interest Oregon citizens have about Hanford issues by conducting seven public meetings in Oregon. We appreciate the 15 day extension of the comment period, which we have had requested and which was also requested by Oregon Senators Gordon Smith and Ron Wyden.

L-0044/090

Sec. 1.7.1.3, p. 1.33 We appreciate that DOE has clarified that some TRU wastes contain hazardous constituents and are subject to RCRA and state regulation, though we regret that the category of TRU-Mixed (TRUM) used in earlier NEPA documents cited in Section 1.5 has been abandoned.

L-0044/091

Sec. 1.7.2, p. 1.34 We appreciate that DOE has separated out and analyzed a Hanford-only volume, as we and many others requested in the original 1997-8 scoping period.

L-0044/096

CRD, 3.105 Original comment #131 cited the inadequate monitoring systems detecting releases to the soil and groundwater from LLBG trenches. DOE's response was, in part, "Groundwater monitoring is conducted according to the RCRA permit and TPA requirements for the disposal areas, and will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations." DOE's response confirms the need for thorough groundwater and vadose zone monitoring considerations in development of the final LLBG permit conditions.

E-0049/001, L-0048/001

The Oregon Hanford Cleanup Board (Board) appreciates the opportunity to comment on the Revised Draft Hanford Solid Waste EIS (revised EIS). Thank you for recognizing the significant interest of Oregon citizens in Hanford issues. We also appreciate the 15-day extension of the comment period, as requested by Oregon Senators Ron Wyden and Gordon Smith and by the Oregon Department of Energy.

L-0058/003

The welfare of mankind, flora and fauna, the purity of water and air, the freedom from exposure to nuclear waste forever should be our nation's principle. Public law and government actions should invariably enforce this principle.

L-0059/002

Regarding the "Areas of Controversy" on page S.42, I have two thoughts. First, receipt of offsite waste should be permitted, just as Hanford sends part of its excess and waste materials to other sites. In order to clean up the entire DOE complex, it is reasonable to accumulate certain types of materials in select places to reduce the overall cost of security and long-term stewardship to our nation. Second, I feel that enough is known about transportation impacts to proceed without reanalysis as part of this HSW EIS. WE need to get on with the work of cleaning up the Hanford site rather than refusing to finalize agreements, resulting in the filing of lawsuits.

L-0060/001

The EIS study is a very good starting point and with each effort for a solution over the years they will have to amend the document. Attempting to project solutions into the future are only guess and a good guess is what we end up with.

L-0060/003

A revised environmental impact statement (EIS) for managing radioactive and solid waste is better than the original, but it's good enough for the next several years. The editors are to be complemented for their work. Time and new knowledge will be the amending factors. Future generations will be making the decisions.

L-0062/001

We [Hanford Communities] appreciate the work of the Department of Energy to address many of the comments and suggestions you received on the previous draft. The second draft also contains much more detail and analysis than the original draft.

L-0062/002

We [Hanford Communities] support the DOE preferred alternative for storage treatment and disposal of Hanford waste. We endorse the determination that new disposal facilities will include a RCRA-compliant liner and a leachate collection system and, upon closure, will be capped with the modified RCRA subtitle C cover. This approach will assure that the design of the new disposal facilities will minimize the impact to the environment and groundwater at Hanford.

P-0005/001

I'm sick of these NIMBY'ers AND I SAY YOU GO AHEAD ON. I TRUST OUR President to know WHAT he's doing. THANKS FOR TAKING ON A TOUGH JOB!

P-0049/001

I am in favor of using the Hanford Reservation as a temporary storage facility for spent nuclear residue and nuclear waste.

The opposition to this program is not based on hard evidence and common sense. They imply that the nuclear waste will be dumped haphazardly and the whole process will be unprofessional.

NEPA Compliance

I trust that you will do it right.

P-0066/001

I think Hanford is the best place to store radioactive waste in the area. It is sure better to keep it in one area then to have the waste in every state.

P-0112/002

I agree with WA state's Attorney General that shipping TRU to Hanford from Ohio & CA violates the law.

P-0117/001

TEXAS IS A MUCH BETTER PLACE FOR THIS STUFF [radioactive waste]

P-0131/002

There are several viable alternatives to destructive energy schemes. You know as well as anyone that the only reason for using the worst one, nuclear, is because it puts the most possible money into the fewest possible hands.

P-0160/002

Thousands of us are FED UP with being downwinders!

P-0164/002

Please kill this proposal which could kill us.

THR-0004/002

The document is improved. The previous document was skimpy, and it didn't make it, and DOE quickly made the decision, we've got to do better, so they did hear the public.

THR-0009/002

[One basic flaw of the EIS] is the whole notion of disposal, which I know we all use, but we can only make something that's radioactive as stable as possible in the most protected manner possible. We can't really dispose of these things. So I would like to see the word disposal removed from the whole statement.

THR-0013/001

We're going to have a real problem with this [SW EIS] because the people of the Northwest don't really count very much because it's all about money, it's all about power, it's all about population. … The people that have the power, that have the money, that have the resources, are what's controlling the country, and they're controlling this. You can't blame the President. It's the system.

THR-0015/001

How many people are from the Columbia River Gorge Commission? Where are they? Why aren't they here? How many of you know people on the Columbia River Gorge Commission? Get on them. Get on them now, right now. They should be responsible for what's happening on here. Definitely. And the Nature Conservancy. Who's from the Nature Conservancy here? Multi billion dollar corporations. They are connected in with the Congress, too. They took 50 million dollars out of the State of Oregon tax free. 736 million dollars in one year. Tax free money. They have a role over in Congress, too. They should be involved in what's happening in the Northwest.

TLG-0002/002

We [Oregon Office of Energy for Nuclear Safety] also commend the Department of Energy for greatly improving this document.

TLG-0012/001

And I appreciate this format that you've provided for us here tonight. I think it's an improvement over the last one we had here, where there's a lot more input from citizen groups and from state agencies.

NEPA Compliance

TPO-0006/001

DOE has done some work in improving the document. … Some of the things in the EIS, from what we've seen initially, appear to have addressed some of the concerns about lined versus unlined tanks, trenches in some cases. There's an attempt to do a risk analysis. Although, Greg mentioned that he has concerns about that. And we'll take a close look at it. And there is a discussion of a treatment capability that goes far beyond what was in the first document. And we think those are positive developments.

TPO-0007/001

We also consider that this is a much-improved document over the previous one.

TPO-0011/011

But I would like to talk about the larger picture briefly too. Which is basically what this is really about. And it's always the same thing, it's always about money. The government takes our money to subsidize nuclear, and its cleanup, and all the nuclear capacities…we are keeping energy industry centralized. Alternative methods are not being found.

TSE-0009/001

I stand in opposition to this plan to bring in 70,000 truckloads of waste to Hanford.

TSE-0024/004

I would like to comment on the light pollution, that is very good, something to consider.

TSE-0030/001

I do want to acknowledge and tell you that I appreciate the fact that DOE did have a public meeting in Spokane. I know that was in the plan. And that was appreciated. And believe it or not, when you do things right, sometimes people do notice.

TSP-0001/006

I think there have been great efforts made to clean up Hanford. I think those efforts should continue.

TSP-0015/001

And so some of the things that I think we really need to look at is how we can be proactive in the future, and having these meetings like this, I must thank you for this opportunity.

TSP-0015/004

And so when you are putting together this Final EIS, I encourage you to look at these medical cases and see if there is anything you can do to prevent future fires at Hanford from affecting other people, the surrounding populations, you know, from dealing with what Robert Frost and other co-employees have to deal with [after fire-related exposures].

TSP-0018/001

I think we should ship 70,000 truck loads to Crawford, Texas.

Response

Thank you for your comment.

Comments

TSE-0036/002

Who decides what risk that is going to be taken? What is the risk of so many cancers happening? I mean, it is not a formula that can be decided by scientists and bureaucrats who are going to be here for a few months, or a few years, and then they are moving on to the next scenario.

NEPA Compliance

Response

Evaluations, such as EISs, are prepared to identify and quantify risks and to inform decision-makers. The risk of latent cancer fatalities from actions proposed in this EIS are presented in Volume I Section 5.11 and Volume II Appendix F.

Volume I Section 6 identifies the major statutes, permits, compliance agreements, and regulatory requirements followed in conducting operations at Hanford Site. Statutes include AEA, CERCLA, RCRA and the State of Washington Hazardous Waste Management Act. Volume I Section 6.3 discusses the TPA. Volume I Section 6.4 discusses the Dangerous Waste Management permit. Volume I Section 6.19 provides a summary of existing and potential permits (including state approved permits where state decision-making will be necessary) required to construct and operate treatment, storage, and disposal facilities related to the HSW EIS alternatives. Volume I Section 6 has been updated and revised in response to comments in the final HSW EIS.

Comments

TPO-0026/005

...this EIS really doesn't contemplate anything but an import action. It doesn't really look at treating waste really anyplace other than Hanford. It doesn't really consider treating it at a place that actually has adequate facilities, licensed in-place facilities in place before we start moving stuff. And finally, there's no real consideration of trying to do this in a place that doesn't already have contaminated groundwater and a contaminated river.

Response

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS (DOE 1997b) decisions regarding certain TRU waste, LLW, and MLLW streams. Site-specific waste management actions at Hanford involve transportation, treatment and processing of TRU waste and MLLW, disposal of LLW, MLLW and ILAW, and storage of LLW, MLLW, and TRU waste. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

The WM PEIS was a comprehensive evaluation of DOE nationwide waste management. The WM PEIS evaluated a broad suite of alternatives for waste management across the DOE complex, including managing most waste at generator facilities, or consolidating waste management at fewer sites that have existing facilities suitable to accept waste from other facilities. The impacts of those alternatives were compared for a variety of waste volumes at different DOE sites, including larger quantities of waste than are evaluated in the HSW EIS. The general result of the WM PEIS was that radioactive and hazardous wastes generated at a DOE site should be disposed of at that site unless the site was not capable of or not technically able to support those actions. DOE determined there was sufficient information in the WM PEIS to support decisions regarding the sites that were suitable for long-term waste management missions. Those decisions included processing and disposing of Hanford waste at Hanford, and the importation of wastes from other sites that could not adequately handle them. Decisions made as part of the WM PEIS made Hanford available for the disposal of low-level waste and mixed low-level waste from other DOE generators. The initial WM PEIS decisions related to LLW, MLLW, and TRU waste were issued between January 1998 and February 2000.

The scope of the HSW EIS is to evaluate the potential environmental impacts of ongoing activities of the Hanford Solid Waste Program and to evaluate implementation of alternatives consistent with the WM PEIS. The HSW EIS evaluates reasonably foreseeable treatment, storage, and disposal facilities and activities for LLW, MLLW, and TRU waste. It also evaluates disposal of ILAW in a form that has performance characteristics equivalent to borosilicate glass.

The Hanford Only waste volume has been evaluated in all action alternatives and the No Action Alternative to provide a better comparison with the impacts of adding offsite waste. The incremental impacts of offsite waste are the differences between the Lower and Upper Bound Volumes and the Hanford Only impacts for a given alternative.

Comments

E-0053/004

The proposed Determination of Non-Significance violates Washington's currently stated policy that "prior to accepting more waste from across the nation, the State of Washington must be assured that current waste management activities at Hanford are protective of human health and the environment and compliant with state and federal regulations, and the Tri-Party Agreement (TPA)", and Washington State's conclusion that Hanford "continues to struggle to achieve and maintain compliance" – rendering it inappropriate to allow additional offsite wastes to come to Hanford at this time. To implement Washington State's existing policy and conclusion about the status of compliance at Hanford, and concerns a) that offsite waste acceptance would negatively impact Hanford Clean-Up, and b) that storage and treatment of MW and TRU waste pose significant potential health and environmental impacts; Washington State must issue a Determination of Significance and only issue a RCRA permit after a full EIS is completed

Response

This comment is directed at Washington State, rather than the HSW EIS.

Comments

TSE-0028/005

And finally, let me just say, the Department of Energy has also asserted in Federal Court that it is exempt from Washington State and Federal hazardous waste laws for the storage of this transuranic waste. If it is exempt, bizarrely, it asserts in this EIS and the Waste Management PEIS that it will, all the accidents analyzed assume that the waste was treated to meet those standards. You have to redo it, and you have to assume and disclose that you are not treating these wastes or give up your claim of preemption.

Response

Discussion of pending legal issues is not within the scope of this EIS.

Comments

E-0055/011

USDOE chose to use Battelle as a contractor to draft major portions of this EIS, and to respond to comments – including responding to comments directly relating to the following areas for which Battelle has a clear conflict of interest and stake in the outcome of proposed decisions by USDOE based on the EIS:

- Battelle's own generation of waste at Hanford – which makes it a "responsible party" and "liable person" under the federal Superfund law and state Model Toxics Control Act (MOTCA – Chapter 70.105D, RCW);
- disposal of wastes;
- whether offsite generators should be charged the long-term, fully burdened costs of disposing of wastes;
- violation by USDOE and its contractors of RCRA and Washington Administrative Code requirements for establishing financial assurance for closure and monitoring of landfills;
- efforts to export waste from Battelle's Columbus and West Jefferson, Ohio facilities to Hanford;
- transportation risks and impacts from shipping Battelle's Remote Handled Low-Level and Remote Handled Transuranic, Low-Level and Mixed Wastes and, similar wastes from other sites, to Hanford;
- failure of offsite and on-site generators to properly track, characterize and label hazardous wastes shipped to Hanford's Low-Level Burial Grounds for disposal, … [sic]

This list names just a few of the numerous areas that Battelle was delegated responsibility for analyzing, writing and responding to comments regarding, and for which Battelle has a direct conflict of interest.

Battelle's self interest and financial interests are evident in other USDOE documents and decisions, including, in the September, 2002, Federal Register Notice of the amendment to the Record of Decision for TRU Waste to authorize shipment of TRU from Battelle Columbus Lab (BCL) to Hanford, and in court filings by USDOE (both declarations and briefs, including the declaration of Assistant Secretary of Energy Jessie Roberson) in response to the complaints brought against USDOE for violating NEPA by the State of Washington and citizen groups, including Heart of America Northwest.

In those documents, USDOE claims that Battelle has a contractual and financial interest in having USDOE ship waste offsite to Hanford, so that the Battelle West Jefferson and Battelle Columbus Labs can be redeveloped for private purposes of Battelle. In the Site Treatment Plan for BCL, BCL and USDOE stated that Battelle cancelled its Part B permit for its own "cost savings" permits, precluding storage of Mixed Wastes and necessitating their shipment to Hanford or other sites.

It is clear that a financial stake in a decision whose outcome is affected by the considerations in an EIS includes the private interest in redevelopment of property for other purposes following removal of wastes. Thus, whether or not USDOE owns the wastes at Battelle's sites, Battelle has a clear interest in decisions by USDOE to allow for the shipment of those wastes to Hanford, as well as interest in the decision as a liable party and generator. As specified below, Battelle interests are an impermissible conflict of interest under NEPA implementation regulations of the Council on Environmental Quality, Federal Acquisition Regulations and Department of Energy Acquisition Rules.

Further, Battelle's willful failure to disclose this conflict of interest irreparably harmed the public's right to comment on the draft EIS.

Battelle is in violation of USDOE regulations that require contractors who prepare an environmental statement to execute a disclosure specifying that they have no financial or other interest in the outcome of the project. 10 CFR 1021.310, 40 CFR 1506.5 (c). In the HSWEIS, Battelle certified that it had no financial or other interest in the outcome of the referenced EIS. HSWEIS at 7.20. Battelle misrepresented its interest in the outcome of the HSWEIS Record of Decision as both a liable person and potentially responsible party under CERCLA (42 USC 9601 et seq.) and Washington's Model Toxics Control Act (RCW 70.105D) as a generator of waste that has been, or may potentially be, released to the environment at the Hanford site, and which is the focus of this EIS. Battelle has a significant financial interest in continuing to generate waste at Hanford and to be allowed to dispose of it as cheap as possible in Hanford's soil - which this EIS is supposed to evaluate and consider alternatives to.

In addition to violating USDOE and NEPA's regulations on public disclosure, Battelle engaged in fraud in that making a material misrepresentation about its financial interest in the outcome of the HSWEIS to obtain the contract to prepare the HSWEIS. These are actionable under USDOE Debarment & Suspension regulations. 10 CFR 1036.305 (a) 1,3. Battelle played a major role in preparing the HSWEIS, especially in responding to comments, many of which were directly regarding Battelle's own interests in importing waste to Hanford for storage, treatment and disposal or prolonged storage prior to processing and disposal at Waste Isolation Pilot Project. NEPA requires the following actions by CEQ, EPA and USDOE that:
a) require that the HSWEIS be withdrawn;
b) the contract with Battelle be rescinded;
c) a new HSWEIS begun with a contractor who has no conflict of interest regarding potential outcomes and decisions to be based on the EIS;
d) forfeiture by Battelle of all fees and costs paid by the U.S. Department of Energy for work on this EIS;
e) imposition of civil and criminal penalties for fraudulently misrepresentation of its interest in the outcome of the HSWEIS 10 CFR 1036.305 (a) 1, 3.

Battelle's conflict of interest in preparing the HSWEIS clearly preclude their production of an objective or unbiased analysis of the issues. This conflict of interest had a material impact on the scope of issues in the HSWEIS, the analysis that was conducted in the HSWEIS, and other aspects of the execution of the HSWEIS and the subsequent meeting and comment processes. These are evidenced in the following:

• Battelle's private and contractual interest in exporting TRU waste to Hanford is the subject of litigation in federal district court brought by Heart of America Northwest, State of Washington, Columbia River Keeper, Sierra Club and Washington Physicians for Social Responsibility. Battelle is shipping this waste to Hanford as part of "the closeout of its nuclear materials research contract", because continued storage of these wastes would require construction of a new shielded facility licensed by the State of Ohio and the Nuclear Regulatory Commission. 67 FR 56990. This action is being taken as part of the Battelle's closeout of its nuclear materials research contract and cleanup of the "privately owned" West Jefferson facility. Id. Construction of new facilities to continue storage of TRU at West Jefferson would "be inconsistent with DOE's goal of early removal of radioactive waste from privately owned sites." Id.

• "DOE no longer needs the facilities for nuclear research, and is contractually obligated to remove contamination so the labs can be used by Battelle without radiological restrictions." USDOE: "Defendants' Opposition to Motion for Preliminary Injunction" at 20; State of Washington, Columbia Riverkeeper, Heart of America Northwest, et al v. Spencer Abraham, Secretary of Energy, and U.S. Department of Energy, 2003, U.S. District Court Eastern District of Washington.

• Battelle rejected the comments that the EIS consider the reasonable alternative of charging generators the fully burdened long term costs of disposal, and that the EIS have a preferred alternative (and, at minimum, for legal compliance, consider one alternative) that ends disposal of wastes in unlined soil trenches by the end of this year and bars continued use of Hanford soil for disposal of offsite wastes due to the cumulative impacts to groundwater, and other harm to health and the environment.

• Battelle failed to disclose that it has a substantial conflict of interest which may be the proximate cause of this draft EIS's failing to consider the route and waste specific potential impacts of transporting TRU, LLW and MW to Hanford.

• Battelle played a major role in preparing EIS, especially in responding to comments, many of which were directly regarding Battelle's own interests in importing waste to Hanford for storage, treatment and disposal or prolonged storage prior to processing and disposal at WIPP.

• The HSWEIS fails to disclose Battelle shipped Remote Handled LLW, as late as 2002, and fails to describe inventory and current conditions of burial grounds. The EIS fails to disclose the track record of Battelle and other offsite generators failing to properly characterize and manifest wastes prior to shipping and prior to disposal in LLBG. This failure to describe actual conditions of LLBGs has been noted by Washington State and numerous other commenters as a significant failure of the HSWEIS to meet NEPA requirements. Battelle has a conflict of interest regarding disclosure of legal violations and their potential impact, as well as conflict of interest regarding any disclosure of impacts that would limit offsite waste. Mitigation requirements that should be imposed would significantly impact Battelle as a generator of waste.

• Battelle is both a liable person and potentially responsible party under the federal CERCLA (42 USC 9601 et seq.) and Washington's Model Toxics Control Act (RCW 70.105D) as a generator of waste that has been, or may potentially be, released to the environment at the Hanford site, and which is the focus of this EIS. Battelle has a significant financial interest in continuing to generate waste at Hanford and to be allowed to dispose of it as cheap as possible in Hanford's soil - which this EIS is supposed to evaluate and consider alternatives to. Heart of America Northwest and numerous other commenters, including the Hanford Advisory Board, have urged that this EIS consider the reasonable alternative of charging offsite generators the fully burdened long-term costs of disposal of waste. Currently, USDOE charges Battelle and other offsite generators only approximately 50% of the present costs of disposal. Heart of America Northwest and the Hanford Advisory Board have commented and advised USDOE and Washington Ecology that only fully characterized wastes should be shipped to Hanford, to the degree that any offsite wastes are shipped. This is a major issue of public concern regarding this EIS. However, Battelle has a major conflict of interest in that it seeks to ship to Hanford uncharacterized Remote Handled Transuranic and other wastes.

Battelle failed to disclose that it has a major conflict of interest in preparing responses to the comments of the public, Members of Congress, Heart of America Northwest and the Hanford Advisory Board rejecting the comments that the EIS consider the reasonable alternative of charging generators the fully burdened long term costs of disposal, and that the EIS have a preferred alternative (and, at minimum, for legal compliance, consider one alternative) that ends disposal of wastes in unlined soil trenches by the end of this year and bars continued use of Hanford soil for disposal of offsite wastes due to the cumulative impacts to groundwater, and other harm to health and the environment. Consequently, all those involved in submitting public comments on the HSWEIS were deprived of a meaningful opportunity to exercise their rights under NEPA to submit public comments based on a discussion of all reasonable alternatives.

We request the Inspector General to investigate how this mismanagement of a major EIS, on which major decisions for the Northwest are proposed to be based, could have been allowed to proceed by Hanford management.

These conflicts of interest require the following actions by CEQ, EPA and USDOE:
1) require that the HSWEIS be withdrawn;
2) the contract for producing the HSWEIS with Battelle be rescinded;
3) a new HSWEIS begun with a contractor who has no conflict of interest regarding potential outcomes and decisions to be based on the EIS;
4) forfeiture by Battelle of all fees and costs paid by the U.S. Department of Energy for work on this EIS; and
5) imposition of civil and criminal penalties for fraudulently misrepresentation of its interest in the outcome of the HSWEIS. 10 CFR 1036.305 (a) 1,3.

THR-0021/003

But there is a conflict of interest. And this was addressed by Secretary O'Leary originally when we bought it up, because the Pacific Northwest National Lab is a polluter. They are also the ones that do most of the risk assessment work at Hanford.

NEPA Compliance

Response

In response to these comments, DOE examined the issues raised and sought additional information from Battelle. As a result of this review, DOE has determined that no basis exists for withdrawal of the HSW EIS. DOE's responses to specific areas of concern expressed in the comments are set out below.

Concern: Battelle has a significant financial interest in continuing to generate waste at the Hanford site and in being allowed to dispose of it as cheaply as possible.

Response: The Pacific Northwest National Laboratory (PNNL) is a DOE national research laboratory located at the Hanford Site that is operated by the Battelle Memorial Institute, through its Pacific Northwest Division, under a long-term cost reimbursement, management and operating (M&O) contract with DOE. PNNL is under contract to DOE to assist in the preparation of the HSW EIS. For purposes of this response and the following four responses, the terms "Battelle" and "PNNL" are used interchangeably. The radioactive wastes that are generated by Battelle's operation of PNNL for DOE under the M&O contract are DOE wastes. It is therefore DOE, and not Battelle, that is responsible for the disposal of these wastes, and it is DOE that determines where and how these wastes will be disposed of. Battelle's right to reimbursement under the M&O contract for its costs is in no way dependent on the waste disposal decisions that DOE makes, and Battelle thus has no financial or other interest in how DOE makes those decisions, and would have no incentive to bias its analysis of the alternative means of disposal in the HSW EIS.

Concern: Battelle has an interest in shipping waste to Hanford from its West Jefferson site so that it may financially benefit from the redevelopment of the West Jefferson site.

Response: DOE has entered into a contract with Battelle for the conduct of the Battelle Columbus Laboratories Decommissioning Project (BCLDP), involving the cleanup of the Battelle Columbus Laboratories (BCL), which includes two sites, Columbus and West Jefferson. The decommissioning contract recognizes that the BCL facilities, while privately owned, were used for radioactive research for DOE or its predecessor agencies. The contract provides that the radioactive waste generated in the decommissioning project is DOE waste. Accordingly, the two BCL sites have been identified as shippers of DOE low level radioactive waste and transuranic waste to the Hanford Site, and waste quantities from the BCLDP are included in estimates of offsite DOE waste that Hanford may receive for disposal or, in the case of transuranic waste, temporary storage. However, it is DOE and not Battelle that will decide where this waste will be sent. In general, Battelle does not have a financial or other interest in the decisions that DOE makes. There is one exception to this general principle. Under the decommissioning contract for the BCLDP, Battelle is obligated to contribute a cost share of 10% of the decommissioning costs for the project, because a portion of the BCL waste was generated by private, as opposed to government, activities. Thus, in theory, Battelle would have an interest in keeping the decommissioning costs as low as possible. However, Battelle's 10 percent cost share applies only to current-year waste handling costs (e.g., acceptance review and waste transfer) and not to long-term disposal costs. The HSW EIS focuses on long-term disposal alternatives, and thus the decisions DOE will make on the basis of the HSW EIS will not affect in any appreciable manner the amount of Battelle's cost under the decommissioning contract. Thus, there is no incentive for Battelle to bias its analyses in the HSW EIS.

Concern: Battelle's generation of waste shipped to Hanford makes it a potentially responsible party under CERCLA and the state of Washington Model Toxics Control Act (MTCA).

Response: By the terms of the Hanford Federal Facility Agreement and Consent Order, the Environmental Protection Agency, DOE and the State of Washington have recognized that DOE is the party responsible for any remedial action necessary for wastes disposed of by DOE at Hanford. All wastes that have been, or are expected to be, disposed of at Hanford from Battelle-operated facilities are wastes for which DOE is ultimately responsible. It is not reasonable to assume that Battelle will bear any significant financial responsibility for environmental remediation work at Hanford, or that Battelle's work on the HSW EIS would be influenced by the remote prospect that Battelle might incur such responsibility.

Concern: Battelle played a biased and major role in its work on the HSW EIS.

Response: For the reasons stated in the previous responses, DOE believes that Battelle has no significant financial or other interest in the outcome of the HSW EIS. Moreover, DOE believes that its own extensive involvement in the preparation of the HSW EIS precluded the possibility of Battelle injecting bias into the analyses or other parts of HSW EIS. The comment implies incorrectly that DOE turned over the preparation of the HSW EIS to Battelle. In fact, Battelle's role in preparing the HSW EIS was subject at all times to the direction, review and oversight of DOE. Battelle provided a preliminary working draft of the revised draft HSW EIS, which reflected the guidance previously provided by DOE. That preliminary working draft was then thoroughly reviewed, and where appropriate rewritten by, or at the direction of, a multi-disciplinary team of DOE employees working on a dedicated basis over a period of several months. This DOE team included subject-matter professionals in the areas of waste management, nuclear safety and health, natural and ecological resource protection, and transportation, as well as regulatory and legal experts. This team made all major decisions on alternatives, scope and content, as well as responses to comments, in the revised draft HSW EIS and in this final HSW EIS. While Battelle provided technical, drafting and editing assistance throughout this process, it had no authority to make final decisions regarding the content of the HSW EIS, comment responses, or DOE policy. To clarify the extensive involvement and critical roles played by DOE employees in the development of the HSW EIS, Chapter 7 of this final HSW EIS has been revised to set forth more clearly the activities performed by DOE personnel.

Concern: Battelle engaged in fraud in making a material misrepresentation about its financial interest in the outcome of the HSW EIS in order to obtain the contract for work on that document, in violation of DOE's Debarment & Suspension regulations.

Response: After discussions with Battelle, DOE is convinced for the following reasons that Battelle executed the conflict of interest disclosure statements in good faith, in the belief that it had no financial or other interest in the outcome of the HSW EIS. First, as stated in earlier responses, the waste disposed of at Hanford from sites managed by Battelle is DOE waste and, with the minor exception of the 10 percent cost share for current-year handling costs of waste from the BCL sites (which does not apply to long-term disposal costs), Battelle's remuneration under its contracts with DOE does not depend on how or where the waste is disposed of. Thus, Battelle would have no incentive to favor one disposal alternative over another. Second, when Battelle prepared the conflict of interest disclosure statement, Battelle had no reason to believe that its ability to perform under its contract to decommission the BCL facilities depended on the outcome of the HSW EIS. This is because the HSW EIS was not a document that would examine the issue of whether waste from other sites should be sent to Hanford. The decision to dispose of waste from other sites, including the BCL facilities, at Hanford had previously been made as a result of the Waste Management Programmatic EIS issued in 1997 and its related RODs. Third, the operation of PNNL is conducted by Battelle's Pacific Northwest Division, which is a separate division of Battelle that is not responsible for, or involved in, the operation of the Battelle Columbus Laboratories in Ohio. In sum, DOE has found no evidence that PNNL, in executing its conflict of interest disclosure statement, made any material misrepresentation or had any intent to mislead or defraud the government. Accordingly, under the regulations governing debarment and suspension, sanctions to be imposed only in the public interest for the Government's protection are not implicated as suggested in the comment.

Concern: The EIS failed to examine transportation risks of shipping waste to Hanford.

Response: The final HSW EIS includes new transportation analyses that examine the impacts of low level, mixed low level and transuranic waste shipments from various generator sites to the Hanford Site.

Concern: Generators are not properly tracking, characterizing and labeling hazardous waste shipped to

Hanford.

Response: Hanford waste acceptance criteria require LLW and MLLW that are received for disposal to be properly characterized and manifested by the generator. Routine inspections are performed to ensure that these requirements are met; if waste is found not to be not in compliance, the violation is corrected at Hanford at the generator's expense, or returned to the generator.

Comments

L-0041/062

In addition, Oregon is the primary transportation corridor for waste coming to and leaving the Hanford Site. As many as 33,000 shipments of waste could travel across Oregon under actions proposed in the HSW-EIS. The U.S. Department of Energy (DOE) must continue to work closely with Oregon to ensure the safe transport of these radioactive materials as they travel through the state.

Response

We agree.

Comments

L-0044/111

Specifically, the draft does not adequately address either in content or clarity all the information we will need in order to support the full range of decisions about waste treatment, storage, and disposal facilities for Hanford cleanup. Our concerns are detailed in the attached summary of over-arching issues and concerns, and in a table of specific comments related to the text of the document and its appendices.

L-0044/115

Let us be clear that in our regulatory decision making, we need to obtain complete information. If these concerns are not addressed in the Final EIS, Ecology will have to seek additional analysis, thereby complicating future decision making.

L-0044/136

Any new waste treatment facility that the USDOE might wish to construct would require a dangerous waste permit and thereby a thorough environmental review. Ecology recognizes efforts conducted by the USDOE to conduct cultural and historic resource reviews and to identify Federal endangered species to date; however, more thorough reviews must be conducted to support any dangerous waste permit.

Response

DOE has considered the specific comments from the State of Washington, as has been the case with all commenters. DOE's responses to specific comments have resulted in changes to the HSW EIS and are included in this Comment Response Document.

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS decisions regarding certain TRU, LLW, and MLLW streams. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

The HSW EIS summarizes its analyses in seven (7) sections in a first volume. The supporting technical detail is presented in fifteen (15) appendixes in a second volume. The Comment Response Document makes up the third and fourth volumes of the HSW EIS.

The HSW EIS, as a NEPA document, is not intended to function as, or contain the same information as, a compliance agreement, a permit application, or a management plan under other Hanford regulatory programs.

NEPA Compliance

The HSW EIS provides information to support DOE's decision-making process at Hanford, and DOE recognizes that additional specific information will be needed to support future regulatory processes.

Comments

L-0050/004

Page 4.69, Table 4.12. WDFW disagrees with DOE's response to our comments on the pygmy rabbit. The pygmy rabbit should be included on this table. Central Hanford is being considered by both the WDFW and the USFWS as a possible re-introduction site.

Response

DOE stands by its previous response.

Comments

L-0044/089

Sec. 1.6.6, pp. 1.31-32 These three paragraphs are generic and bureaucratic. They do not convey clearly what people can expect next with regard to this EIS and what decisions can be expected when.

Response

Consistent with NEPA requirements, Volume I Section 1 of the HSW EIS describes the purpose and need for agency action, identifies the proposed action and alternatives that are evaluated, and the decisions that DOE expects to make on the basis of analysis. See Volume I Sections 1.2, 1.3, and 1.7. Volume I Section 1.6 describes the technical process for issuing this EIS and the ROD(s).

Comments

L-0052/002

This is a huge undertaking by the federal government, on a scale similar to that of the complex-wide Waste Management Programmatic EIS. Too much is at stake to move rapidly through this process for the sake of acceleration. The NEPA process anticipates sequential steps. We need clearer statements about what decisions need to be made, not statements of decisions being made when there remains a significant lack of appropriate tools to make those decisions. Because of the complexity of this huge clean-up effort, there are many short term decisions and actions to be taken prior to long-term decisions being made. It is vital to the health of the tribal nations and the United States that closure of any clean-up activity occur only when we have capability to effectively isolate or remediate the contaminated resource.

Response

Consistent with NEPA requirements, Volume I Section 1 of the HSW EIS describes the purpose and need for agency action, identifies the proposed action and alternatives that are evaluated, and the decisions that DOE expects to make on the basis of analysis. See Volume I Sections 1.2, 1.3, and 1.7. Volume I Section 1.6 describes the technical process for issuing this EIS and the ROD(s).

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel.

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the

National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed. See Volume II Appendix N, Section N.2.4. See Volume III Section 2, Item 6 of the CRD for more examples of cleanup at Hanford.

The WM PEIS (DOE 1997b) was a comprehensive evaluation of DOE nationwide waste management. The WM PEIS evaluated a broad suite of alternatives for waste management across the DOE complex, including managing most waste at generator facilities, or consolidating waste management at fewer sites that have existing facilities suitable to accept waste from other facilities. The general result of the WM PEIS was that radioactive and hazardous wastes generated at a DOE site should be disposed of at that site unless the site was not capable of or not technically able to support those actions. DOE determined there was sufficient information in the WM PEIS to support decisions regarding the sites that were suitable for long-term waste management missions. Those decisions included processing and disposing of Hanford waste at Hanford, and the importation of wastes from other sites that could not adequately handle them. Decisions made as part of the WM PEIS made Hanford available for the disposal of low-level waste and mixed low-level waste from other DOE generators. The initial WM PEIS decisions related to LLW, MLLW, and TRU waste were issued between January 1998 and February 2000.

Additional wastes will be generated as part of the cleanup of Hanford and other DOE sites. The HSW EIS evaluates several alternatives for the storage, treatment, and processing of wastes from onsite and offsite generators, and a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites. Plutonium production, the source of most of the waste created, has stopped at Hanford. TRU waste, high-level waste, and spent nuclear fuel will be sent to underground repositories in other states that have been designed to safely contain the waste. Many more curies of waste will be sent offsite from Hanford than will be received from offsite.

The Hanford area has been extensively studied and determined to be suitable for disposal of DOE and commercial waste. The impacts of disposing various quantities and types of waste are discussed in this HSW EIS as well as previous NEPA documentation. See Volume I Section 1.5. The evaluations in the HSW EIS provide a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions.

The HSW EIS considers a wide range of alternatives for disposal of low level waste in both lined and unlined facilities. Lined trench alternatives include leak detection and leachate collection capabilities. The use of unlined trenches for disposal of low level waste is an established, legal, and environmentally protective method of low level waste disposal at both DOE and commercial facilities. As such, it is a reasonable alternative, under CEQ regulations, and must be analyzed. The preferred alternative is to dispose of low level waste in newly constructed lined disposal facilities as soon as they are available. For purposes of analysis the HSW EIS assumes this would occur by 2007. All MLLW is currently, and will continue to be, disposed of in lined facilities. Groundwater monitoring is conducted according to TPA requirements, the Hanford Dangerous Waste Management permit, and DOE Orders. Groundwater monitoring will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations.

NEPA Compliance

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Section 5.3 and Volume II Appendix G. See also Volume I Sections 5.11 and Volume II Appendixes F, G, and L. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW. Some of these measures reduced the estimated levels of groundwater contamination relative to those presented in the revised draft. As set forth in Volume I Section 5.3, constituent concentrations in groundwater at 1 km from the disposal site are expected to be below the benchmark drinking water standards for the proposed action. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

DOE does not and will not rely solely on long-term stewardship to protect people and the environment. As indicated in the DOE sponsored report "Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites" (National Research Council 2000) "contaminant reduction is preferred to contaminant isolation and the imposition of stewardship measures." Contaminant reduction is a large part of the ongoing cleanup efforts at Hanford. Most of the analyses in the HSW EIS are based on the assumption that long-term institutional controls will no longer be in effect 100 years after closure (about 2150 AD). Long-term groundwater impacts and subsequent human health impacts were determined based on the assumption that caps will degrade and eventually provide no protection (see Volume I Sections 5.3 and 5.11 and Volume II Appendices F and G). In addition, "intruder scenarios" are analyzed to determine the impacts of gaining access to the site (i.e., no institutional controls) and digging or drilling into waste sites (see Section 5.11.2.2 in Volume I and Section F.3 of Appendix F in Volume II). Further information on DOE's long-term stewardship activities can be found in the Long-Term Stewardship Study (DOE 2001a). The discussions of long-term stewardship in Volume I Sections 2.2.7 and 5.18 have been revised in response to comments.

This HSW EIS complies with applicable NEPA requirements. The cleanup of active DOE waste sites and facilities is regulated under the Atomic Energy Act, as well as the applicable provisions of the federal Resource Conservation and Recovery Act, the State of Washington Hazardous Waste Management Act, and the Comprehensive Environmental Response, Compensation, and Liability Act. Volume I Section 6 identifies the major statutes, permits, compliance agreements, and regulatory requirements followed in conducting operations at Hanford Site. Statutes include AEA, CERCLA, RCRA and the State of Washington HWMA. Volume I Section 6.3 discusses the TPA. Volume I Section 6.4 discusses the Dangerous Waste Management permit. Volume I Section 6.19 provides a summary of existing and potential permits (including state approved permits where state decision-making will be necessary) required to construct and operate treatment, storage, and disposal facilities related to the HSW EIS alternatives. Volume I Section 6 has been updated in the final HSW EIS. More specific provisions for cleanup of active Hanford waste sites and facilities are presented in the Tri-Party Agreement and in portions of the Hanford Dangerous Waste Management permit.

In response to public comments, DOE has conducted a route- and generator-specific offsite transportation analysis using updated highway routing and 2000 census data (See Volume I, Section 5.8 and Volume II, Appendix H of this document). The potential impacts identified in the updated evaluation are similar to those presented in the WM PEIS and the WIPP SEIS-II, and would not change conclusions or DOE-wide waste management decisions based on those studies. The HSW EIS estimates that up to 33,900 shipments of LLW,

NEPA Compliance

MLLW, and TRU waste could be shipped to Hanford if the upper bound waste volumes are realized. The actual number of shipments is expected to be less than this.

Comments

E-0047/026

Should acknowledge that the Nevada Test Site has also been designated to receive low-level waste (LLW) and mixed low-level waste (MLLW) from across the complex. The ROD should outline a process for determining which site has the least environmental and public health impact from waste disposal.

L-0041/014

The final Record of Decision (ROD) should provide discussion of contingency actions the U.S. Department of Energy (DOE) would take if it were determined that a key assumption or hypothesis was determined to be false.

L-0041/015

The final ROD should include information from the mapping and monitoring of specific areas in the 600 area to demonstrate appropriate mitigation effectiveness for the three element occurrences detailed in Appendix I.

L-0041/016

The final ROD should acknowledge that the Nevada Test Site has also been designated to receive low-level waste (LLW) and mixed low-level waste (MLLW) from across the complex. The ROD should outline a process for determining which site has the least environmental and public health impact from the waste disposal.

Response

The Nevada Test Site is one of the locations that DOE plans to use for management and disposal of nuclear wastes. See the discussion on the WM PEIS in Volume I Section 1.5.2.

The Record(s) of Decision will comply with applicable NEPA requirements.

Comments

E-0043/012, EM-0217/012, EM-0218/012, L-0056/012, LM-0017/012, LM-0018/012

The HSW EIS does not contain a true, quantified "no action" alternative, which would be a scenario of zero importation of offsite-generated LLW and MLLW. Such an omission violates NEPA and makes it impossible to gauge the true impacts of the alternatives. Though the HSW EIS does offer a Hanford only waste scenario, it is only as a point of qualitative comparison - and is not an actual, quantitatively analyzed alternative.

E-0050/010

The "no action" alternative provided in the EIS stops import of offsite waste, but it also halts all clean-up work at Hanford. A legitimate "no action" alternative would prohibit importation of offsite waste, yet continue the ongoing efforts to clean up existing waste.

F-0024/005

The stop work alternative is unrealistic and non-compliant!

L-0014/003, L-0022/003

The "no action" alternative is clearly unacceptable for a number of public health and safety reasons. Information is not provided to clearly show the environmental and public health safety impacts of this alternative.

L-0031/002

All alternatives of the revised Solid Waste Environmental Impact Statement (hereafter referred to as the SWEIS) include import of TRU waste, in addition to 12.7 million cubic feet of Low Level and Mixed Low Level Waste (LLW and MLLW) to Hanford, with the exception of the "stop work" alternative, which stops all cleanup work at Hanford. This is not a valid alternative, because USDOE is obligated under existing laws to proceed with cleanup.

L-0044/045

3.1.1, p. 3.5 DOE has developed the no action alternative assuming the "operation of existing facilities without conducting additional activities necessary to meet regulatory obligations." This is not an accurate representation of the no action alternative, or the evaluations made for this alternative. Ecology will not allow non-compliant operation of the facilities now, or in the future.

L-0044/132

The no action alternative is based on the premise of "operation of existing facilities without conducting additional activities necessary to meet regulatory obligations." This is not an accurate representation of the no-action alternative or the evaluations made for this alternative. The no-action alternative as explained in the US Environmental Protection Agency's "Council on Environmental Quality, Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations," Question 3, in the USDOE's own NEPA Process Reference Manual Rev. 8 states that "the 'no-action' alternative may be thought of in terms of continuing with the present course of action until that action is changed". That description of no action does not allow the USDOE to abrogate its responsibilities to comply with the provisions of the Hanford Federal Facility Agreement and Consent, nor does it allow the USDOE relief from compliance with State and Federal Regulations. The LLBG permit application is under discussion now; to infer that those negotiations will cease is not accurate. Ecology requests that the USDOE modify the no-action alternative to acknowledge existing regulatory obligations.

L-0044/135

Per the SEPA Handbook (Ecology Publication No. 98-114, Sec. 3.3.2.1), the no-action alternative is usually "what would be most likely to happen if the proposal did not occur." The no-action alternative described in the RHSW EIS Sec. 3.1.1 would include "continued operation of existing facilities without conducting additional activities necessary to meet regulatory obligations." This is unlikely to happen because the Hanford Federal Facility Agreement and Consent Order (HFFACO), the Dangerous Waste Portion of the Hanford Site

Resource Conservation and Recovery Act (RCRA) Permit, the Washington Dangerous Waste Regulations (WAC 173-303), and numerous other Federal and State regulations govern waste management operations. Ecology does not therefore regard the No-Action Alternative to be that in fact.

The No-Action Alternative continues by saying that MLLW would be stored rather than treated because of limited commercial capacity to treat the wastes. The no-action alternative is not truly such because the USDOE states that the Central Waste Complex (CWC) must be expanded to allow larger volumes of waste to be stored. Expansion of the CWC can be expected to have potential environmental impacts if the inventory of dangerous wastes and radioactive wastes increases. Ecology will consider expansion of the CWC Facility as part of a dangerous waste permit modification and will evaluate environmental impacts of expansion under its authority in WAC 173-802.

TSE-0026/004

The stop alternative is not a real alternative.

Response

A No Action Alternative under NEPA does not necessarily mean no action at all (see CEQ Forty Most Asked Questions, Question 3, No Action Alternative [46 FR 18026]). Pursuant to the HSW EIS Notice of Intent (65 FR 10061), under the No Action Alternative, "DOE would continue ongoing waste management activities and implement those actions for which NEPA reviews have been completed and decisions made [the baseline for analytical purposes would be the time of issuance of the first draft HSW EIS]. The No Action Alternative will provide a baseline for comparison of the environmental impacts of the proposed action and its alternatives." See Volume I Section 3.1.

The HSW EIS No Action Alternative provides a baseline for comparison of the impacts from the proposed action and alternatives and is consistent with decisions reached under previous NEPA reviews. No Action thus reflects the current status quo and continued operation of existing facilities without conducting additional activities necessary to meet regulatory obligations. The HSW EIS No Action Alternative would only partially meet DOE's obligations under the Hanford TPA and applicable regulatory requirements. As such it represents an analytical construct to meet NEPA requirements rather than an expression of DOE's intended future actions. Because most activities considered in the HSW EIS are ongoing operations, or have been the subject of previous decisions made under other NEPA reviews, the No Action Alternative consists of implementing the previous NEPA decisions or of continuing current solid waste management practices, consistent with CEQ guidance. The No Action Alternative was evaluated using the Hanford Only waste volume and the Lower Bound waste volume. The No Action Alternative for disposal of ILAW consists of the preferred alternative selected previously in the Record of Decision (ROD) for the Tank Waste Remediation System (TWRS) EIS (62 FR 8693). The ILAW volume reflects a different waste form (cullet in canisters) than that assumed for Alternative Groups A through E (monolithic vitrified waste in canisters). See Volume I Section 3.1.

The Hanford Only waste volume has been evaluated in all action alternatives and the No Action Alternative to provide a better comparison with the impacts of adding offsite waste. The incremental impacts of offsite waste are the differences between the Lower and Upper Bound Volumes and the Hanford Only impacts for a given alternative.

DOE agrees that the stop work scenario (which is not the same thing as the No Action Alternative) is unrealistic and it has been dismissed from consideration. See Volume I Sections 3.1 and 3.2.

Comments

E-0043/053, EM-0217/053, EM-0218/053, L-0056/053, LM-0017/053, LM-0018/053

A real no action alternative would assume that without the site specific HSW EIS, the WM-PEIS could not be implemented and thus 70,000 truckloads of new waste could not be imported into Hanford. The real impact of DOE's plan to import more waste to Hanford can be shown only by quantitatively and comprehensively comparing a) no importation of waste (the no action alternative) with b) importation and disposition of new waste.

Response

A No Action Alternative under NEPA does not necessarily mean no action at all (see CEQ Forty Most Asked Questions, Question 3, No Action Alternative [46 FR 18026]). Pursuant to the HSW EIS Notice of Intent (65 FR 10061), under the No Action Alternative, "DOE would continue ongoing waste management activities and implement those actions for which NEPA reviews have been completed and decisions made [the baseline for analytical purposes would be the time of issuance of the first draft HSW EIS]. The No Action Alternative will provide a baseline for comparison of the environmental impacts of the proposed action and its alternatives." See Volume I Section 3.1.

Hanford is part of a nationwide cleanup effort of over 100 DOE sites and cooperates with these sites in the cleanup. As part of that effort, Hanford would receive some LLW, MLLW, and would temporarily store some TRU waste from other DOE sites, as well as send HLW, spent nuclear fuel, and TRU waste to other DOE sites. The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities. Information on the potential impacts of transporting waste has been revised and is presented in Volume I Section 5.8 and Volume II Appendix H.

The HSW EIS estimates that up to 33,900 shipments of LLW, MLLW, and TRU waste could be shipped to Hanford if the upper bound waste volumes are realized. The actual number of shipments is expected to be less than this.

Comments

L-0041/042

The variability of the magnitude of release and the temporal distribution curves presented in Appendix L clearly demonstrates the wide range of uncertainty in the modeling results. This uncertainty should lead to future characterization and modeling studies of each individual site during siting, along with waste characterization and treatment studies necessary to develop model predictions that exhibit greater certainty.

Response

An expanded discussion of uncertainties associated with the HSW EIS impact analyses is included in Volume I Section 3.5.

DOE evaluates the performance of each disposal facility in detail to ensure the facility meets the DOE Performance Assessment requirements. If groundwater contamination in excess of applicable limits were predicted by the Performance Assessment process, changes in the waste acceptance criteria would be made to limit disposal of the waste causing the groundwater contamination. The waste would require further treatment prior to disposal or would be stored until a method was found to treat or dispose of the waste.

Comments

L-0044/061

The response indicates the points of analyses used in the comparative assessment were "located along lines approximately 1 km (0.6 mi) down gradient from aggregate HSW disposal areas within the 200 East, 200 West, and the ERDF areas and near the Columbia River located down gradient from all disposal site areas (Figure G.1)." The response also explains why these points of analyses were selected. Specifically, the response explains: "Points of analysis approximately 1 km down gradient from the overall waste disposal facilities in each area are not meant to represent points of compliance but rather common locations to facilitate comparison of impacts from broad waste management selections and locations defined for each alternative."

According to Figure G.1, the various points of analysis apparently do not represent contaminant convergence points. The explanation is not understood. Contrary to the explanation, use of the various points of compliance would facilitate comparison of greatest impacts from each waste management unit. Use of points of analyses located along lines approximately 1 km down gradient from waste management units results in dilution of impact concentrations. This approach is not conservative.

Response

The maximum point of impact from multiple and widely dispersed sources may not necessarily be directly underneath the Low Level Burial Grounds or at the Low Level Burial Ground boundary. To model the groundwater impacts from multiple and widely dispersed disposal units over long periods of time, a 1-km point of analysis location was deemed to be more appropriate and representative than a regulatory point of compliance well location, for purposes of NEPA analysis. The point of analysis approach is considered technically appropriate for a NEPA evaluation of groundwater impacts over the long-term (10,000 years) time period analyzed. The 1-km point of analysis is not intended to represent the proposed locations for actual monitoring wells that would be used during the operational and closure time period. Groundwater impacts at the facility boundary (about 100 meters) have been added to the impacts identified for the preferred alternative and are discussed qualitatively for the other alternatives. A discussion of the differences between the 1-km point of analysis and the disposal facility boundary is provided in Volume I Section 5.3 and Volume II Appendix G.

Comments

E-0012/003

[Why] are groundwater monitors MILES AWAY FROM the burial vault?

E-0019/005, L-0026/005

The draft HSW-EIS has failed to provide calculated groundwater concentrations at the regulatory point of compliance (disposal unit boundary or 100 meters down gradient). The draft HSW-EIS provides calculated groundwater concentrations at 1,000 meters down gradient and in the Columbia River. The 1,000 meter and Columbia River concentrations are significantly lower than the regulatory point of compliance values would be.

E-0043/017, EM-0217/017, EM-0218/017, L-0056/017, LM-0017/017, LM-0018/017

The EIS should disclose impacts to groundwater and human health at the point of compliance for waste management units. Lines of analysis at 1 km do not provide adequate analysis. DOE should analyze the potential impacts at the edge of, and under, the disposal sites in the vadose zone and groundwater, as well as potential worst case impacts from overlapping releases.

E-0047/024

Point of compliance for groundwater is directly under waste site, EIS can not use any arbitrary point away form waste site and fails to assess and disclose the short and long-term impacts to groundwater directly under the waste site which is the legal point of compliance.

E-0050/006

The EIS fails to assess and disclose the short and long-term impacts to groundwater directly under the waste site, which is the legal point of compliance. Instead, the EIS looks at a point 1 km down-gradient, which is a change in policy beyond the purview of an environmental impact statement.

E-0055/015

Washington Ecology and EPA, for instance, have concurred with the analysis that this revised draft fails to provide the legally required minimum analysis of the impacts of proposed landfill sites, size, disposal quantities and design. Hundreds of commenters, the Hanford Advisory Board, Tribes, Heart of America Northwest, and the States of Oregon and Washington and U.S. EPA all urged USDOE to clearly disclose and consider the impact of the proposed landfill alternatives on groundwater meeting the standards in Sec. 3004 and 3005 of RCRA, Chapter 173-303 WAC, NEPA, MOTCA, SEPA, etc… requiring that the impact on ground water be analyzed under the facility and at the proposed facility boundaries. Without analysis of the impacts on ground water at the current and proposed new facilities' boundaries it is impossible to ascertain what the impacts are[.]

F-0024/006

Rapidly improve monitoring on the groundwater problems in the burial grounds not a kilometer away.

L-0012/006

One of these proposals which is found in and denied in the HSWEIS is moving the point at which one measures risk away from the source to a further point so as [to] lower the standards, thus minimizing the risks. This kind of action constitutes a change in policy, which is beyond the purview of an environmental impact statement.

L-0017/006

The monitoring point to assess groundwater contamination from the burial grounds is supposed to be at the waste site boundary. That is the "point of compliance" according to the USEPA. However, USDOE is currently using a monitoring point one kilometer away, which therefore is an inaccurate and misleading measure of groundwater contamination. We recommend installing new wells, as legally required, at the point of compliance.

L-0039/014

Compliance and analysis points in this draft EIS are unacceptable. The HSW EIS analyzes the potential impacts to groundwater at a line one kilometer away from the proposed disposal sites. This is inadequate and DOE should analyze the potential impacts at the edge of, and under, the disposal sites in the vadose zone and groundwater.

L-0041/011

Analyses of impacts from the spread of contaminants were conducted at a distance from the waste sites. This action gives the appearance of reduced risk and is contradictory to regulatory guidance and statutes. Therefore, the analyses of risk the HSW-EIS is likely inaccurate.

L-0041/051

Analyzing groundwater impacts at a distance (1 kilometer from waste site boundary) tends to statistically minimize risk. The point of analysis should be placed at the boundary of the waste site.

L-0044/118

As we have commented previously, the use of lines of assessment to assess groundwater quality impacts does not meet the Resource Conservation and Recovery Act (RCRA) regulatory requirement for monitoring groundwater at the point of compliance. For purposes of facility siting and impact analysis, the point of compliance should be at the waste management unit boundary. Use of various points of compliance would

Point of Assessment

facilitate comparison of greatest impacts from each waste management unit. Use of lines of analyses, rather than regulatory points of compliance, results in dilution of contaminant concentrations. This approach is neither conservative nor yields a worse case scenario, as required by SEPA when inadequate information is available.

E-0049/005, L-0048/005

The point at which the U.S. Department of Energy (DOE) analyzed risk due to disposal sites was too far away to sufficiently and fully determine release impacts. The Board finds DOE's explanation that these are lines of analyses, not compliance points, to be inadequate. Monitoring points must be established at the disposal site boundaries.

L-0049/003

First, the revised draft HSW EIS describes impacts to groundwater on kilometer downgradient of the correct point of compliance, the facility boundary. The revised draft HSW EIS states that these points are not meant to represent points of compliance but rather common locations to facilitate a more complete comparison of long term impacts from various waste management configurations and locations defined for each alternative. We commend DOE for including information that assists the decisionmaker and reader in comparing alternatives, however, information indicating compliance with environmental standards is also extremely relevant and necessary for the decisionmaker to make an informed decision when selecting between alternatives. The Council of Environmental Quality (CEQ) National Environmental Policy Act (NEPA) Implementation Regulations at 40 CFR 1502.2 states that an EIS shall state how alternatives considered in it and decisions based on it will or will not achieve the requirements of environmental laws and policies. The final HSW EIS should predict groundwater impacts at the point of compliance (i.e. the facility boundary) and state if action alternatives meet applicable groundwater standards.

TLG-0004/003

And certainly from what I've read in the summary, there doesn't seem to be even a proposal under consideration that would adequately address the water quality impacts from what they're proposing to do with monitoring stations located a mile away from the sites at which they plan disposal. I'm hard pressed to see how that can give an accurate picture of what's actually leaching through the ground and into the environment. Because as we know, much of this waste has a lifespan that extends many, even hundreds, of generations from today.

TRI-0001/017

Lastly, I would like to address the issue of the groundwater. Point of compliance. The Department of Energy, this is from the EIS, and I will have to show you with a pen, has analyzed only the line of analysis for groundwater impacts right here, right here, and just north up here. Unfortunately, what this means is that significant groundwater impacts are not being examined and we cannot make any determination about the adequacy of measures for any of the proposed facilities. As Dave Einan from EPA noted, you have to consider what are the impacts to groundwater at the edge of the facility. That's what the law requires. It is how we measure the impact in terms of an exposure scenario. And it is unacceptable to say we are going to measure it a kilometer away. ... By going a kilometer away, what we are in effect doing is neither actually finding out the maximum concentration at the edge of the boundary, nor at the point in the channel where you have the cumulative impact of other waste sites. Conveniently enough, when you look at this, what you get is a line of analysis that neither measures the total cumulative impact from all waste sites, nor the impact at the boundary of the specific waste unit. It is chosen for no reason that can be ascertained, and therefore it leaves us to think that it is chosen for exactly this point, that it is not at the point of maximum concentration from all waste sites to measure the cumulative impact, and it is not at the point where you get the highest impact from a particular waste site either. It needs to be redone. It is not that you shouldn't drop that line of analysis. It's just that you need to do analysis at the boundary of each facility, including the existing facilities, and you need to do it at the point where the pathways converge from different facilities.

TSE-0012/002

The groundwater contamination levels must be stated at the boundary levels of the containers, the sites.

Point of Assessment

Response

The maximum point of impact from multiple and widely dispersed sources may not necessarily be directly underneath the Low Level Burial Grounds or at the Low Level Burial Ground boundary. To model the groundwater impacts from multiple and widely dispersed disposal units over long periods of time, a 1-km point of analysis location was deemed to be more appropriate and representative than a regulatory point of compliance well location, for purposes of NEPA analysis. The point of analysis approach is considered technically appropriate for a NEPA evaluation of groundwater impacts over the long-term (10,000 years) time period analyzed. The 1-km point of analysis is not intended to represent the proposed locations for actual monitoring wells that would be used during the operational and closure time period. Groundwater impacts at the facility boundary (about 100 meters) have been added to the impacts identified for the preferred alternative and are discussed qualitatively for the other alternatives. A discussion of the differences between the 1-km point of analysis and the disposal facility boundary is provided in Volume I Section 5.3 and Volume II Appendix G.

Groundwater monitoring is conducted according to TPA requirements, the Hanford Dangerous Waste Management permit, and DOE Orders. Groundwater monitoring will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations.

In 2001 alone, samples were collected from 735 groundwater monitoring wells to determine the distribution and movement of existing radiological and chemical constituents in Hanford Site groundwater, and to identify and characterize potential and emerging groundwater contamination problems. Samples were analyzed for about 40 different radionuclide constituents and about 290 different chemical constituents. Airborne radionuclide samples were collected at 45 continuously operating samplers: 24 on the Hanford Site, 11 near the site perimeter, 8 in nearby communities, and 2 in distant communities. Nine stations were community-operated environmental surveillance stations managed and operated by local school teachers as part of an ongoing DOE-sponsored program to promote public awareness of Hanford Site environmental monitoring programs.

Volume I Section 6 identifies the major statutes, permits, compliance agreements, and regulatory requirements followed in conducting operations at Hanford Site. Statutes include AEA, CERCLA, RCRA and the State of Washington Hazardous Waste Management Act. Volume I Section 6.3 discusses the TPA. Volume I Section 6.4 discusses the Dangerous Waste Management permit. Volume I Section 6.19 provides a summary of existing and potential permits (including state approved permits where state decision-making will be necessary) required to construct and operate treatment, storage, and disposal facilities related to the HSW EIS alternatives. Volume I Section 6 has been updated and revised in response to comments in the final HSW EIS.

Comments

E-0014/005

When our government recklessly harms our land and us, it resembles those against whom it claims to defend us. Please, do not treat us as the dictators we despise treat their people.

E-0018/002

There is no infallibility when it comes to man. We make far too many mistakes or poor decisions before we look into future consequences especially when it comes to the environment.

E-0041/002

In the case of the responses to the agency comments, essentially every question asked has been answered—sometimes with inadequate and evasive answers, to be sure, but there are answers.

E-0041/003

As to responses to comments by private individuals, I can only judge by the responses to my comments, as I hadn't time to get to anybody else's—the responses were inadequate in the extreme. Often whole sections of questions and comments were essentially acknowledged with a shrug—questions simply went unanswered.

When they were answered, the answers and the questions were so badly matched that it was often difficult to tell what question was being answered--sometimes it was possible to tell from context, often not.

Even when there were specific answers, they were often inadequate. The phrase "These details do not change the assessment documented in the HSW EIS" is repeated ad nauseum, with no explanations or justifications for the bald statement--if the questions had been given adequate consideration, it would not have been necessary to fall back on dismissive formula.

E-0043/001, EM-0217/001, EM-0218/001, L-0056/001, LM-0017/001, LM-0018/001

The revised Draft Hanford Solid Waste Environmental Impact Statement should be withdrawn and rewritten to consider, address, and analyze all of the comments detailed below.

E-0046/001

Enclosed please find some detailed information about Contemporary Technologies, inc. We are experts in the design and development of software solutions that help manage and streamline the process of treating, storing, disposing and shipping of critical materials such as hazardous and nuclear waste. … Combined, these assets can make us a valuable asset to the Richland Operations Office and its prime contractors.

E-0051/006

It's time to get back on track, and the preferred alternative of the HSW EIS isn't it.

F-0023/001

It is important for civil servants to remember they work for we the people, we the taxpayers and not an illegitimate regime representing their selfish corporate interests. You are paid for and work for us!

F-0024/001

You may get away with burying us in paper - All kinds of "dirty" tricks could be hidden in there.

L-0016/013

My assessment was that information on the site and its neighborhood was insufficient to make long-term plans, and I stand by that assessment.

L-0016/014

Paleoclimatology, for example, might not help predict future climactic changes, but it would provide data on how sudden (and how radical) changes could be.

Public Involvement

L-0016/015

Present population figures are no guarantor of future demographic patterns.

L-0039/020

If the above concerns are addressed in a revised draft EIS, the specific Hanford-only waste decisions the HSW EIS could support would be limited to:

· Whether to use an existing facility or build a new facility to treat waste;

· Whether to dispose of Hanford low-level waste (LLW), mixed low-level waste (MLLW), and ILAW in a common facility or continue to use separate disposal operations;

· Where such disposal facilities should be located; and

· Whether to continue existing disposal practices or move to larger facilities with liners and leachate collection capability.

P-0078/001

The revised draft of the Hanford Solid Waste Environmental Impact Statement fails to adequately address citizen's concerns.

TSP-0009/005

I would encourage that DOE recognize that the issues here are not only legal, medical and chemical and biologic and radioactive, but they are also very much ethical issues, and they will impact our communities and impact the river for a very long time to come.

Response

The HSW EIS uses the best available data, computer modeling, assumptions, and related methods to produce estimates of reasonably foreseeable environmental impacts. The modeling approach was consistently applied to each alternative, and it provided information that allowed comparison of the alternatives.

NEPA procedures ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. DOE considers public input a valuable and required step in the NEPA process. DOE solicited input from regulators, tribal nations and members of the public over a three-month comment period on the first draft HSW EIS, and over an extended sixty (60) day comment period on the revised draft HSW EIS. The HSW EIS incorporates accurate scientific analyses, expert comments from supporting agencies, and the results of public scrutiny provided during scoping and other public review periods. The resulting HSW EIS concentrates on issues that are truly significant to management of LLW, MLLW, and TRU waste at Hanford. The revised draft HSW EIS was presented for a public comment period of forty-five (45) days beginning April 11, 2003. In response to requests, the comment period was extended for an additional fifteen (15) days to June 11, 2003.

Both oral and written comments were received at public meetings. Written comments were also accepted by conventional and electronic mail. Comments were provided on several common topics including: coordination with other environmental impact statements and DOE activities; alternatives and activities to analyze; waste types and volumes to analyze; public health, environmental consequences; transportation risk, and public involvement and government agency consultation. DOE has carefully considered and made an extensive effort to respond to comments and incorporate revisions in the final HSW EIS. It must be noted that many of the actions evaluated will be subject to additional and more specific regulatory and public reviews pursuant to the dangerous waste permitting process and the TPA.

DOE believes this HSW EIS complies with applicable NEPA requirements. See Volume I Sections 1.6 and 7, Volume II Appendices A and I, and the Volume III CRD introductory sections for further details on consultation and public involvement.

Comments

E-0041/004

On more specific points, I would like to focus on page 3.243 in the comment response volume. Here answers were somewhat more complete, but they didn't particularly profit thereby, for the threadbare text of insufficient study more adequately showed its holes when more complete answers were given.

E-0047/039

We request that all citizen comments, questions and presentations at public hearings be responded to, and individuals who gave comments receive a written response. Both the question and answer sessions and alternative public interest viewpoint presentations were transcribed, and we request that they be included in the record, and responded to as comments. Where questions were not responded to accurately, or when USDOE was not able to respond to a question, USDOE should fully respond in writing.

Response

Comments received during the HSW EIS process are recorded, reviewed, and responded to in accordance with applicable NEPA regulations and DOE policies. Specific concerns have been individually considered and are addressed in Volume III, the Comment Response Document.

Comments

E-0055/007

Public Comment Stifled and Inadequate: Finally, USDOE acknowledged that its published closure date for the comment period (which was May 26, Memorial Day) is illegal under NEPA. We warned USDOE that its proposed cut off of comments on a legal holiday was an illegal attempt to cut short the comment period, by trying to require that comments had to be received by the Friday preceding the 45th day (creating a 42 day comment period on a massive document about decisions that are momentous). On April 14 USDOE announced the dates for hearings and cities, with far less than 30 days notice to the public for hearings. This precludes citizen groups from mailing a Citizens' Guide or other comment guide with any decent analysis and announcing the dates and locations of hearings. Indeed, USDOE with just two weeks before the start of hearings, USDOE had not set locations, so we could not mail them to the public even if we had analyzed the document enough to produce a more detailed guide.

Response

The published closure date for the comment period was originally May 27, 2003. This was noted in the Federal Register on April 11, 2003 (68 FR 17801).

NEPA procedures ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. DOE considers public input a valuable and required step in the NEPA process. DOE solicited input from regulators, tribal nations and members of the public over a three-month comment period on the first draft HSW EIS, and over an extended sixty (60) day comment period on the revised draft HSW EIS. The HSW EIS incorporates accurate scientific analyses, expert comments from supporting agencies, and the results of public scrutiny provided during scoping and other public review periods. The resulting HSW EIS concentrates on issues that are truly significant to management of LLW, MLLW, and TRU waste at Hanford. The revised draft HSW EIS was presented for a public comment period of forty-five (45) days beginning April 11, 2003. In response to requests, the comment period was extended for an additional fifteen (15) days to June 11, 2003.

Both oral and written comments were received at public meetings. Written comments were also accepted by conventional and electronic mail. Comments were provided on several common topics including: coordination with other environmental impact statements and DOE activities; alternatives and activities to analyze; waste types and volumes to analyze; public health, environmental consequences; transportation risk, and public involvement and government agency consultation. DOE has carefully considered and made an extensive effort to respond to comments and incorporate revisions in the final HSW EIS. It must be noted that many of the actions evaluated will be subject to additional and more specific regulatory and public reviews pursuant to the dangerous waste permitting process and the TPA.

DOE believes this HSW EIS complies with applicable NEPA requirements. See Volume I Sections 1.6 and 7, Volume II Appendices A and I, and the Volume III CRD introductory sections for further details on consultation and public involvement.

Comments

E-0021/003

I am especially disturbed with the short comment period. The draft is far too large to digest and comment on in the short time allowed. Why not extend the comment period so that it can be properly analyzed?

E-0026/001

The NEPA requires adequate time for the public to read AND assimilate the information written in any EIS. Your job is to provide adequate time for the public and agencies to read and respond to specifics within the document. Thirty days is NOT adequate for a 3000 page document.

E-0041/001

While the extension of the comment period was anything but adequate for anybody without a large staff to read and interpret this massive document, it did give me time to finish reading the 'responses' to my comments

E-0043/004, EM-0217/004, EM-0218/004, L-0056/004, LM-0017/004, LM-0018/004

The HSW EIS is not compliant with the National Environmental Policy Act (NEPA) and fails to address adequately the following legally mandated compliance issues.

E-0043/036, EM-0217/036, EM-0218/036, L-0056/036, LM-0017/036, LM-0018/036

DOE's consultation with Tribes and other state and federal agencies has been inadequate, as has DOE's consultation with the general public.

E-0044/001

The EIS as written is unusable for decision making.

E-0047/001

While we [Columbia Riverkeepers] appreciate that the Department of Energy (DOE) took the effort to revise its initial draft, the current draft still falls far short of the requirements under both the National Environmental Policy Act (NEPA) and the State Environmental Policy Act (SEPA) and fails to cure many of the deficiencies identified by numerous reviewers including the EPA. The serious inadequacies require that DOE re-issue a new Draft EIS that fully meets the requirements of NEPA and SEPA.

E-0047/037

NEPA requires adequate time for the public to read and assimilate the information in an Environmental Impact Statement. Although at the last moment USDOE granted an extension two days after the Hood River public meeting, USDOE did not allow sufficient public or even other agencies time to do the proper evaluation. CRK [Columbia Riverkeepers] believes because of this failure this EIS does not comply with the intent of NEPA.

E-0047/038

Given the massive environmental contamination that has already exists at Hanford and proposals that would ship even more radioactive and mixed waste to Hanford, the need for this type of disclosure is especially great

E-0050/001

Although the Department of Energy (DOE) addressed many of my concerns about shortcomings in the original EIS, there are many problems remaining in the current version, and it fails to meet National

Environmental Policy Act (NEPA) requirements.

E-0050/004

Although the 15-day extension for submitting these comments is appreciated, it is still inadequate for reviewing a document of the length and complexity of the HSW EIS. Additional time is needed to comply with NEPA's requirement that adequate time be provided for the public to read and assimilate the information.

E-0055/008

The U.S. Department of Energy (USDOE) responded to the outpouring of criticism of its first draft of the Hanford Solid Waste Environmental Impact Statement (HSWEIS), issued in 2002, by acknowledging that it was not legally adequate and withdrawing the draft. This new draft is still incomplete and inadequate to support any of the proposed decisions.

USDOE failed to provide adequate opportunity for public review and notice to the public of the proposals and content of this draft. The comment period was marred by repeated failures of USDOE to live up to reasonable notice and review expectations, including legal minimum standards.

The intent of USDOE has been repeatedly stated in public forums to issue Records of Decision (RODs) on the proposals made in this EIS to increase waste shipments to Hanford by July 31, 2003. This predetermination, was in, and of, itself, illegal. It revealed that USDOE had already decided to make Hanford a national radioactive waste dump for Low-Level Radioactive Wastes (LLW), Mixed Low-Level Radioactive and Hazardous Wastes (Mixed Wastes), and Transuranic Wastes (TRU, including Mixed and extremely radioactive "Remote Handled TRU"). Indeed, USDOE representatives and notice mailings stated that USDOE had already decided to use Hanford's soil to dispose or "store" of these wastes from other nuclear weapons production and research facilities regardless of the specific and cumulative impacts on the ground water, public safety, long-term human health, the Columbia River and the environment.

These statements made a sham out of the National Environmental Policy Act (NEPA) process and were specifically designed to discourage public comment on the fundamental issues, and the fundamental impacts of USDOE's proposed actions. There is no doubt that the statements in USDOE's notice, at hearings and at public meetings discouraged public comment on what the proposed actions and reasonable alternatives to them. For this reason, amongst scores of other reasons, the EIS is legally inadequate for either NEPA or State Environmental Policy Act (RCW Chapter 43.21C) purposes.

E-0055/009

It [the draft EIS] was not prepared in compliance with National Environmental Policy Act (NEPA) processes. For the reasons detailed below, we advise DOE to withdraw the EIS, and to reconfigure the entire Hanford EIS process. The Board advises the regulatory agencies to find the document inadequate to meet NEPA and the Washington State Environmental Policy Act (SEPA) requirements.

F-0008/002

If they [Columbia Riverkeepers] need more time to analyze, it MUST be provided.

F-0010/003

Due to the complexity and seriousness of the topic at hand, I have also joined my colleagues in requesting a 15-day extension of the comment period. It is absolutely critical that the public has sufficient time to consider the important decisions associated with the actions in this document.

F-0013/005

The revised EIS should be rejected. It is not what was intended by the NEPA and even fails to meet the most technical of requirements.

F-0018/001

45 days to review a 3000 page document - c'mon

Public Involvement

F-0019/001

The lack of effort by the DOE to involved public interest is a joke. 45 days to review a 3000 page report? Even the experts have requested a 30-day extension - I request that DOE extend the deadline for comment an additional 30-days.

F-0021/006

...rushing the EIS process to avoid public scrutiny is not OK and is a sign of your bad faith.

F-0024/003

Extend the public comment period on this EIS to allow necessary public participation.

F-0025/003

This solid waste EIS is an inadequate study.

F-0025/007

Since NEPA states there be adequate time to review and comment, USDOE should have allowed a comment period extension. With this declined, the process is unacceptable.

F-0026/001, F-0028/001

Input from the public is essential and needs to take place over the period, of a year or more, in order for voices, pro and con, to be heard.

F-0026/004, F-0028/004

An extension is necessary to properly prepare for cleanup of Hanford without adding additional waste.

F-0027/003

Please withdraw this EIS and come back with one that's best for everyone and our earth.

F-0029/004

So legally and morally a new EIS is needed.

F-0031/001

Public awareness is key in resolving the Hanford crisis. Our lives in the Northwest are at stake as long as the D.O.E. does little or nothing to clean up the mess. The damage has already been done - it is irreparable and the results disastrous.

L-0011/001

I find your efforts to inform the public about the RDEIS for the Hanford Solid Waste Program severely lacking. Although I may have missed it in my evening peruse through the Walla Walla Union Bulletin, I have seen no news release or information about the opportunity for public comment here in the Walla Walla area and only heard about the public comment period through other sources.

In addition, a mere 45-day comment period barely gives people enough time to read, let alone digest a 3,000 page bureaucratic document! … I would strongly encourage you to extend your comment period for at least another 90 days and make additional efforts to inform the public of this opportunity.

The fact that you are holding only six public meetings across the region is also disturbing. It appears that you have tried to cover the travel ways in your choice of locations, but the population base you need to be reaching cannot be served in six meetings at scattered locations. Your proposal affects a wide-ranging rural population and if you have not considered additional public meetings so many people in the out-lying areas can attend without having to travel hundreds of miles you need to do so. I believe your public involvement plan may meet minimum NEPA requirements but probably does not meet the requirements for Executive Order 12898 for Environmental Justice. As an agency you must show more responsibility in this effort, you manage a federal facility that has the capability to bring great harm to a large population. They need to be well informed.

L-0016/001

The comment period is too short! The original document was too long to be read and critiqued in the time allowed; this revised document is more than three times as long. Page #s have changed, new charts and figures have been added; yet there is even less time granted to critique the new document than what was already inadequate in the first case.

L-0016/007

Comments that were intended to improve readability (requests for more definitions, suggestions to make maps more useable, requesting improvements in cross-references & citations, etc), were generally brushed off-usually without response; sometimes rudely (and oddly-for example, in the case of figure 4.20 (now 4.25), I requested that the map and the legend be placed on opposite pages, for ease of reference, and not on the recto & verso of the same page. The commenter responded (brusquely) that the format had not changed, but it has-my suggestion was implemented. ...)

L-0016/008

Comments about bald statements of (quasi-) fact where there was really considerable disagreement were mostly responded to in general responses, since (unsurprisingly) I wasn't the only one to make those comments. Responses to these comments varied: some said that the new document contained more information on these subjects, including the uncertainties and assumptions involved. I'm going to have to take that on (dubious) faith, as I haven't had time to check. I'm hoping that terms like 'some' and 'many' and 'includes' have been replaced with numbers, and the uncertainties clearly marked

L-0016/009

Other comments which I voiced along with many others went essentially unanswered-a large # of my comments and questions were referred to page 3.289, which is a generic response saying, essentially: 'We read your comments, but we're not going to respond to them, or change anything'.

L-0016/012

I'd say between 1/3 and 1/2 of them [my 500+ comments] went essentially unanswered. Of those that were answered, only a very few promised corrections and elaborations. Whether these corrections and elaborations really were implemented, I can't say-I hadn't time to check. Otherwise, the common response was formulaic, to wit: "This comment does not change the assessment documented in the HSW EIS". This is not an answer. How would I know whether the comment does (or should) change the assessment? No reasoning is given, just the bald statement. The questions I asked seem to me important, and cannot be dismissed as 'details'.

L-0017/008

The USDOE has not allowed reasonable and sufficient time for the regulators and the public to review and digest this 3,000-page document. Given the enormity of these decisions and the ramifications for decades to come, this document requires thorough and thoughtful review. While technically following the required guidelines, refusal to extend the public comment period, despite many requests, demonstrates a lack of good faith in genuinely seeking meaningful outside comments. It is particularly arrogant because it disregards time needed by the Hanford Advisory Board to prepare advice at its June 5-6 meeting. It is not too late to remedy this. We strongly urge the USDOE, as a show of good faith, to extend the comment period an additional two weeks to June 10.

L-0017/009

Because of omissions and insufficient evaluations, particularly regarding cumulative impacts, we [Washington Physicians for Social Responsibility] recommend that this environmental impact statement be rejected and a new, more comprehensive EIS be drafted.

L-0028/002

The decision [to import radioactive waste to Hanford] is a violation of requirements Of the National

Environmental Policy Act of 1969.

L-0039/001

The Hanford Advisory Board (Board) has reviewed the revised draft of the Hanford Solid Waste Environmental Impact Statement (HSW EIS). While this EIS contains significantly more detail than the original draft, the EIS is still insufficient in terms of scope and detail.

L-0041/004

However, the HSW-EIS still contains significant deficiencies in scope and detail – significant enough that we believe the document cannot support a Record of Decision.

L-0041/058

Conduct characterization and modeling studies and waste characterization and treatment studies of each individual site. The variability in the magnitude of release and the temporal distribution curves presented in Appendix L clearly demonstrate the wide range of uncertainty in the modeling results. These studies are necessary to develop model predictions that exhibit greater certainty.

L-0044/110

The Washington State Department of Ecology (Ecology) has received and reviewed the Revised Draft Hanford Site Solid (Radioactive and Hazardous) Waste Program Environmental Impact Statement (Revised HSW-EIS).

We appreciate the work of the United States Department of Energy (USDOE) to develop a broader range of waste management alternatives, provide updated information and analysis, and address the many comments and suggestions from reviewers. We especially appreciate that the Revised HSW-EIS document provides more discussion of alternatives in the context of the important work needed to meet Hanford Site cleanup commitments.

We believe that the Preferred Alternative and its variations indicate that USDOE has been responsive to many of our concerns, public comment, and the productive work of the Cleanup Constraints and Challenges (C3H) process. Nonetheless, in several respects the draft continues to fall short of National Environmental Policy Act (NEPA) requirements.

E-0049/002, L-0048/002

The [Oregon Hanford Cleanup] Board has discussed the revised EIS and has serious concerns about the adequacy and thoroughness of the document.

L-0054/003

On May 13, 2003, the YN [Yakama Nation] requested a 60-day extension of the comment period to 26 July and a briefing on the alternatives and impacts to tribal resources. To date, USDOE has provided no response.

L-0054/013

Sixth, it fails to meet the letter or intent of existing environmental laws, including the Treaty of 1855, NEPA, RCRA, and CERCLA.

L-0054/016

In consideration of these facts, it is requested that USDOE withdraw this EIS, rescope the proposed actions to be considered in the analysis, and correct the major problems cited here.

L-0055/003

As such it is highly recommended that the schedule on completion of a final draft and record of decision on this action be reconsidered and that the Department of Energy develop additional drafts or sections of drafts until the entire analysis is acceptable to all parties involved.

Public Involvement

L-0055/004

First of all, although the CTUIR are grateful for the 15 day extension we received to review this report, it is sorrowfully inadequate for the volume of documentation required to be reviewed to fully represent the CTUIR's perspective. To review this document requires reviewing many other supporting documents. The long term ramifications of this project suggest that such conservative time frames are inadequate.

P-0032/001

I believe that the new EIS fails to adequately address the public's concerns.

P-0033/005

WE MUST HAVE MORE DEBATE TIME.

P-0046/001

I cannot believe you would limit comment to such a short time on such a major subject.

P-0047/003

The SWEIS has not addressed the concerns of intelligent citizens even close to adequately!

P-0050/002

Please extend the SWEIS comment period.

P-0050/003

We need a proper SWEIS.

P-0057/001

I am requesting you re-draft the EIS for Hanford Solid Waste (program).

P-0062/001

The new draft of the EIS still fails to address adequately concerns of the citizens of WA.

P-0089/001

Please do not close the opportunity for public comment on the Hanford site.

P-0097/001

Once again the EIS is inadequate.

P-0146/002

I am also concerned that the EIS (even the newest draft from April) doesn't really clearly and directly address the concerns of citizens and scientists.

P-0147/001

The documents do not tell people the truth about our problem.

THR-0001/003

I have to commend the Department of Energy today, under NEPA, they are here. They are actually having a public meeting. ... But the problem is, is that the state of Washington, the state of Oregon, the Hanford Advisory Board, Columbia Riverkeeper, Heart of America Northwest, ... The Umatilla Indian nation, sovereign nation, sovereign government, asked the Department of Energy for at least a 30 day extension. Why? Because they gave us a 3,000 page document and said, here, go look at it. ... NEPA says real clearly by the law you have to have adequate time to assimilate it, to do the work, to do the analysis, to engage the public, because it's their resource, and that's why NEPA, the federal law, says that. As far as I'm concerned, they are violating it. ... we want openness. We don't want secrecy. We want public involvement.

THR-0002/011

Finally, just the public involvement. Like Greg, you know, we are really concerned that this is -- the DOE did not grant an extension for the public to comment on this document, because there is so much to look at, so much to consider. And, you know, it really makes me suspicious, if DOE really wanted to hear our comments and make a decision based on these concerns that we are voicing tonight, they should give us the extra time necessary to revise -- to review this EIS.

THR-0004/001

We are disappointed at the refusal to extend the deadlines. … We want the review to be deliberate and thorough, so we want to encourage the Department of Energy to rethink their decision to not extend the review period to allow a deliberate and thorough comment from the public, and to rethink that point.

THR-0004/007

Finally, the last one I am going to leave you with, is we are not convinced that this analysis is complete. And we believe that there is more work that can be done.

THR-0005/002

[I have three areas of concern] And the first one is public input. I feel strongly that 45 days no way is enough time to have a public comment. And it is not sufficient, and it is totally unacceptable.

THR-0006/002

I think also that we need more time to research this, and I think the Department of Energy needs to give us more time rather than the short amount of days that they said we have to have this, all the comments in by.

THR-0008/001

The citizens themselves should be able to read that. And to leave it to 45 days to go through 3,000 pages is a mockery. Virtually confirms that this is a political maneuver. It's being driven by something other than the needs of the people in this region, and the needs, this is all the people in the region, including Native Americans. So, my comment on the public process is that it's failed.

THR-0009/001

…there isn't enough time to assess this statement[.]

THR-0009/010

I find the statement [DEIS] unacceptable

THR-0010/006

And then they want to give us 45 days to study a 3,000 page document. And they don't want to give an extension.

THR-0012/001

I was sitting there doing a little division. You would have to read 130 pages a day of this 3,000 page document. That would then leave you 20 days for testimony. We are already past that.

THR-0012/002

They [DOE] set it up as impossible on purpose. They changed the rules and [did] not informed us, on purpose.

THR-0014/001

This time period for this, [public comment period for the SW EIS] is it an EIS? Yes, for the Environmental Impact Statement, is ludicrous, it should be I would imagine six months.

TLG-0002/001

We have requested an extension of the comment deadline. The Umatilla Tribe has requested an extension. Other entities have requested extensions. They have all been turned down. We believe that -- we're disappointed in this action by the Department of Energy. ... We believe the government exists to serve its citizens; and we believe that in this case, the Federal Government through the U.S. Department of Energy is not serving its citizens. We believe that they have instituted artificial deadlines and a false sense of urgency and believe that there is really no legitimate reason why we cannot have an extension. The extension that we've requested.

TLG-0004/001

And my first gripe is that the comment period for this EIS and the distribution of the revised EIS and notice of this meeting, I think was truly inadequate. And I think that without adequate comment, it makes a mockery of the NEPA process. And so I would certainly commend additional time for this purpose. And I would hope that the DOE would change its position on that.

TLG-0009/007

DOE officials also, for the first time since the tri-party agreement was signed, refused to grant a very reasonable request to extend the comment deadline.

TLG-0012/003

And an adequate notification period so that local people can familiarize themselves with this new document, along with the concerns that are raised by people who study these things.

TLG-0012/005

And I think, in the future, it would be really nice if, in fact, credibility and communication is a goal here, that we try to show people really what it is that we're proposing to ship through here [LaGrande].

TPO-0002/004

The first major comment is: public involvement. NEPA requires the adequate time for the pubic to read and assimilate the information written in any Environmental Impact Statement.

The USDOE has failed to grant a 30-day extension to the comment period, even though USDOE received requests from the state of Washington and Oregon and multiple public interest organizations and the Hanford Advisory Board.

The state of Washington asked for an extension to at least the -- have meeting in June.

USDOE has denied any extension, expecting the public and all reviewing agencies to adequately review the 3,000 page document in a very short period of time.

TPO-0003/002

To assume that everything's going to be fine without looking into all the probabilities and possibilities and planning for all the potential outcomes is unacceptable.

TPO-0006/004

And the first is that we are baffled by the DOE's refusal to offer an extension of the public comment period.

TPO-0012/001

We urge DOE to withdraw the EIS and come back out after it meets the test clearly laid out by the court and its own 1997 document [PEIS].

TPO-0015/001

But are you [DOE] listening? I made approximately a hundred phone calls over the last couple of days. People are discouraged, they're feeling hopeless, they don't feel heard.

TPO-0015/012

I appreciate that there's some improvements. I appreciate DOE going back and rewriting this thing. But I don't agree with all of the inadequacies and lax in this report.

TPO-0017/001

And in the spirit of that democracy, I, too, am not happy that the comment period was not extended whenever the people asked for it, because we are the people. And this is not our day job. It's the Department of Energy, the Government's job, the people that are supposed to work for us.

TPO-0019/004

Due to the complexity and the seriousness of the topic at hand, I have also joined my colleagues in requesting a 15-day extension of the comment period. It is absolutely critical that the public has sufficient time to consider the important decisions associated with the actions of this document.

TRI-0001/002

We [Heart of America Northwest] are pleased that it was withdrawn last year and reissued. But we think that it is still legally inadequate.

TSE-0011/002

Now, the impression is also that of a certain amount of arrogance, and I think that these recent activities, such as not allowing an adequate amount of time for the analysis of this EIS, is part of it.

TSE-0013/006

So, I think this impact statement should be withdrawn, we should start over, and we should work with what we have there.

TSE-0016/001

I just want to voice my concern tonight about the public participation process. I am really disappointed and angered that DOE has not met any of the requests to extend the comment period. I don't think 45 days is sufficient time for anyone to analyze this document. I know that many of us in the audience here tonight are familiar with this topic, and we follow it pretty closely. But I also know that there are many new people in the audience tonight who are here because they are worried about the dangers at Hanford, and they are very concerned about the future of the region and the future of our river, and the impact that this will have on future generations. So, if you think that tonight is their first exposure to this topic, they now have 12 days left, after hearing these presentations, to try to generate some good, adequate comments. And I don't know how that can happen. So I just really want to reiterate my disappointment that DOE has not extended the comment period. And I think that their actions speak a thousand times louder than their words, considering what they think about public participation.

TSE-0022/003

This is a national nuclear waste dump and it's going to become much more of one when the DOE gets through, because you have heard tonight that they have foreshortened comment, and in fact the Hanford Advisory Board has said we want another two weeks to be able to comment, because we legally cannot comment. I am a member of that board. The DOE said, nah, forget it. So, look, the conversation at Hanford is over. Okay? They're not listening. None of the comments here tonight will be taken into account[.]

TSE-0023/003

I think we've definitely got to start all over on this EIS

TSE-0024/001

I think the EIS is unacceptable[.]

TSE-0024/002

I think the comment period is too short, and what does a couple of weeks mean in regards to the thousand year half-lifes of the radionuclides.

TSE-0026/005

The EIS is an insult. It should be withdrawn. The DOE must be made to comply with state and federal environmental laws, no more exemptions.

TSE-0030/006

I am genuinely saddened by the growing and blatant disregard that the Department of Energy has for the public process.

TSE-0036/003

The public is being cut out of this. And you cannot say you are accelerating the cleanup for risk when you are cutting out the public, which is what's happening. Not even two weeks [for a comment period extension]?

TSP-0006/001

Public participation does work, someone has said. But does the DOE pay attention to the citizens' will and the citizens' input? I am not very optimistic about that.

TSP-0007/006

...the EIS is obviously not adequate[.]

TSP-0014/001

Now, explain to me why there isn't a Final EIS, and then public hearings to discuss the Final EIS? To me, that totally says that this meeting has no purpose whatsoever, because what we are saying might very well be inaccurate, and there is no way we can know. The point of this meeting should be to bring facts to the public so people can be informed and be able to give you the best information they have in response to that.

Response

NEPA procedures ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. DOE considers public input a valuable and required step in the NEPA process. DOE solicited input from regulators, tribal nations and members of the public over a three-month comment period on the first draft HSW EIS, and over an extended sixty (60) day comment period on the revised draft HSW EIS. The HSW EIS incorporates accurate scientific analyses, expert comments from supporting agencies, and the results of public scrutiny provided during scoping and other public review periods. The resulting HSW EIS concentrates on issues that are truly significant to management of LLW, MLLW, and TRU waste at Hanford. The revised draft HSW EIS was presented for a public comment period of forty-five (45) days beginning April 11, 2003. In response to requests, the comment period was extended for an additional fifteen (15) days to June 11, 2003.

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DOE believes this HSW EIS complies with applicable NEPA requirements. See Volume I Sections 1.6 and 7, Volume II Appendices A and I, and the Volume III CRD introductory sections for further details on consultation and public involvement.

Comments

P-0074/001

It is long past time for the Department of Energy to begin to take seriously the concerns of citizens

Public Involvement

THR-0010/001

Every time I leave one of these meetings I leave here angry. I don't leave here satisfied. I leave here angry. I don't feel like my words, whatever they are, are listened to. I go to the next meeting, I don't hear any kind of resolution of any of the issues that I have heard anybody else express or myself express.

THR-0010/002

I mean, 12 years of going to Hanford meetings, just to battle, just to get the government to take away the waste that they have already created in the last 50 years of these programs, and they just keep putting it off with studies and they keep doing this and that.

THR-0011/001

I think that it's important for the new management at the Hanford Site to really remember that the public's been here for 14 years. And we've been involved in this process. And we've been meeting with them regularly, many of you, giving massive amounts of your time to attend public meetings. It's not the most fun thing to do. … And I think one of the most disturbing points that they need to hear right now is that we are very alarmed at what appears to be them walking away from the public process that we have worked so hard to build, a good relationship with the cleanup agencies, offering constructive criticism with ideas that help to improve the actual cleanup at the site. And we have heard from those agencies, the cleanup agencies involved with the regulation, that that's what's made Hanford progress so outstanding in this country. That's why we've gotten so much done. And we really have gotten a lot of progress made.

THR-0011/005

And it's very important that they [DOE / Hanford site managers] listen to us. And I just urge them to please open your doors, open your ears, and listen to what we've got to say, because together we can clean it up. But trying to do it this way behind closed doors, to ignore groundwater issues, to ignore real cleanup will never work, and we will all pay.

THR-0020/001

I know that a lot of us are feeling really frustrated about this whole process, because we have all been here, what, ten times, 12 times. I can't even remember how many times I have been here making comments.

TLG-0010/001

I think that the whole process feels like something that's being shoved down our throats. And I think that's a problem, because we're not here just because we're worried about something little. We're here because we're concerned about generations beyond even our comprehension.

TPO-0016/005

Your comment's not going to make a difference. They're [DOE's] not listening, it won't be responded to in an honest way. The conversation is over, folks.

TPO-0021/001

The Department of Energy has never listened. If listening means action, then action means clean up.

TSE-0030/002

We have heard a lot in recent months about DOE's accelerated cleanup plan. And it seems to me that this is all about acceleration, and very little about any actual cleanup. The rush to get this EIS through I think is a perfect example of that. Despite numerous requests from a number of organizations, just in the comment period, Department of Energy's refused. It's particularly disturbing that DOE would refuse the comment period, even for the Hanford Advisory Board. I think it is a very ominous sign. In fact, it seems to me that DOE's accelerated cleanup plan for Hanford is actually about accelerated cleanup at the smaller sites, at Hanford's expense.

Response

NEPA procedures ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. DOE considers public input a valuable and required step in the NEPA process. DOE solicited input from regulators, tribal nations and members of the public over a three-month comment period on the first draft HSW EIS, and over an extended sixty (60) day comment period on the revised draft HSW EIS. The HSW EIS incorporates accurate scientific analyses, expert comments from supporting agencies, and the results of public scrutiny provided during scoping and other public review periods. The resulting HSW EIS concentrates on issues that are truly significant to management of LLW, MLLW, and TRU waste at Hanford. The revised draft HSW EIS was presented for a public comment period of forty-five (45) days beginning April 11, 2003. In response to requests, the comment period was extended for an additional fifteen (15) days to June 11, 2003.

Both oral and written comments were received at public meetings. Written comments were also accepted by conventional and electronic mail. Comments were provided on several common topics including: coordination with other environmental impact statements and DOE activities; alternatives and activities to analyze; waste types and volumes to analyze; public health, environmental consequences; transportation risk, and public involvement and government agency consultation. DOE has carefully considered and made an extensive effort to respond to comments and incorporate revisions in the final HSW EIS. It must be noted that many of the actions evaluated will be subject to additional and more specific regulatory and public reviews pursuant to the dangerous waste permitting process and the TPA.

DOE believes this HSW EIS complies with applicable NEPA requirements. See Volume I Sections 1.6 and 7, Volume II Appendices A and I, and the Volume III CRD introductory sections for further details on consultation and public involvement.

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4. See Volume III Section 2.0, Item 6 of the CRD for more examples of cleanup at Hanford.

DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

Comments

TLG-0009/005

This hearing process, I wrote in February, should not be a sham exercise undertaken solely to fulfill the letter of the law. But DOE officials are still acting as though this decision was reached long before the public hearing process was reopened.

Public Involvement

TPO-0013/005

The repeated failure of the DOE to fulfill its past promises and commitments calls into serious question not just the proposal presented today but the integrity of the entire process of government in this area. DOE, your proposals leave me with many unanswered questions. What are your true intentions? Are you negotiating in good faith? Have you fully disclosed all the relevant information in your possession?

Response

NEPA procedures ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. DOE considers public input a valuable and required step in the NEPA process. DOE solicited input from regulators, tribal nations and members of the public over a three-month comment period on the first draft HSW EIS, and over an extended sixty (60) day comment period on the revised draft HSW EIS. The HSW EIS incorporates accurate scientific analyses, expert comments from supporting agencies, and the results of public scrutiny provided during scoping and other public review periods. The resulting HSW EIS concentrates on issues that are truly significant to management of LLW, MLLW, and TRU waste at Hanford. The revised draft HSW EIS was presented for a public comment period of forty-five (45) days beginning April 11, 2003. In response to requests, the comment period was extended for an additional fifteen (15) days to June 11, 2003.

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DOE believes this HSW EIS complies with applicable NEPA requirements. See Volume I Sections 1.6 and 7, Volume II Appendices A and I, and the Volume III CRD introductory sections for further details on consultation and public involvement.

DOE reaches its conclusions after full public involvement and disclosure. These decisions, often in the form of Records of Decision or RODs, are then published in the Federal Register.

Comments

E-0043/011, EM-0217/011, EM-0218/011, L-0056/011, LM-0017/011, LM-0018/011

The HSW EIS is not compliant with NEPA because it exceeds the scope of the EIS established in the scoping period. 40 CFR 5 1502.7(a)(2) and 1508.25. The volume of off-site waste is greater in the draft EIS than in the scoping period.

Response

The NEPA process encourages use of public comments received during scoping to revise the scope of the EIS. DOE has revised the scope of the HSW EIS based on comments received during the public comment periods for the drafts.

Comments

L-0049/007

Section 3.4.11.3, page 3.41, line 21. The maximum values should also be compared to EPA's standard of 10 mrem from air pathways (and 4 mrem from drinking water).

Response

The HSW EIS evaluations estimate that the potential air pathway dose from stack emissions to a maximally exposed individual would be 0.22 mrem per year during the operational period. Pursuant to the DOE Radioactive Waste Management Manual (DOE 2001b), the dose to representative members of the public via the air pathway may not exceed 10 mrem per year. The dose to the public from all exposure pathways may not exceed 25 mrem per year.

Drinking water doses reported in Volume I Section 5.11 are reported as CEDE for comparison with the DOE standard for dose to members of the public in DOE Order 5400.5 (DOE 1993). The 4 mrem/y DOE drinking water standard is intended to provide a level of protection comparable to the 4 mrem/y total body standard in 40 CFR 141. For a direct comparison to the 40 CFR 141 standards, groundwater concentrations are compared to the MCLs, as reported in Volume I Section 5.3 and Volume II Appendix G. That comparison is equivalent to calculating the total body CEDE or specific organ CDE, which is the basis for the MCLs.

The action alternatives analyzed in the HSW EIS are not expected to result in groundwater contamination that will exceed benchmark maximum contaminant levels (MCLs) or applicable regulatory standards at the 1-km or Columbia River lines of analysis. By the time the waste constituents from this action are predicted to reach groundwater (hundreds of years), as projected and shown in the concentration-versus-time figures in Volume I Section 5.3, they will not exceed the concentration levels (or the dose limits), because the existing groundwater concentrations will have decreased by then. Cumulative groundwater impacts from the proposed action would not exceed applicable benchmark standards or MCLs.

Comments

L-0044/025

Vol I, Sec. 5.11 Drinking water dose, and comparison to standards: Tables of drinking water doses are presented in Section 5.11 and graphs of drinking water doses are presented in Appendix F. Section F.1.6 (page F.44) explains that the drinking water doses are reported as committed effective dose equivalent (CEDE). The tables in Section 5.11 and the graphs in Appendix F then compare the resulting drinking water doses to a 4 mrem/y (presumably also as CEDE) drinking water benchmark. It should be noted that the EPA drinking water standard is not 4 mrem/y CEDE. The standard consists of MCLs for H-3, Sr-90, and alpha emitting radionuclides (including uranium) and consists of a 4 mrem/y committed dose equivalent CDE (not committed effective dose equivalent CEDE) limit to the most sensitive organ for beta and gamma emitting radionuclides. Dose equivalent and effective dose equivalent differ by organ weighting factors and are not the same quantities. Therefore, it is not appropriate to compare the resulting CEDE drinking water doses to a 4 mrem/y CEDE benchmark, because it has no regulatory basis.

From a regulatory perspective, to make a more credible comparison to a drinking water benchmark, resulting drinking water doses for uranium should be compared to the drinking water MCL for uranium. For the remaining radionuclides analyzed (C-14, Tc-99, I-129), there are two possibilities. The first method is to calculate the CDE doses to the most sensitive organ (instead of CEDE) and compare those to the 4 mrem/y CDE EPA drinking water standard. The second method is to simply compare the groundwater concentrations to the individual EPA drinking water MCLs. This is already carried out in Section 5.3 of the HSW EIS. (Note: these MCLs are not necessarily equivalent to 4 mrem/y CDE to the most sensitive organ, as in many cases they are based on decades old science).

Regulatory Compliance

Response

Drinking water doses reported in Volume I Section 5.11 are reported as CEDE for comparison with the DOE standard for dose to members of the public in DOE Order 5400.5 (DOE 1993). The 4 mrem/y DOE drinking water standard is intended to provide a level of protection comparable to the 4 mrem/y total body standard in 40 CFR 141. For a direct comparison to the 40 CFR 141 standards, groundwater concentrations are compared to the MCLs, as reported in Volume I Section 5.3 and Volume II Appendix G. That comparison is equivalent to calculating the total body CEDE or specific organ CDE, which is the basis for the MCLs.

Comments

L-0044/001

The RHSW EIS fails to recognize to understand the characterization and monitoring needs to achieve regulatory compliance. There are gaps in characterization, assessment and other pertinent data for the assessment and associated implications.

Response

The HSW EIS, as a NEPA document, is not intended to function as, or contain the same information as, a compliance agreement, a permit application, or a management plan under other Hanford regulatory programs. The HSW EIS provides information to support DOE's decision-making process at Hanford, and DOE recognizes that additional specific information will be needed to support future regulatory processes.

Groundwater monitoring is conducted according to TPA requirements, the Hanford Dangerous Waste Management permit, and DOE Orders. Groundwater monitoring will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations.

Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. The CERCLA process considers legally applicable Federal, State, and local laws or relevant and appropriate requirements (ARARs). Any decisions reached by DOE on the basis of analysis in the HSW EIS would be implemented in accordance with applicable Federal, State, and local laws and regulations. See Volume II Appendix N, Section N.2.4.

Comments

E-0054/001

The EIS fails to describe the characterization and monitoring needs to meet regulatory compliance, characterization, assessment, and other pertinent data gaps for the assessment and associated implications.

The EIS must assess current conditions and their impacts, along with the impacts of failing to be in compliance with groundwater monitoring requirements.

The EIS must consider reasonable plans for bringing the existing facilities, especially the Low-Level Burial Grounds, into compliance with Section 3004 and 3005 of the Solid Waste Disposal Act and Washington State regulations.

The USDOE ignores RCRA closure, post closure, and corrective action requirements for the entire burial grounds.

The revised draft HSWEIS Does Not Acknowledge information / or conditions on the suspected releases from the burial grounds (e.g. LLWMA4, and the commercial US Ecology site) and deficiencies associated with existing groundwater monitoring network.

Regulatory Compliance

L-0044/006

The text of the RHSW EIS refutes or does not address the applicability of RCRA closure, post closure and corrective action requirements for the all of the burial grounds.

Response

The HSW EIS, as a NEPA document, is not intended to function as, or contain the same information as, a compliance agreement, a permit application, or a management plan under other Hanford regulatory programs. The HSW EIS provides information to support DOE's decision-making process at Hanford, and DOE recognizes that additional specific information will be needed to support future regulatory processes.

Volume I Section 6 identifies the major statutes, permits, compliance agreements, and regulatory requirements followed in conducting operations at Hanford Site. Statutes include AEA, CERCLA, RCRA and the State of Washington Hazardous Waste Management Act. Volume I Section 6.3 discusses the TPA. Volume I Section 6.4 discusses the Dangerous Waste Management permit. Volume I Section 6.19 provides a summary of existing and potential permits (including state approved permits where state decision-making will be necessary) required to construct and operate treatment, storage, and disposal facilities related to the HSW EIS alternatives. Volume I Section 6 has been updated and revised in response to comments in the final HSW EIS.

Comments

E-0043/064, EM-0217/064, EM-0218/064, L-0056/064, LM-0017/064, LM-0018/064

1) The draft EIS should consider the delay to the construction of TRU processing facilities required under Tri-Party Agreement (TPA) Milestone 91. The draft EIS also should consider the impact from delayed/lesser TRU waste retrieval and the impacts of importing TRU.

2) Processing and handling of offsite wastes should not delay processing of Hanford wastes.

Response

Volume I Section 6 identifies the major statutes, permits, compliance agreements, and regulatory requirements followed in conducting operations at Hanford Site. Statutes include AEA, CERCLA, RCRA and the State of Washington Hazardous Waste Management Act. Volume I Section 6.3 discusses the TPA. Volume I Section 6.4 discusses the Dangerous Waste Management permit. Volume I Section 6.19 provides a summary of existing and potential permits (including state approved permits where state decision-making will be necessary) required to construct and operate treatment, storage, and disposal facilities related to the HSW EIS alternatives. Volume I Section 6 has been updated and revised in response to comments in the final HSW EIS.

The HSW EIS evaluates several alternatives for the storage, treatment, and processing of waste from onsite and offsite generators. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

Comments

F-0022/001

In the revised draft I would like to see a comparison study of the solid waste facility in New Mexico and that of Hanford's. I am interested in knowing if the standards of safety are the same. If they are not, and if they show Hanford as being below those safety standards then I would like to see in writing the current steps that are being taken.

L-0044/048

Vol. I, Sec. 6.0 DOE makes several remarks regarding their authority under AEA and also regards Ecology's authority for the hazardous component of mixed waste; however, there is no discussion about the regulatory authority over mixed wastes with regard to decision-making.

L-0044/051

Vol. I, Sec, 1.7.3.2 Acquisition of treatment capacity for mixed low level waste and transuranic waste presumes that Hanford facilities (e.g., T Plant) would be modified. Expansion of these facilities will be subject to modifications of existing permits. The USDOE must comply with the provisions of WAC 173-303-830(4) to modify the permits and WAC 173-303-282 if the facilities will be expanded.

L-0044/065

The following regulations from the HFFACO should also be included in the evaluation in Section 6.1 for applicability: Nuclear Energy and Radiation Act – Chapter 70.98 RCW [Revised Code of Washington], and implementing regulations; Water Well Construction Act – Chapter 18.104 RCW, and implementing regulations; Water Pollution Control Act – Chapter 90.48 RCW, and implementing regulations; Regulations of Public Groundwaters – Chapter 90.44 RCW; Washington State Water Code – Chapter 90.03 RCW; Washington State Environmental Policy Act – Chapter 43.21C RCW, and implementing regulations.

L-0044/066

In Section 6.1, the following State laws and their implementing regulations governing air emissions should be added: Washington Clean Air Act - Ch. 70.94 RCW and Department of Ecology - Ch.43.21 RCW; WAC 173-470 through WAC 173-481 (referenced as footnotes on Table 4.6 [Volume I]).

L-0044/072

DOE states that "The CEQ regulations implementing NEPA (40 CFR 1502.25[b]) require that a draft EIS list all federal permits, licenses, and other entitlements that must be obtained to implement the alternatives." No information for permits required for modified and/or new construction as proposed in the alternatives appear in the list. Instead, DOE included a general statement that "DOE would obtain appropriate required permits for any new of modified facilities." Specific information on the types of permits for new/modified facilities should be added to Table 6.1.

L-0044/094

Original comment #46 asked for more information regarding the evaluation of commercial treatment facilities and the concept of shipping waste directly from the point of origin to treatment – not via Hanford. DOE's provides the following important response: "All MLLW from off-site generators is assumed to be treated prior to being received at Hanford for disposal." This sounds like Hanford is not being used as a treatment or storage facility, only a disposal facility. Please clarify that MLLW must be stored in compliance with the Dangerous Waste regulations, which includes proper characterization and packaging.

TPO-0013/008

Do you really believe that these proposals enable you to comply with all applicable laws?

TSE-0024/003

I also think that an Environmental Impact Statement, I don't know if it is under the NEPA law, but you should be aware all of the federal laws, state laws and local laws that are being broken by your actions.

Response

Volume I Section 6 identifies the major statutes, permits, compliance agreements, and regulatory requirements followed in conducting operations at Hanford Site. Statutes include AEA, CERCLA, RCRA and the State of Washington Hazardous Waste Management Act. Volume I Section 6.3 discusses the TPA. Volume I Section 6.4 discusses the Dangerous Waste Management permit. Volume I Section 6.19 provides a summary of existing and potential permits (including state approved permits where state decision-making will be necessary) required to construct and operate treatment, storage, and disposal facilities related to the HSW EIS alternatives. Volume I Section 6 has been updated and revised in response to comments in the final HSW EIS.

Regulatory Compliance

DOE believes this HSW EIS complies with applicable NEPA requirements.

Comments

E-0053/001

USDOE's Performance Assessment is based on the burial grounds meeting "Performance Objectives" that allow radiation doses of 25 mrem per year to the public and continuous exposure to 100 mrem per year of radiation following reasonably foreseeable intrusions into the waste sites. Doses of 500 mrem per year are considered acceptable by USDOE for a single exposure following intrusion.

Rather than designing the burial grounds to meet the applicable EPA and Washington State standards, USDOE sets "performance objectives" (which are not regulatory rules) in DOE Order 5820.2A for general public exposure from all pathways and post-intrusion exposures.

EPA has specifically called the 25 mrem per year annual exposure an "unacceptable health risk". This radiation dose is fifty times the allowable carcinogen risk under Washington's Model Toxics Control Act.

USDOE's performance objective for reasonably foreseeable continuous annual exposure after intrusion into the burial grounds results in 2 fatal cancers for every 1,000 adults exposed. It is now generally accepted that children are 5 to 8 times more susceptible to cancer from ionizing radiation exposure than adults. For children, post intrusion risk deemed acceptable under USDOE's performance objective could be as high as 1 in 100. (Washington State law sets the standard as 1 additional cancer in 100,000 from all carcinogens remaining on the site).

Response

DOE and NRC regulated LLW disposal facilities are subject to the 25 mrem per year standard in DOE Order 435.1 (DOE 2001b) and 10 CFR 61, respectively. The Washington State Department of Health has adopted the NRC standard. EPA has not promulgated a 15 mrem per year standard.

It should be noted that the long-term impact analyses presented in the EIS are based upon conservative assumptions including loss of institutional control, barrier (cap) failure, and no continuing maintenance. CERCLA and MTCA standards and other comparative benchmarks used in the EIS are based upon different assumptions such as continuing institutional control and maintenance of barriers. When these types of assumptions are applied to the disposal action evaluated in the HSW EIS the long-term impacts are substantially reduced. The HSW EIS has been revised in response to comments concerning the overly conservative nature of the EIS evaluations, to provide perspective on long-term performance when assumptions of continuing human ability to maintain barriers and controls are utilized. See for example, discussion of assumption of intact barriers, Volume I Section 5.3.5 and Volume II Appendix G Section G.4.

Estimates of cancer risk in populations represent composites that account for the range in sensitivities of various members of the population, including children as well as adults.

Comments

L-0041/044

As discussed in the EIS, the use of reactive barriers, engineering redundant systems, and aggressive immobilization techniques will be required to avoid exceeding dose and risk values in the future. At a minimum, DOE should use existing hazardous waste cell designs, coupled with vadose and in-cell monitoring methods, and robust final caps to redundantly engineer protectiveness into the final product. Modeling of the "as constructed" buried waste containment system should be completed prior to finalizing the ROD, using a waste form that exhibits appropriate performance criteria.

Regulatory Compliance

Response

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW.

The Record(s) of Decision will comply with applicable NEPA requirements.

Federal RCRA Subtitle C and related state hazardous waste management regulations require that radioactive and hazardous mixed waste land disposal units meet minimum technical standards to prevent releases. The standards include a system of multiple liners to prevent leakage into groundwater, a leachate collection system, groundwater monitoring wells, a multi-layer cap to prevent infiltration of rain and snow, stringent waste treatment standards, and a program of monitoring, inspection, and reporting during the period of operation and after closure. These standards will apply to all new mixed waste disposal units evaluated in the HSW EIS. The RCRA Subtitle C regulations are not applicable to radioactive wastes that do not exhibit hazardous waste characteristics or contain listed hazardous waste, and RCRA standards are not applicable to LLW land disposal units. Although disposal of low level waste in unlined trenches is an established, legal, and environmentally protective disposal method, the preferred alternative includes the use of Hanford LLW disposal unit designs that have essentially the same engineering controls as RCRA mixed waste disposal units (liners, leachate collection, and caps). Volume I Section 2.2.3 discusses disposal facilities and their environmental protection features as evaluated in this EIS. As permitting and design work on the selective alternative is conducted, DOE may consider enhancing these facility designs. For example, permeable reactive barriers are discussed in Volume II Appendix D Section D.4.

Comments

L-0044/007

In the Dangerous Waste Part A permit application, the entire unit is RCRA regulated. The entire LLBG disposal waste management unit is permitted under the DW portion of the Hanford RCRA Permit as RCRA TSD unit (as per LLBG dangerous waste permit application, Form 3, Rev 12). The LLBG unit must comply with interim status standards pending insertion of the facility-specific permit into the sitewide permit. The entire RCRA TSD is subject to RCRA closure, post-closure, and RCRA corrective action (where applicable) requirements of WAC 173-303.

L-0044/049

Vol. I, Sec. 6.19 In this section, DOE identifies the various Hanford facilities that would be involved in implementing the alternatives including the LLW trenches and the MLLW trenches. This is incorrect in that the LLW trenches and the MLLW trenches are not separate units. They are both part of the LLBG unit and are being permitted as such. Within the LLBG Part B permit, the MLLW trenches will be permitted for operation and the LLW trenches will be on a compliance path to closure. The entire TSD unit will be assessed for compliance with permitting requirements, including those for closure, post-closure, corrective action, RCRA/CERCLA integration, and groundwater monitoring. DOE makes the clear distinction that the Hanford RCRA Permit is "not applicable" to the LLW trenches. This is in error and needs to be corrected.

L-0044/053

From the regulatory description of the LLBG unit included in Appendix D, it is clear that USDOE does not consider the majority of the LLBG units to be regulated under RCRA. The entire LLBGs (Low-Level Waste Management Units 1-5 and other Burial Grounds) are permitted (interim status) as a RCRA TSD unit as per the Low- Level Burial Grounds Dangerous Waste Permit Application, Form 3, Revision 12, 07/01/2002. The entire RCRA TSD is subject to RCRA closure and post-closure requirements of WAC 173-303-610. Furthermore, as a land-based TSD, the entire LLBG unit is subject to RCRA groundwater monitoring requirements of WAC 173- 303-400 (interim status) and, upon permit issuance, 645 (final status).

Regulatory Compliance

L-0044/055

TPA section 5.3 states: "Unless closed in accordance with Sections 6.3.1 or 6.3.3, TSD units shall be permitted for either operation or post closure care pursuant to the authorized State Dangerous Waste Program (173-303 WAC) and HSWA. Prior to permitting or closure of TSD units, DOE shall achieve (in accordance with the work schedule contained in Appendix D) and maintain compliance with applicable interim status requirements. All TSD units that undergo closure, irrespective of permit status, shall be closed pursuant to the authorized State Dangerous Waste Program in accordance with 173-303-610." Clearly, the LLBG unit is subject to the groundwater monitoring requirements of WAC 173-303.

L-0044/057

Figures D.1, D.2, D.3, D.4, D.5, D.6, D.7, and D.8 are very similar to those found in Low-Level Burial Grounds Dangerous Waste Permit Application, Form 3, Revision 12, 07/01/2002. However, the figures included in Appendix D of the EIS have been modified to remove the designation of the entire units as "treatment, storage, and/or disposal area". Therefore, the figures included in Appendix D of the EIS are not consistent with the RCRA Part A for the Low-Level Burial Grounds.

L-0044/133

The Revised HSW-EIS appears to assert that only certain low level burial grounds will be subject to dangerous waste management processes. All of the low level burial grounds appear in on the Dangerous Waste Permit application, Part A, Form 3. They are part of a treatment, storage and disposal (TSD) unit and must be managed accordingly.

Response

DOE is permitted under RCRA interim status authorization to dispose of MLLW at Hanford. The text has been revised to indicate that DOE is working with Ecology to determine the extent of LLBG coverage in the final status permit. Appropriate investigation of waste disposed in the LLBGs prior to 1987 would be made in accordance with applicable CERCLA or RCRA requirements.

TPA Milestone M-15-00C requires all 200 Area, non-tank farm, pre-record of decision site investigation activities to be completed by December 31, 2008. Site characterization information generated from TPA remedial investigation and LLBG RCRA permitting activities has been used in development of the HSW EIS.

Groundwater monitoring is conducted according to TPA requirements, the Hanford Dangerous Waste Management permit, and DOE Orders. Groundwater monitoring will be expanded as necessary according to agreements between DOE and regulatory agencies to support future waste management operations.

Comments

E-0055/019

USDOE has been illegally transferring wastes to Hanford from Superfund sites at other USDOE facilities and privately owned Superfund sites. In the revised draft HSWEIS, USDOE proposes to illegally authorize continued and expanded use of Hanford's Low-Level Burial Ground trenches for disposal of offsite LLW and "storage" of offsite TRU from such Superfund sites; and, to illegally dispose of offsite MW from such Superfund sites.

Section 9621 of Superfund (CERCLA) prohibits transfer of offsite wastes from other Superfund sites to Hanford.

42 USC 9621(d)(3) prohibits transfer of a hazardous substance, pollutant or contaminant from any other Superfund site to facilities that are not operating in compliance with the requirements of RCRA (Section 3004 and 3005) and state hazardous waste laws for liners, leachate collection systems, ground water monitoring, etc…. [sic]

Transfers are only permissible if it can be positively certified (by EPA) that the landfill is not releasing any hazardous waste into ground water, surface water or soil; and, all releases from all other facilities at the entire site "are being controlled by a corrective action program" under RCRA.

Response

DOE is not aware of any illegal transfer of waste to Hanford.

Volume I Section 6 identifies the major statutes, permits, compliance agreements, and regulatory requirements followed in conducting operations at Hanford Site. Statutes include AEA, CERCLA, RCRA and the State of Washington Hazardous Waste Management Act. Volume I Section 6.3 discusses the TPA. Volume I Section 6.4 discusses the Dangerous Waste Management permit. Volume I Section 6.19 provides a summary of existing and potential permits (including state approved permits where state decision-making will be necessary) required to construct and operate treatment, storage, and disposal facilities related to the HSW EIS alternatives. Volume I Section 6 has been updated and revised in response to comments in the final HSW EIS.

Comments

L-0044/068

The text as written states that "RCRA does not apply to any activity or substance that is subject to the Atomic Energy Act except to the extent that such application or regulation is not inconsistent with the requirements of the Atomic Energy Act." The text should be revised to reflect the opinion following. A 1996 letter from Tanya Barnett to Patrick W. Willison states that "RCW 70.105.109 provides that: The department of ecology may regulate all hazardous wastes, including those composed of both radioactive and hazardous components, to the extent it is not preempted by federal law."

L-0044/071

DOE states that "DOE facilities used for the management, storage, treatment, and disposal or radioactive waste and radioactive mixed waste are constructed and operated under the authority of the AEA." In a statement following [a] half page later DOE states that it will "comply with applicable federal, state, and local laws and regulations." Add a clarification that any facility operated for the management of mixed waste must also be constructed and operated in compliance with RCRA/State DW requirements.

Response

See Volume I Section 6.4 regarding hazardous waste management and the applicability of regulations that are not inconsistent with the AEA.

Comments

TRI-0001/004

The low-level burial grounds are woefully out of compliance. The Department of Ecology's action yesterday [Administrative Order No. 03NWPKW-5494, April 30, 2003] makes that very clear, and it is a welcomed step forward. Wastes have been illegally disposed in the burial grounds for many years.

TRI-0001/005

Since 1992 it has been illegal for expansion or adding new trenches to any landfill in the state of Washington without a liner. And these landfills have mixed waste present and they are subject to that law.

Response

DOE disagrees with the above statements, and the State of Washington Department of Ecology has withdrawn Administrative Order No. 03NWPKW-5494.

The preferred alternative as described in Volume I Section 3.7 is to dispose of low level waste in newly constructed lined disposal facilities as soon as they are available. For purposes of analysis the HSW EIS assumes this would occur by 2007. MLLW is currently being, and will continue to be, disposed of in lined facilities.

However, the use of unlined trenches for disposal of low level waste is an established, legal, and environmentally protective method of low level waste disposal at both DOE and commercial facilities. As such, it is a reasonable alternative, under CEQ regulations, and must be analyzed. The HSW EIS considers a wide range of alternatives for disposal of low level waste in both lined and unlined facilities. Lined trench alternatives include leak detection and leachate collection capabilities. In addition, groundwater monitoring would be done in compliance with applicable RCRA and State hazardous waste, TPA, and DOE requirements to validate the performance of the disposal facilities.

Volume I Section 6 identifies the major statutes, permits, compliance agreements, and regulatory requirements followed in conducting operations at Hanford Site. Statutes include AEA, CERCLA, RCRA and the State of Washington Hazardous Waste Management Act. Volume I Section 6.3 discusses the TPA. Volume I Section 6.4 discusses the Dangerous Waste Management permit. Volume I Section 6.19 provides a summary of existing and potential permits (including state approved permits where state decision-making will be necessary) required to construct and operate treatment, storage, and disposal facilities related to the HSW EIS alternatives. Volume I Section 6 has been updated and revised in response to comments in the final HSW EIS.

Comments

THR-0020/002

What I want to say to the panel is have the levels of safety been lowered to accept these new shipments? Safety standards get lowered all the time. And in order to make more shipments come into Hanford, have the safety standards been lowered so that you guys [DOE Richland] can accept these new levels, these new shipments of toxic waste?

Response

No safety standards have been lowered with regard to shipments of waste to Hanford.

Volume I Section 6 identifies the major statutes, permits, compliance agreements, and regulatory requirements followed in conducting operations at Hanford Site. Statutes include AEA, CERCLA, RCRA and the State of Washington Hazardous Waste Management Act. Volume I Section 6.3 discusses the TPA. Volume I Section 6.4 discusses the Dangerous Waste Management permit. Volume I Section 6.19 provides a summary of existing and potential permits (including state approved permits where state decision-making will be necessary) required to construct and operate treatment, storage, and disposal facilities related to the HSW EIS alternatives. Volume I Section 6 has been updated and revised in response to comments in the final HSW EIS.

Treated wastes must meet applicable regulatory standards and waste acceptance criteria prior to disposal at Hanford.

Comments

L-0044/047

CRD, p.3.86 Original comment #47 questioned the assumption that the LLBGs would ultimately be closed with a cap and also cited the need for closure decisions to go through the permitting process. DOE's response was that MLLW units will be closed via WAC 173-303-610. However, all of the LLBG is a TSD and, as such, must comply with WAC requirements for closure and post-closure care. Again, it looks like DOE is writing off the RCRA requirements associated with the entire LLBG – including the unlined trenches.

Response

For purposes of analysis this EIS assumes in all action alternatives that the Modified RCRA Subtitle C barrier would be installed over all of the LLBGs.

Volume I Section 6 identifies the major statutes, permits, compliance agreements, and regulatory requirements followed in conducting operations at Hanford Site. Statutes include AEA, CERCLA, RCRA and the State of Washington Hazardous Waste Management Act. Volume I Section 6.3 discusses the TPA. Volume I Section 6.4 discusses the Dangerous Waste Management permit. Volume I Section 6.19 provides a summary of existing and potential permits (including state approved permits where state decision-making will be necessary) required to construct and operate treatment, storage, and disposal facilities related to the HSW EIS alternatives. Volume I Section 6 has been updated and revised in response to comments in the final HSW EIS.

Comments

E-0012/004

[Why] isn't there a "just clean up Hanford, w/o imports" option?

E-0047/035

An alternative that does not import new waste and only treats and disposes of Hanford only waste.

E-0048/007

The EIS does not provide an adequate alternative to importing more toxic waste. There should be an option in the plan to clean up existing hazardous waste at Hanford without importing more waste. It appears that the EIS currently just considers stopping all cleanup if no more waste is imported.

E-0051/001

First of all, the EIS should have described and discussed the implications of an alternative WITHOUT outside waste shipments to the area. Such an alternative is warranted because this action would contravene earlier stakeholder agreements, and frankly, its omission raises suspicions about the ultimate fate of such waste.

L-0017/003

The options presented in this EIS do not provide adequate information on the risk of waste streams coming to Hanford.

TSE-0010/002

This Environmental Impact Statement should be withdrawn. We want -- I want the U.S. Department of Energy to have a realistic alternative of no new off-site waste import. This should be analyzed.

TSE-0031/012

It [DSWEIS] talks about an upper bound scenario, which is 50 percent greater than the Hanford only scenario. But it does this in terms of volume only, and not in terms of risk, risk to humans and risk to the environment.

Response

The Hanford Only waste volume has been evaluated in all action alternatives and the No Action Alternative to provide a better comparison with the impacts of adding offsite waste. The incremental impacts of offsite waste are the differences between the Lower and Upper Bound Volumes and the Hanford Only impacts for a given alternative.

Risk analysis is used throughout the HSW EIS. See Volume I Section 5 in the EIS and Volume II Appendices F, G, H, I and L.

Comments

L-0012/009

We want no further delays and changes of plans for the Waste Treatment Plant. We want the waste at Hanford treated and stored in the safest manner.

L-0018/004, TSE-0001/004

We all recognize that the greatest threat to the Columbia River is the tank farms, and stabilizing, pumping, and eventually vitrifying and shipping these wastes must remain our top priority.

L-0035/002

The waste issue has been a concern of mine since 1976, when we were promised a vitrification plant and it has never come into being.

P-0031/001

I would like to know how much longer it will take until vitrification of radioactive waste becomes reality.

TLG-0009/004

At the scoping hearings held in this Solid Waste Environmental Impact Statement of February, I and other Oregonians urged the Department of Energy to keep working to vitrify all of the wastes in the tanks at Hanford. I reminded the DOE that it made a commitment in 1997 to vitrify all of the wastes in the tanks. And I told the Department that keeping that promise was important to Oregonians.

TLG-0009/009

As I wrote in February, the Department of Energy is spending a great deal of time trying to avoid the commitment it made to us back in 1997. Oregonians want the DOE to live up to its commitments and move forward with the task of eliminating the high-level tank -- wastes in the tanks. Vitrification was the best decision then, it's the best decision now. In a recent statement, Richland operation manager Keith Klein stated the following, and I quote, 'The Department's job is to clean up waste and take the necessary steps to ensure the job is done in a safe and effective manner in accordance to all the applicable laws.' I could not agree more. When the Congress appropriates funds for the Department of Energy and the Hanford Nuclear Reservation, it expects those funds to be used for cleanup and not for a lawyer's full employment program. It's time for the DOE to stop fudging on its commitments, stop trying to weaken the TPA and start getting back to the job that Oregonians and all Americans are paying them to do.

TPO-0017/005

We have to have a vitrification plant.

TSE-0003/006, TSE-0004/006, TSE-0005/006, TSE-0006/006, TSE-0007/006

Empty those high-level waste tanks, vitrify 75 percent, don't leave leaking active waste tanks here despoiling our environment.

Response

The Hanford Waste Treatment Plant is being constructed to treat wastes removed from the Hanford tanks.

Decisions regarding the vitrification plant are not within the scope of the HSW EIS.

The Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single-Shell Tanks at the Hanford Site (68 FR 1052) will analyze other tank waste activities.

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the

National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4. See Volume III Section 2.0, Item 6 of the CRD for more examples of cleanup at Hanford.

DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

Comments

F-0022/003

As for as the choice to terminate the vitrification of holding tanks -- I want to see in the draft where that money is going[.]

E-0049/011, L-0048/011

In addition, given that elements of the upcoming Tanks Closure EIS will also contribute to the waste disposed and left at Hanford, the two EIS's should be issued concurrently, with an expanded public comment period.

Response

DOE is preparing the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site (68 FR 1052), which will address the potential environmental impacts from retrieving and processing tank wastes. DOE will conduct appropriate environmental review to support future decisions for closing the vitrification plant (i.e., Waste Treatment Plant) and other existing treatment and associated facilities.

Comments

E-0019/001, L-0026/001

The draft HSW-EIS is inadequate for defining the environmental impacts of the Immobilized Low Activity Waste (ILAW) produced by the tank waste treatment program in the Waste Treatment Plant (WTP).

1) The draft HSW-EIS uses a dated, obsolete value of 211,000 cubic meters for the ILAW volume. Reference 2 [RPP-12416, 2002, River Protection Project Target Baseline, Rev. 1, CH2M HILL Hanford Group, Inc, Richland, Washington, December] provides LAW vitrification plant feed inventories that result in 250,000 cubic meters of ILAW borosilicate glass.

E-0019/002, L-0026/002

The draft HSW-EIS (Reference 1) states that WTP wastes are not applicable to lower and upper bound waste volumes (Sections 3.3 and C.5). References 2 and 3 [RPP-12416, 2002, River Protection Project Target Baseline, Rev. 1, CH2M HILL Hanford Group, Inc, Richland, Washington, December and RPP-13678, 2003, Integrated Mission Acceleration Plan, Rev 0, CH2M HILL Hanford Group, Inc, Richland, Washington, March] identify supplemental treatment technologies of containerized grout, steam reformation, and bulk vitrification that may treat up to 80 percent of the tank wastes. Approximate volumes of alternate ILAW forms containing 100 percent of the tank waste inventory and pretreatment chemicals are:

ILAW Form	Volume, cubic meters
None – All High Level Waste	0
Iron Phosphate Glass	125,000
HSW-EIS	211,000
Borosilicate Glass	250,000
Stabilized Steam Reformation	600,000
Containerized Grout	750,000
Bulk Vitrification	1,000,000

The bulk vitrification volume of 1,000,000 cubic meters results from macroencapsulation of the ILAW melters in grout (Reference 1, Section 5.3.2.4). During melter operation, volatile radionuclides such as technetium and iodine are volatilized and condense in cooler areas of the melter. The condensed radionuclides have a higher leach rate than radionuclides encapsulated in the glass. The macroencapsulation of the melters in grout is an attempt to reduce the leach rate of radionuclides. The grout in the 1,000,000 cubic meters of emplaced ILAW is estimated at 1,000,000 metric tons and should be included in impacts and resources committed.

The draft HSW-EIS gives the total solid waste disposal volume as 754,727 cubic meters Lower Bound and 1,095,409 cubic meters Upper Bound (Reference 1, Table C.1). The correct values with ILAW alternate waste forms should be 545,000 cubic meters Lower Bound and 1,900,000 cubic meters Upper Bound. The ILAW has a potential range of 0 to 65 percent of the total disposed solid wastes.

E-0043/014, EM-0217/014, EM-0218/014, L-0056/014, LM-0017/014, LM-0018/014

All alternatives in the HSW EIS assume that all of the ILAW will be vitrified. Yet the DOE no longer plans to vitrify the overwhelming majority of ILAW, and instead plans to mix it with concrete (grout) and use other "alternative" technologies. The failure to incorporate alternative technologies is a glaring omission, as vitrification (glassification) is presumed to immobilize the waste for thousands of years, while grout will only hold for up to 30 years, and probably less. Therefore, all of DOE's analyses fail to consider the reality of the waste they are adding to the ground, rendering all alternatives and the cumulative impact sections invalid.

E-0047/018

Assumes ILAW will be disposed as silicate glass; however, the Office of River Protection (ORP) has decided on a different waste form.

E-0055/002

The National Environmental Policy Act (NEPA), which requires the preparation of environmental impact statements for government actions that may have a significant impact on human health or the environment, requires USDOE to consider the impact of its already adopted plan not to vitrify most of the waste from the High-Level Nuclear Waste Tanks. The consideration and disclosure to the public of those impacts is required to be part of this EIS, based on which USDOE intends to decide to bury the ILAW (Immobilized Low Activity Waste) in massive shallow landfills. Landfills for the LAW waste will, USDOE states, be either part of a system of landfills, or in the same landfills, with other Mixed Wastes. Either way, the cumulative impacts on ground water and future potentially exposed individuals and environmental receptors must be considered in this EIS. USDOE fails to do this. Instead, USDOE is attempting to piecemeal the disclosure – making the decision first to bury the waste in a system of landfills, and only later to disclose what the impacts are from not having vitrified the LAW waste from the High-Level Nuclear Waste tanks.

L-0041/024

The EIS assumes that all the immobilized low-activity waste (ILAW) will be vitrified as borosilicate glass.

DOE has proposed that a large amount of this waste be in some form other than borosilicate glass. These potential forms are well known at this time: aluminosilicate glass, aluminosilicate "sand" (steam reforming), or grout. These potential waste forms need to be analyzed in the EIS. Or, the ROD needs to make explicit statement that based on the analyses in the EIS, which assumed the immobilized form would be borosilicate glass, that any alternate waste form must have performance properties as good as or better than borosilicate glass. Otherwise, a supplemental EIS will be necessary when final waste forms are determined.

L-0041/025

Since the EIS assumes that low-level tank waste will be vitrified as borosilicate glass, and also that technetium 99 will not be removed from the low-activity waste, this represents an implicit commitment that any supplemental low activity tank waste forms will immobilized technetium 99 to at least the degree that borosilicate glass does.

L-0052/012

Addition of ILAW. Adding ILAW to this draft EIS is a highly significant change from the prior version. We are aware that the analyses in this EIS assume all ILAW will be vitrified, but that Tc-99 in not removed. As supplemental technologies are currently being tested, we have concerns about the form the ILAW will take, and how this EIS will be revisited if ILAW is not vitrified.

Response

DOE is preparing the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site (68 FR 1052), which will address the potential environmental impacts from retrieving and processing tank wastes. DOE will conduct appropriate environmental review to support future decisions for closing the vitrification plant (i.e., Waste Treatment Plant) and other existing treatment and associated facilities.

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

ILAW disposal has been evaluated in the HSW EIS based on the expectation that it will be a borosilicate waste form. Outside the scope of the HSW EIS, DOE has been considering adjustments to the ILAW waste form and its chemical and radionuclide composition. It is expected that potential environmental impacts associated with such changes in the ILAW waste form will be evaluated in the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site (68 FR 1052).

Comments

L-0055/038

Existing High level waste creates additional problems with this analysis. The document states no technology known or anticipated can remove 100% of contents of Hanford's HLW tanks. It is for this reason that the CTUIR [Confederated Tribes of the Umatilla Indian Reservation] would like a complete removal of the buried HLW tanks and the contaminated soil under them. This is only way to assure the waste will not continue to leak and contaminate the ground water in the future. The tanks should be cut into sections and converted into a form more stable for the environment. The final product should also be stored in lined and monitored facilities.

L-0055/039

The EIS suggests impacts to workers from cleaning up the site may be greater than the impacts to the general public from not cleaning the site up. This is an excuse to leave high levels of waste in place. We recommend other techniques, such as the use of robotics, be demonstrated for larger applications such as soil removal and tank removal to protect the workers and remove the waste.

It is further suggested that the risk of accidental release from cleaning up waste is greater than leaving it in place. This is not an argument often successfully used by industries that have to clean up a hazardous waste sites after their production operations have created it in the first place. The long-term impacts from the waste left in place is not known well enough that DOE can use the argument that it will not pose much of a danger tc the future generations.

TLG-0009/001

Oregonians will simply not accept any plan that leaves waste in the Hanford tanks.

Response

DOE is preparing the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site (68 FR 1052), which will address the potential environmental impacts from retrieving and processing tank wastes. DOE will conduct appropriate environmental review to support future decisions for closing the vitrification plant (i.e., Waste Treatment Plant) and other existing treatment and associated facilities.

The long term stewardship discussions in Volume I Sections 5.18.9 and 2.2.7 have been revised.

Comments

F-0021/005

...re-classifying waste and calling that progress is not OK[.]

F-0023/003

We do not want waste already there to be reclassified.

L-0044/100

Ecology noted that the Integrated Mission Analysis Plan for the Office of River Protection lists processing 750,000 gallons of transuranic mixed (TRU-M) waste from single shell tanks using supplemental technology (Table ES-1, Integrated Mission Acceleration Plan Strategies Produce Results, p. ES-3) Ecology supports the TRU-M tank waste initiatives. Section 4.4.1.1 of the IMAP states that 12 tanks will be handled as TRU-M (9 SSTs as contact handled waste and 3 DSTs as remote handled waste). Section 4.4.1.2.1 explains that the TRU-M waste will be dewatered and packaged into WIPP compliant containers (contact handled), with added steps for remote-handled TRU solid/liquid separation-processing or solidification. Ecology interprets these steps as treatment to meet the WIPP disposal requirements. In the Revised Solid Waste EIS, Appendix B [Volume II] Preferred Alternative Groups D & E (pp. B.85-B.88) has no detailed information reflecting the additional volume of TRU-M waste that may be generated by this ORP action.

The tank waste that is being characterized as TRU-M (rather than HLW) cannot be transported to WIPP until the NRC concurs with the redesignation, WIPP accepts the waste, and the State of New Mexico accepts the waste. Should that acceptance be delayed, the tank waste TRU-M must be treated, packaged, and stored at Hanford. That waste might constitute a waste form with no approved path forward to disposal. Ecology's review of the SWIFT report for 2002 did not reveal specific amounts forecast for the TRU-M tank waste. Ecology requests that the USDOE add specific quantities to the TRU-M volumes evaluated for storage and evaluate the impacts of long-term storage in the Final EIS.

L-0054/002

DOE had expanded the scope to include actions involving the reclassification of high-level tank waste and on-site disposal of an 'immobilized low-activity waste' fraction. This is a specific proposed action which mandates consultation with the YN Tribal government. Consultation on this matter has yet to be initiated by USDOE.

THR-0009/009

I also don't like how the statement takes things and relabels them from high-level to low-level.

Response

The HSW EIS proposes no changes regarding the classification of high-level waste.

DOE is preparing the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single Shell Tanks at the Hanford Site (68 FR 1052), which will address the potential environmental impacts from retrieving and processing tank wastes. DOE will conduct appropriate environmental review to support future decisions for closing the vitrification plant (i.e., Waste Treatment Plant) and other existing treatment and associated facilities.

The HSW EIS uses best available data for estimating inventories of hazardous and radioactive wastes. These data are obtained from information management systems maintained at Hanford and other DOE sites. The Office of River Protection has contributed data to these information management systems.

Comments

P-0142/001

I strongly object to the on-going delays of the vitrification plant construction project.

TLG-0009/006

That new plan for the vitrification plant was announced last week, just a few days before giving the people of Pacific Northwest a chance to comment in these hearings and well before the record of decision is finalized.

TSP-0015/002

The vitrification plant. I was so ecstatic to see that come up and to be built. And I do encourage you to do all you can to get that going again.

Response

Decisions regarding the vitrification plant are not within the scope of the HSW EIS.

Comments

E-0043/041, EM-0217/041, EM-0218/041, L-0056/041, LM-0017/041, LM-0018/041

The HSW EIS acknowledges that the local jurisdictions that would likely be the first to respond to a radiological emergency, yet fails to state quantitatively the who, what, when, and how regarding the DOE and the federal government's response if and when an emergency occurs.

Response

The DOE has several programs in place to assist State and local first responders. For example, the Radiological Assistance Program provides trained personnel and equipment to evaluate, assist, and advise in the mitigation and monitoring of radiological incidents. Part of the RAP is a network of eight Regional Coordinating Offices across the country that is staffed 24 hrs per day 365 days per year. The staff are trained to provide field monitoring, sampling, decontamination, communications, and other services as requested. In addition, DOE's Radiological Emergency Assistance Center/Training Site (REAC/TS) focuses on providing rapid medical attention to people involved in radiation accidents. REAC/TS is available 24 hours per day to provide personnel and deployable equipment to State and local emergency personnel for the treatment of radiation exposure. Volume I Section 2.2.4 discusses transportation, including emergency preparedness.

Comments

THR-0010/003

And then three or four or five months ago I wake up at four o'clock in the morning listening to NPR [National Public Radio] about these shipments of nuclear waste that are going to start next Wednesday, next Wednesday, without us even being notified, is just ridiculous.

THR-0012/003

They start shipping [radioactive waste] tomorrow. When did this happen?

THR-0019/001

If we have been given this deadline of tomorrow to start shipping, where is the news people in this, where is the newspapers? I believe it would be [the responsibility] on the DOE to provide, you know, coverage on this for the world's news.

Response

The Hanford Site has received thousands of shipments of radioactive waste from offsite generators over the years.

About 300,000,000 hazardous material shipments take place every year in the United States. Of those shipments, about 3,000,000 involve radioactive materials and less than 10,000 involve shipment of DOE radioactive materials.

Comments

E-0043/057, EM-0217/057, EM-0218/057, L-0056/057, LM-0017/057, LM-0018/057

Remarkably, in light of the tragic events of September 11,2001, the EIS failed to consider the possibility of terrorist attacks on the transporting vehicles. In a recent report, the Office of Inspector General noted that the DOE "[should maintain] the strictest possible control over [nuclear] materials that could, in the wrong hands, threaten national security." DOE should heed the advice contained in the OIG report. In the wrong hands, this waste material could be used against the United States, with deadly results. Such scenarios should be addressed in the HSW EIS.

E-0043/070, EM-0217/070, EM-0218/070, L-0056/070, LM-0017/070, LM-0018/070

The HSW EIS only considers an earthquake accident scenario. There should be analysis of other emergencies, such as terrorist attacks, especially along transportation routes.

F-0029/008

Has the DOE looked into safeguarding Hanford from terrorist attacks? If so, why was this not in the EIS [?]

L-0044/130

While analyses convey the fatalities that can result from accidental or malevolent sudden loss of containment in transport of TRU waste, they do not address the real possibility of diversion of shipments. Further, the scenarios evaluated do not address other measures that terrorist might take (e.g., dirty bombs) that would have significant adverse effects to public health and psyche, the environment, and the economy. In evaluating risk in transit, USDOE fails to consider that while most shipments are made on the Hanford Site, the total distance shipped offsite is significant.

P-0153/002

In the age of terrorism it is a no-brainer to even think of transporting such harmful waste.

THR-0001/005

Another thing they didn't really look at is what is the potential for terrorist attack for dirty bombs.

THR-0009/007

And they haven't addressed the terrorist risk. Which I think is real. Unlike Greg, I think there really is risk. Because it is ideal, it is an ideal access point. So why wouldn't there be some risk?

TPO-0005/003

What if someone dropped a bomb on Hanford [?]

TPO-0011/007

The fact that, of course, 9-11, and terrorism is not taken into account.

TPO-0027/001

We have planes going into buildings; we have, in other countries, cars and trucks going into various compounds, buildings, and so forth, blowing things up, so have they looked at one of the drivers running this truck loaded with all these goodies into some major, you know, like, pick it, the federal building downtown, whatever? … Well, that needs to be included.

TSE-0023/002

[The DEIS does not consider] what happens when a truck full of transuranic waste is intentionally or accidentally breached.

TSE-0028/002

Nor does it [the DEIS] consider the terrorist attack [associated with importing transuranic wastes to Hanford]. … Instead the EIS in one and a third page, discusses the terrorist attack and says, we actually just borrowed the analysis of a severe accident involving spent nuclear fuel, and trust us, that ought to be the same. And it is not the same as a benevolent event[.]

Response

The consequences of a malevolent event are expected to be within the range of accidents including severe (low probability, high consequences) accidents already evaluated in this HSW EIS. The HSW EIS analyzes several accident scenarios, including onsite facility fires, explosions, and earthquakes. See Volume I Section 5.11 and Volume II Appendix F. The HSW EIS also analyzes the impacts of accidents during transportation of waste in Volume I Section 5.8 and Volume II Appendix H. It is not possible to predict the probability of a malevolent event. However, in general, the LLW, MLLW, and TRU waste do not present an attractive target. The shipping containers used for transporting these materials are designed with safeguards commensurate with the potential hazard. In response to comments, DOE included a discussion of the potential impacts of acts of sabotage or terrorist attacks in Volume II Appendix H.

Comments

E-0043/038, EM-0217/038, EM-0218/038, L-0056/038, LM-0017/038, LM-0018/038

The Department's list of typical long-term stewardship activities provides no terrorism prevention activities. This is unacceptable.

Response

The consequences of a malevolent event are expected to be within the range of accidents including severe (low probability, high consequences) accidents already evaluated in this HSW EIS. The HSW EIS analyzes several accident scenarios, including onsite facility fires, explosions, and earthquakes. See Volume I Section 5.11 and Volume II Appendix F. The HSW EIS also analyzes the impacts of accidents during transportation of waste in Volume I Section 5.8 and Volume II Appendix H. It is not possible to predict the probability of a malevolent event. However, in general, the LLW, MLLW, and TRU waste do not present an attractive target. The shipping containers used for transporting these materials are designed with safeguards commensurate with the potential hazard. In response to comments, DOE included a discussion of the potential impacts of acts of sabotage or terrorist attacks in Volume II Appendix H.

DOE does not and will not rely solely on long-term stewardship to protect people and the environment. As indicated in the DOE sponsored report "Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites" (National Research Council 2000), "contaminant reduction is preferred to contaminant isolation and the imposition of stewardship measures." Contaminant reduction is a large part of the ongoing cleanup efforts at Hanford. Most of the analyses in the HSW EIS are based on the assumption that long-term institutional controls would no longer be in effect 100 years after closure (about 2150 AD). Long-term groundwater impacts and subsequent human health impacts were determined based on the assumption that caps would degrade and eventually provide no protection (see Volume I Sections 5.3 and 5.11 and Volume II Appendices F and G). In addition, "intruder scenarios" are analyzed to determine the impacts of gaining access to the site (i.e., no institutional controls) and digging or drilling into waste sites. See Volume I Section 5.11.2.2 and Volume II Appendix F Section F.3. Further information on DOE's long-term stewardship activities can be found in the DOE Long-Term Stewardship Study (DOE 2001a). The discussions of long-term stewardship in Volume I Sections 2.2.7 and 5.18 of the HSW EIS have been revised in response to comments.

Comments

E-0043/024, EM-0217/024, EM-0218/024, L-0056/024, LM-0017/024, LM-0018/024

Analysis of the transportation of an estimated 70,000 truckloads of radioactive and chemically toxic waste from across the country that analyzes all the routes within each state in which the waste will pass, including but not limited to detours due to construction, weight limitations, weather, and potential terrorism.

E-0043/028, EM-0217/028, EM-0218/028, L-0056/028, LM-0017/028, LM-0018/028

The EIS failed to look at other routes such as those required by detours. There are recent detours along the Columbia Gorge because of weight restrictions, which should be addressed in the transportation analysis

E-0050/007

The EIS fails to assess and disclose the risks to the public on transportation routes, including detours off major highways, from the point of shipment to Hanford. The possibility of a terrorist attack has not been adequately disclosed or assessed along the shipping routes.

E-0055/028

The Revised Draft HSWEIS does not include any new analysis of the risks or impacts of transporting wastes through Oregon and Washington, or along their specific cross-country routes. Instead, the revised draft HSWEIS only extrapolates figures based on the road miles in each state on the interstate highway routes that utilize Interstate 84 and 82 to the Washington border, and from there to Hanford. The WMPEIS included numerous statements that before any waste management decision to ship waste and before actual transportation would commence, USDOE would conduct site, route and waste specific analyses in an appropriate NEPA review. Simply showing the results of the existing hypothetical model for the hypothetical number of highway miles in Oregon and Washington for a preferred (but not legally binding) route, fails to meet this commitment and requirement. The model used was a 1982 analysis and 1990 data, which is woefully out of date.

Use of Interstate 84 requires passing over two of the ten most dangerous interstate highway mountain passes in the nation (E.g. Deadman's and Emigrant Hill). The Interstate 5 route not only exposes public along highly crowded urban highways, but the Siskiyou Mountains and the Columbia Gorge. USDOE has failed to consider the actual condition of highway bridges in Oregon. Oregon has unique design and structural flaws causing failure of many bridges.

F-0011/004

Nuclear waste should not be transported thru Oregon given the current unreliable state of our bridges and roads.

F-0013/003

In regards to transportation of off site waste to Hanford, the condition of roadways (esp. [especially] in Oregon) has not been addressed.

L-0055/024

The transportation component is still poorly lacking in evaluating the risks to transporting shipments in inclement weather. This was discussed with DOE when they visited the CTUIR offices. DOE used 1990 census data rather than the available 2000 census data. The EIS does not evaluate secondary routes that may have to be used due to overweight shipments or detours as bridges are replaced and roads closed due to routine maintenance.

THR-0005/003

Transportation. I'm in total awe regarding the information I have received about the nine bridges that do not take the weight of the 70,000 or 20,000, which I can't even believe, and to think of those trucks going through towns, and cities, neighborhoods. What happens [in the event] of an accident? And the transportation route, which of course would include going by our beautiful Columbia River.

THR-0009/006

This whole trucking thing I find unacceptable. ... If you take one truck and watch it carefully, I don't know what you are going to do about watching something from a satellite, how much impact can you have from a satellite if the truck has a problem we are watching it from a satellite. It is like remote access. It's not going to help. You can't stop something that's happening from a satellite. So you send these trucks out, you send one and you make it, and you send out ten. Ten times the risk. And then you send out 100, it just went up ten times more. And a thousand, it is ten times more. And you go 10,000, is ten times more risk. The amount of risk in 25,000 or 75,000 trucks is just huge. It's huge. And they realize that. And what they're saying is that their drivers can't have an unauthorized second deviation from route, but they will let them do one deviation from the route and that's okay, they can keep driving. Their third failure to make -- their third failure, to make their shipment notifications, but the first one and the second one is okay? So they know their drivers are not going to do everything that is asked of them. ...They know they are going to have accidents. That's life. That's how it is. You can't move 70,000 vehicles anywhere, any time, anyhow, and not have something happen.

TLG-0013/001

If we concentrate shipments to avoid bad weather, then they have to redo the calculation for the worker, the trucker radiation dose, because it's going to take longer to truck the waste and also for the public radiation dose, because they're going to be stuck in traffic next to it. And that's very significant. Same as the detour risk. And we do believe they need to do those calculations on a route and site-specific level. And it needs, then, to include the impact on the accidents of the hazardous waste component.

TPO-0002/007

The EIS fails to assess and disclose the risk to the public on all transportation routes, including detours off major highways from the point of shipment to Hanford. All detours from the point of shipment.

The waste management Programmatic EIS, which is the one before this, looked at shipments from the different sites to Hanford. That was prior to 9-11. They are not assessing a potential terrorist attack on one of these dirty -- these trucks holding this highly radioactive waste.

TPO-0015/008

It is also unacceptable to not have a complete study of the impact to the entire routes of all the roads, bridges, detours, communities, and so forth, in case of accidents along the way.

TPO-0015/009

Many of you have read the articles about how bad the roads are in Oregon and that we have to detour trucks through little tiny towns. It's unacceptable to be moving the waste through Oregon at this point.

TSE-0018/001

One of the things we had grave concerns about early on was the transportation of the transuranic waste, and actually all the waste described in the waste -- revised Draft EIS coming through Oregon on Interstate 5 and 84. … And you can see that the EIS does consider coming up I-5 -- well, it plans to come up I-5 and through I□84. What it doesn't consider is that these highly radioactive shipments will be shipped over some of Oregon's decaying bridges. And these are some of them right here. [viewgraph] An investigation by the State of Oregon has identified 221 critical problem bridges on I-5 and I-84 that these shipments will pass through. They were discussed in this draft Oregon Department of Transportation Economic and Bridge Options Report. This was done in January of this year. This report concluded that bridges throughout the state on I-5 and I-84 are currently cracked and/or restricted. This next slide is a map, indicates all the bridges along I-5 and 84 that are currently restricted. All the little circles represent the restricted bridges. And you can see that a lot of them are on I-5, and a significant number of them are on 84 along here. And in his declaration, Ken Niles, the administrator for the Nuclear Safety Division of the Oregon Office of Energy, stated that based on the permits granted the truck shipments from ETEC and the trucks from BCL in Ohio were directed to use secondary roads and detoured off the interstate highway. Currently this year a truck carrying transuranic waste was supposed to come off the main highway because it was too heavy for some of the bridges, and it was only after they reweighed and recalibrated some of the weights that they were able to keep it on the highway. Now, he said the detours off Interstate 84 may be necessary for future shipments of Battelle Columbus Lab TRU waste or other TRU wastes from other sites due to weight restrictions or bridge construction. Now, it was apparent that neither USDOE nor the contractor carrier fully considered the overweight status of the truck shipments and the routes that would be used. Now, back in, earlier this year a bridge in Riddle and Canyonville was unexpectedly closed down and they found that 1800 trucks were detoured off the main highway, off of I-5, and through the small town of Riddle. Now, this could result in community safety concerns, damage to city streets, these small communities, and negatively impact local commerce. They also found that these bridge restrictions could detour be up to 100 to 200 miles, school buses could be rerouted, and consequently, images like this become much more real possibilities.

TSE-0037/001

Earlier I asked you about the transportation risk analysis you guys did. And Mike [Collins, DOE], you said that most of it assumed that the shipments of waste would be on a highway, on an interstate. So does that mean you didn't take into consideration the likelihood of shipments being detoured off of the highways onto smaller rural roads, like what happened in Canyonville and Riddle in Oregon? … So can you say that you actually did a real meaningful site specific or regional, region specific analysis, then, of an accident scenario?

TSP-0016/001

I want to just reiterate a few more concerns I have with the EIS in terms of transportation. Someone just was talking about the increased number of accidents on I-90 was because of the increased use of the freeway, with more population going up along the I-90 corridor. And that's similar to I-5 and I-84 as well.

And I just want to comment that the census data that's used for transportation risk for this EIS is based on 1990 census data. So I think that it should be updated. I think that the EIS should be redone and revised and updated with 2000 census data so that we can really adequately analyze the risks along all the different corridors.

And also the issue of the bridges in Oregon. I want to reiterate my concern that although the Oregon routes of I-84 and I-5 are preferred for the transportation of this waste to Hanford, because of the large number of bridge closures due to over-exceeding the weight, that it seems like there's a pretty good chance a lot of this stuff will be coming through Spokane. So I really have to think that the health and environmental risks to the Spokane community need to be analyzed and included in the EIS.

Response

The consequences of a malevolent event are expected to be within the range of accidents including severe (low probability, high consequences) accidents already evaluated in this HSW EIS. The HSW EIS analyzes several accident scenarios, including onsite facility fires, explosions, and earthquakes. See Volume I Section 5.11 and Volume II Appendix F. The HSW EIS also analyzes the impacts of accidents during transportation of waste in Volume I Section 5.8 and Volume II Appendix H. It is not possible to predict the probability of a malevolent event. However, in general, the LLW, MLLW, and TRU waste do not present an attractive target. The shipping containers used for transporting these materials are designed with safeguards commensurate with the potential hazard. In response to comments, DOE included a discussion of the potential impacts of acts of sabotage or terrorist attacks in Volume II Appendix H.

About 300,000,000 hazardous material shipments take place every year in the United States. Of those shipments, about 3,000,000 involve radioactive materials and less than 10,000 involve shipment of DOE radioactive materials.

The Hanford Site has received thousands of shipments of radioactive waste from offsite generators over the years.

Offsite shipments of LLW, MLLW, and TRU waste can be conducted safely without exposing the public and environment to undue risks. This is ensured by a number of means that emphasize preventing releases of radioactive and hazardous material in transit including appropriate packaging, route selection, communications, vehicle safety, and driver training. In addition, in the unlikely event that an accidental release occurs, DOE provides the necessary support to local first responders to effectively mitigate, clean up, and monitor potential releases. Information about DOE transportation requirements and practices is presented in Volume I Section 2.2.4.

In response to public comments, DOE has conducted a route- and generator-specific offsite transportation analysis using updated highway routing and 2000 census data. See Volume I Section 5.8 and Volume II Appendix H. The potential impacts identified in the updated evaluation are similar to those presented in the WM PEIS (DOE 1997b) and the WIPP SEIS-II (DOE 1997c), and would not change conclusions or DOE-wide waste management decisions based on those studies.

The HSW EIS estimates that up to 33,900 shipments of LLW, MLLW, and TRU waste could be shipped to Hanford if the upper bound waste volumes are realized. The actual number of shipments is expected to be less than this.

With respect to concerns about the condition of roadways and bridges, the waste shipments to Hanford will predominantly travel on Interstate highways. Only in extremely rare instances would Interstate highway or bridge construction lead to a detour through municipal streets. Furthermore, the waste shipments will be conducted using heavy-combination trucks but are not "overweight" vehicles that require special overweight permits. The weights of the trucks that haul the waste to Hanford will be below legal-weight truck limits, similar to the vast majority of tractor-trailer vehicles that carry cargo on the Interstates every day.

Oregon's Department of Transportation (ODOT) has identified 487 bridges with some degree of cracking; 309 of those are likely candidates for repair and replacement. Two hundred and twenty-one of the critical bridges lie on I-5 and I-84. Oregon has developed a strategy to fix highways 20 (Bend to Ontario) and 97 (California border to the Washington State line) as alternative east-west and north-south routes that can be improved quickly (schedule for completion in 2005) and at least cost and could serve as detour routes, if necessary, for subsequent stages of the work to restore the interstate system. The subsequent stages of the project will address the bridges on I-84 and begin work on I-5, proceeding from the north to the south. As work progresses southward on I-5, lateral routes will be fixed that will reconnect the coastal parts and Central Oregon to I-5 as repairs continue southward. The repairs on the interstates are expected to be completed by 2015 (Oregon 2003).

During the period of repair, truckloads of radioactive/hazardous materials will stay on the interstates wherever possible and would typically not be detoured through cities and towns along the route. If construction/repair of a bridge is taking place, traffic would be detoured to the opposite side of the freeway from where construction/repair is taking place – the open half of the freeway would temporarily become a two-way road. If the entire bridge were to be closed, the most common procedure would be to have traffic exit the freeway at the interchange immediately before the bridge and enter the freeway on the other side of the bridge at the same interchange or at the next entrance. In such cases, having a small number of shipments travel a short distance on routes other than the interstate freeways would not substantially change the transportation risks or conclusions presented in the HSW EIS (This response is based in part on information presented by Mike Barry of the Oregon Department of Transportation during the public hearing in La Grande, Oregon on May 12, 2003. See Volume IV Appendix B for the transcript of the La Grande public meeting).

Comments

E-0002/003

It is also dangerous to transport these shipments on our highways. No more of the nations radioactive waste to Hanford!!

E-0003/003

Third, the danger of hauling the nuclear waste across the country with the potential of accident and terrorist attack is too great.

E-0008/002

Also, movement of radioactive materials endanger the population along I-5 and I-84 in the Oregon region, by bringing radioactive materials close to vehicles, school, and communities.

E-0012/002

This new EIS still does not adequately address risks to all communities along transportation routes, specifically the risks from dangerous "transuranic wastes." Accidents can happen.

E-0021/002

In addition, the plans for transporting waste to Hanford did not adequately insure safety as it journeys through our communities.

E-0026/010

It [the EIS] fails to assess and disclose risks to the public on all transportation routes.

E-0027/001

We would like to add our voices to those who are asking that no nuclear waste be hauled to Hanford. The dangers and problems that hauling would bring to an already terrible situation are not justifiable. Hauling the nuclear waste endangers more people and areas. The plain truth is that there is no satisfactory disposal of nuclear waste. So hauling it is adding more risk to an already terribly risky situation.

E-0040/001

I am writing to express my grave concern about trucking nuclear waste on major thoroughfares shared by many citizens simply commuting to work or going about their daily lives. The radiation emissions are a public health hazard.

E-0043/029, EM-0217/029, EM-0218/029, L-0056/029, LM-0017/029, LM-0018/029

Further, the trucks that were analyzed for accident scenarios were trucks designed to hold high level waste. Those are not the types of trucks that will be transporting the LLW, and MLLW, and TRU addressed by the HSW EIS. Without an analysis that considers the consequences of an accident involving these less protective trucks, the transportation analysis is invalid.

E-0048/005

The EIS does not adequately explain and provide solutions to the risks inherent in transporting dangerous waste cross-country. I think the EIS incorrectly assumes the transports will always or almost always arrive without accident. The probability of accidents and terrorism/sabotage have been understated. I also think the damage that could be caused by spills and inadvertent releases have been seriously underplayed. Some of the proposed waste could contaminate a large area for an immensely long time. It is much safer to store and decontaminate hazardous waste at the site of its creations and/or use. It is a poor use of resources and puts communities and the environment at unnecessary risk to transport waste across long distances.

E-0055/006

USDOE has never considered the specific and cumulative risks and impacts from over 70,000 truckloads of radioactive waste along the actual routes and considering the actual wastes.

F-0001/001

I was shocked to hear that the Dept of Energy was planning on shipping nuclear waste to Hanford, endangering the lives of all the people who live along the transportation route.

F-0002/002

TRU waste - if truck is in a accident on I-90 what will happen to my family a few blocks from the hwy?

F-0004/002

The insidious nature of this waste makes transit routes proposed too dangerous given the proximity to populated areas.

F-0005/003

I feel great outrage that DOE wants to add to the waste load at Hanford by trucking waste through our communities - what are you (DOE) thinking??

F-0006/002

No trucking of any kind no matter how much satellite/computer surveillance is overseeing the transuranic trucking can offset the inevitable probability of nuclear waste highway accidents all around the country on these routes.

These trucks make a perfect target for terrorists to wreak havoc on our own country from within by use of a minimal amount of effort on their part to cause massive destruction on our public highways.

F-0015/002, TSE-0014/002

The DOE cannot transport anymore of the highly radioactive, plutonium transuranic waste to Hanford from other nuclear weapons plants until it fully considers the risks and the health and environmental impacts of trucking the waste to Hanford and storing it at Hanford. This Revised Draft EIS fails to consider those site and route specific risks.

F-0018/003

Also, with 70,000 truckloads of transuranic waste (some requiring remote manipulation) terrorists would have an ideal source of material for a "dirty bomb"

F-0019/002

I oppose the shipment of more waste to the Hanford site. I oppose shipment through the Gorge. The existing waste must be cleaned up!

F-0026/002, F-0028/002

New Mexico had and has a very similar issue with waste disposal of nuclear materials in Carlsbad, NM [New Mexico] salt mines. Roads were built, and transportation around major cities were designated. Nuclear waste spills do happen!

F-0029/009

In addition, how safe is it to truck waste to Hanford? I think not very safe, as accidents or intentional targeting of trucks filled with wastes would be a disaster…

L-0001/003

With all the fears/threats of terrorism what on earth are you thinking driving trucks full of dangerous waste all over the country? Even without terrorism, there are hundreds, perhaps thousands, of vehicle accidents daily, often involving trucks.

L-0005/003

The very transporting of nuclear waste creates frightening risks to human and environmental health in Washington and Oregon. Either an accident or a terrorist act could bring instant catastrophe.

L-0007/003

A plan that involves shipping 70,000 truckloads of toxic waste along highways creates an unacceptable risk to the population living along the truck routes.

L-0019/002, TSE-0002/002

Transportation risks [are insufficiently addressed in the revised draft.]

L-0027/003

The very transporting of nuclear wastes creates frightening risks to human and environmental health in all the states through which it travels. Either an accident or a terrorist act could bring instant catastrophe.

L-0030/002

Then there is the matter of almost 70,000 truckloads of radioactive waste and chemical waste traveling our highways. This would certainly be an opportunity for terrorists to wreak havoc upon our citizens and highways!

L-0041/046

The transportation analysis is inadequate. Among its deficiencies: it is based on 1990 census data; it does not fully evaluate rail transport; and it does not adequately address potential impacts from a terrorist attack or diversion of nuclear material.

a) Population densities along portions of the proposed routes have changed significantly from 1990 to 2000. The most current census data should be used in the analysis.

b) While the EIS does provide limited information on rail transport, it also states that "an analysis of rail transport does not appear warranted" (Page H-44). This statement is not consistent with planning already underway to prepare for the shipment of transuranic waste from Hanford to the Waste Isolation Pilot Plant (WIPP) as early as 2005. The document attempts to satisfy this issue by stating that "If rail shipment is proposed it will be evaluated under future National Environmental Policy Act reviews" (Summary, page S-

21). As stated earlier, it is not acceptable to defer needed analysis to future, unspecified dates.
c) The EIS states that a terrorist attack on a shipment is not a likely event, in part, because the majority of shipments will occur on the Hanford Site. That statement ignores upper bound projections which could result in as many as 9,600 shipments of transuranic waste to and from the Hanford Site, and an additional 24,000 shipments of LLW and MLLW to Hanford. Further, the draft EIS ignores the threat of diversion of radioactive materials for use in a Radiation Dispersion Device or "dirty bomb." The EIS should include an analysis of these possibilities.

L-0044/021

Vol. I, Sec. 4.8.5, p. 4.91: There is no analysis of impacts of shipping lower- or upper-bound volumes of waste to Hanford, or shipping wastes from Hanford for treatment or disposal, as such shipments would relate to the deficiencies in the regional transportation system identified on p. 4.91, including segments of the road network operating below minimal levels of service. Nor is there any analysis of the ways in which such congestion might affect risks of routine exposure or accident.

L-0044/103

Appendix H, H.5.2, pp. H.32- 36 The "Route Characteristics for Transport in Washington and Oregon", identified in Table H-14 and used in the analysis of risk of transportation through Oregon and Washington is, as we understand it, based on 1990 census data. The analysis must be updated to include 2000 census data. Suburban and urban characteristics along the analyzed routes in the Portland and Tri-Cities areas have changed significantly since 1990.

L-0044/107

Sec. 2.2.4.1, p. 2.36 This brief overview section does not address the relative numbers of shipments associated with lower- or upperbound cases in the EIS. Therefore, it provides neither a bridge to the risk analysis in Sec. 5.8 nor a basis for estimating impacts to the local transportation network discussed in Sec. 4.8.5.

E-0049/007, L-0048/007

We still have some issues with the adequacy of the analyses of the transportation impacts. We believe that route-specific factors should be considered, which would recognize the severe winter weather conditions that frequently exist along major portions of the Oregon route.

L-0049/008

Section 5.8 and Appendix H. The transportation impacts need to be updated with the current data and methods.

L-0052/011

Transportation. The ERWM recognizes the risk to tribal members exercising treaty resource rights in usual and accustomed places, and the risk to those resources by radioactive and hazardous waste being transported to and from the Hanford Site. The ERWM requests a concentrated effort by DOE to insure the ERWM is included in the transportation information loop, so that we can serve as a source of information for any tribal members who would be in the neighborhood of wastes in transport. We are currently taking steps to encourage that effort.

L-0062/005

The Washington Department of Ecology has commented that the transportation analysis should be based on current census data and that it should assess the range of risks from terrorist activities. We have the same concern.

P-0007/002

And, let's not endanger ourselves by transporting it on public highways.

Transportation

P-0008/005

ENOUGH RAIL AND HIGHWAY SHIPPING RISKS!

P-0020/002

I also do not want radioactive waste trucked on the highways in Oregon and Washington. The risk to all in the area - if there were a crash with the trucks carrying radioactive waste - is too high!

P-0026/002

Also shipping 70,000 truckloads of radioactive waste poses great risks to citizens along the route.

P-0028/003

Trucking waste is just a disaster waiting to happen.

P-0030/004

Shipping accidents happen.

P-0033/004

We must protect the health of the public. Keep waste off our roads.

P-0036/002

Furthermore, shipping 70,000 truckloads of radioactive and chemical waste will increase risks to people along Oregon and Washington highways.

P-0055/003

And the shipping of radioactive waste along highways increases the risk to citizens.

P-0062/003

Shipping 70,000 truckloads of radioactive and chemical waste increases risks to citizens along Washington and Oregon highways.

P-0074/003

[We no longer want the risks] from hauling truckloads of radioactive wastes on Washington highways.

P-0075/004

Keep radioactive waste off our roads!

P-0078/003

The risk from shipping truckloads of hazardous waste on the highways is unacceptable.

P-0082/002

That also means no 70 thousand truckloads being trucked through Oregon & Washington. We don't want it & can't handle the risk.

P-0086/001

Trucks carrying radioactive waste should not be on our highways!

P-0090/001

It is hard for me to understand why shipping nuclear waste in trucks on our busy freeways to the Hanford Reservation is even being considered. These trucks not only could result in terrible accidents, but would be very vulnerable to terrorists.

P-0092/004

Transporting the waste increases risks to those living along the highways of the route.

Transportation

P-0093/001

[I am very concerned about DOE's current plan regarding] transportation safety[.]

P-0095/002

Transporting any chemical or radioactive waste into the area should be out of the question.

P-0096/002

We shouldn't be transporting waste for long distances on public highways where accidents of shipments could imperil many people.

P-0108/001

Shipping [waste] on freeways, thru cities, etc. How dangerous[!]

P-0109/004

Protect the health of public - do all you can & keep chemical waste off our roads!

P-0110/003

Shipping truckloads of radioactive waste increases risks to citizens along OR and WA highways.

P-0113/002

I remain concerned that hazardous radioactive waste will be shipped along the highways.

P-0123/002

You [DOE] are also putting my community [Hood River, OR] at risk if you proceed with plans of transport from accidents along the freeway. Do not transport any more toxins to Hanford!

P-0125/002

[There are risks to human health] through the transport of materials on public roads.

P-0129/002

Obviously, the [waste] importation process itself is potentially dangerous as well.

P-0133/002

Also, trucking wastes to Hanford and then eventually shipping them out again poses a double hazard of transportation.

P-0139/002

…meanwhile we are subject to the danger of Hwy. Transport [of radioactive waste].

P-0143/002

The shipments [of radioactive material increase the] risk [to] citizens in Oregon and Washington.

P-0145/002

Shipping the waste can be damaging as well.

P-0166/002

No transporting [of radioactive waste].

P-0167/002

[I am really concerned about the] risk of 70,000 truck loads of radioactive waste going through our state.

THR-0002/010

But just to add, the analysis of transportation risks in the EIS is being done with 1990 census data and early '80s data for the amount of traffic on I-5 and I-84 in Oregon. So this is not adequate, if you are looking at risks right now in 2003 to these trucks on the roads.

Transportation

THR-0010/005

They want to ship it through the Gorge, this confined area that's one of the most beautiful areas in our country, with one of the largest rivers in North America, that has cliff walls that if there were an accident, that confines this radiation and just dumps it into the river and into the environment that we have to deal with.

THR-0018/001

There was a railroad derailment that happened just about 20 miles east of here [Hood River]. 20,000 gallons of soybean oil was spilled, and EPA was in there within two hours. And all of that soybean oil contaminated soil was trucked out of there within a matter of days. I just cannot understand why something, which was certainly dangerous to the wildlife, why something that is millions of times more dangerous cannot get the same priority, that something like soybean oil got.

TLG-0003/001

Interstate 84, as we all know, the two worst portions of Interstate 84 are directly to the east, directly to the west of La Grande. I have concerns that we're looking at year-round shipment of wastes through that area.

I travel that highway pretty regularly, several times a month under -- year-round, and that's not a road I'd want to be on with those shipments beside me.

TLG-0006/002

The second is that La Grande has two of the worst passes in the country right next to us. And that we're going to be shipping these trucks over it. And even though there's a low accident rate, if an accident occurs around people and a truck breaks open, there's going to be harm from it. There's no stopping it.

TLG-0007/001

The passes are horrible. The driving conditions are horrible. Things change at a moments notice, leaving truckers quite unprepared to deal with the situation. We have truckers that are driving around with, well, possibly diminished mental faculties. But definitely not the knowledge that those of us that live here have of the conditions and the potential for icing, et cetera, on the road. ... We have situations here in the valley where the wind blows hard enough to blow a railroad freight train and blow cars off of a freight train, off the tracks. Blow them completely off the tracks. It's a documented fact here in the valley that that has occurred. Trucks frequently flip over, blow over, slide off the road on ice. ... The numbers have been crunched, accident levels are shown, low risk, but there's always Murphy out there. And Murphy says that, you know, he's the worst possible time, worst possible things can happen. Rollover, Ladd Canyon, high winds, you have basically a dirty bomb going off.

TLG-0009/003

Oregonians will not accept a plan that calls waste by another name to enable it to be trucked down Oregon freeways[.]

TLG-0012/006

And I think one other thing that occurred to me as we were talking about seasonal differences in transportation conditions around here, it looks to me like wintertime conditions pose a recognized threat. But I think it also needs to be taken into consideration that because winter conditions are so severe, that it affects safety and other things that a lot of this maintenance stuff that gets deferred to other times of the year. So therefore, the time of year when we have the highest number of vacation travelers and other travelers, we also have the most maintenance happening on our roads. So if we defer maintenance for those times and we have to slow down some of the shipments, we're going to be concentrating more shipments during times when we have higher volumes of traffic and more regularly scheduled maintenance projects. So we're concentrating all of those factors together. It's not the same as spreading it out over the whole year.

TPO-0005/002

The problem with nuclear things is it's difficult to trace, you know. The truck drives through near my house, because I live near the 205 freeway, a truck drives past and then 20 years from now my mom or my dear friend finds herself with cancer. Now, what caused it? ... So I thought I would mention this: that until we're sure that it's really safe, don't do it.

TPO-0009/003

And it's just mind-boggling to think about those trucks on those crowded highways and the lack of alternatives to I-5.

TPO-0013/003

I'm convinced that the risks involved in transporting waste to the region are high and have not been properly assessed.

TPO-0015/010

It's also unacceptable to have a method of transportation that allows the emissions to put the truck drivers and fellow travelers in traffic jams and accidents at risk.

TSE-0017/005

As for the transportation, we looked at the accident reviews, and nobody mentioned the fact that three trucks last summer, not directly related with Hanford, but related with transporting radioactive waste in the Northwest, had problems, and accidents. In Bremerton, an empty truck's brakes failed. In Idaho there was a car accident that was not the driver's fault, had nothing to do with the driver, it had nothing to do with the weather. It was just one of those things. And also in Idaho a driver fell asleep and his truck ran off the road. These are without importing 75,000 more trucks to Hanford.

TSE-0027/005

We regularly travel I-5. We are very unhappy that we are unlikely to be able to avoid exposure to nuclear waste and transport in this plan. But I didn't see anything in the EIS about people who were traveling in these highways and who lived near Hanford and who would be having increased exposure to nuclear materials.

TSP-0001/002

And I object to the idea of transuranic waste and combined chemical waste, which can also injure children for several generations coming through our community, and not having adequate safety.

TSP-0001/003

I think that the engineers cannot make adequate predictions of what's going to happen. And I think as you look at the community of Spokane, an explosion on I-90 downtown would be just beyond belief, in the numbers of thousands of people that would be involved. Likewise, if you explode any one of the main bridges across the Columbia River, then you would have contamination of the water immediately, and that would go on for generations. 70,000 truck loads I think speaks for itself. I can't imagine how many miles of that goes. I can't imagine the cost involved in that. And I can't imagine the requirements of safety.

TSP-0001/004

I know that the government in the past has not been very careful about when they put things on trains and we go watch the white train go across the United States, because that was the train that was carrying nuclear weapons.

TSP-0002/001

I was shocked to hear that the Department of Energy was planning on shipping nuclear waste to Hanford, endangering the lives of all the people who live along the transportation route.

TSP-0003/002

I want to know what would happen if a TRU waste truck explodes or is in an accident and what's going to happen to my family.

TSP-0005/001

I just want to say that I don't want to get stuck in traffic next to one these trucks [hauling waste]. Just personally, I live about 20 blocks from the freeway in the [Spokane] valley. I don't want it anywhere near me.

TSP-0008/002

My major concern for an accident, especially coming through the Idaho and Spokane area and I-90, is the aquifer, which is our sole source of drinking water. And there are some areas of the aquifer where it is quite close to the surface. So it wouldn't take that long for materials to get into that drinking water. In other areas it might take years.

TSP-0009/003

Transportation risks. I have done a considerable amount of work on the aquifer issue here. What was previously stated is correct. The Spokane aquifer is one of the world's unique aquifers. It is also the sole source [of] drinking water for 400,000 people. It was the second such sole source designation in the country when it was designated in 1978. In many places the aquifer is quite shallow. It's not far underground. So that if there were an accident on I-90, it could immediately threaten the aquifer.

TSP-0009/004

Another aspect of the transportation issue that needs to be considered is that there are two tertiary care centers that service the Inland Northwest just above the interstate; Sacred Heart Medical Center and Deaconess Medical Center. So if there were an accident on I-90, you know, you would potentially have a huge impact. Not only directly on the city, but the ability of the city to respond. So, I think that that needs to be further developed in the Final EIS.

TSP-0010/003

What would happen if there were crashes where I-90 comes so close to water?

TSP-0011/002

This is what I see is this truck, and I live right above I-90. This is a population zone. The whole state of Washington is being threatened.

TSP-0014/003

I just want to say in your Environmental Impact Statement, are you also actually going to do a study on the high level of accidents on I-90? It is tremendously increased in the last five years, where there are fatal accidents, there are cars following each other at 65 miles per hour at one and a half or two-car lengths separate from each other.

Response

The consequences of a malevolent event are expected to be within the range of accidents including severe (low probability, high consequences) accidents already evaluated in this HSW EIS. The HSW EIS analyzes several accident scenarios, including onsite facility fires, explosions, and earthquakes. See Volume I Section 5.11 and Volume II Appendix F. The HSW EIS also analyzes the impacts of accidents during transportation of waste in Volume I Section 5.8 and Volume II Appendix H. It is not possible to predict the probability of a malevolent event. However, in general, the LLW, MLLW, and TRU waste do not present an attractive target. The shipping containers used for transporting these materials are designed with safeguards commensurate with the potential hazard. In response to comments, DOE included a discussion of the potential impacts of acts of sabotage or terrorist attacks in Volume II Appendix H.

About 300,000,000 hazardous material shipments take place every year in the United States. Of those shipments, about 3,000,000 involve radioactive materials and less than 10,000 involve shipment of DOE radioactive materials.

The Hanford Site has received thousands of shipments of radioactive waste from offsite generators over the years.

Offsite shipments of LLW, MLLW, and TRU waste can be conducted safely without exposing the public and environment to undue risks. This is ensured by a number of means that emphasize preventing releases of radioactive and hazardous material in transit including appropriate packaging, route selection, communications, vehicle safety, and driver training. In addition, in the unlikely event that an accidental release occurs, DOE provides the necessary support to local first responders to effectively mitigate, clean up, and monitor potential releases. Information about DOE transportation requirements and practices is presented in Volume I Section 2.2.4.

In response to public comments, DOE has conducted a route- and generator-specific offsite transportation analysis using updated highway routing and 2000 census data. See Volume I Section 5.8 and Volume II Appendix H. The potential impacts identified in the updated evaluation are similar to those presented in the WM PEIS (DOE 1997b) and the WIPP SEIS-II (DOE 1997c), and would not change conclusions or DOE-wide waste management decisions based on those studies.

The accident rates used in the analysis of potential radiological impacts of accidents are taken from the best currently available source (Saricks and Tompkins 1999). These data represent state-wide averages on several highway types and are derived from actual accident reports and commodity flow information. Therefore, the reported rates incorporate areas with high accident rates, such as mountain passes and crowded urban highways, as well as areas with lower than average accident rates. These high accident rate areas are traversed 365 days per year by heavy-combination trucks similar to those used in radioactive material shipping. Past studies have shown that radioactive material shipments experience lower accident rates than other truck shipments in general commerce (NEI 2003, Saricks and Kvitek 1994). Credit for this effect is not taken in the analysis. This effect, combined with the generally conservative approach taken to calculate the accident rates used in this EIS (Saricks and Tompkins 1999) leads to bounding accident impact results.

The HSW EIS estimates that up to 33,900 shipments of LLW, MLLW, and TRU waste could be shipped to Hanford if the upper bound waste volumes are realized. The actual number of shipments is expected to be less than this.

Comments

E-0047/034

Fails to assess and disclose the risks to the public on all transportation routes including detours off major highways from the point of shipment to Hanford. Since 9/11 the possibility of a terrorist attack is even more of a possibility that has not been adequately disclosed or assessed.

Analysis is based on 1990 census data and must be based on current data and along all shipping routes.

Does not fully evaluate rail transport or diversion of nuclear material.

L-0020/001, TSE-0021/001

The DOE wants to transport 70,000 shipments of nuclear waste in a steady stream on our roads, railways, and shipping lanes, to the Hanford Nuclear Reservation with U.S. taxpayer money, mostly without our collective knowledge and definitely without our permission. This steady stream of nuclear waste will be in transit on our highways and railways for several generations.

Response

The consequences of a malevolent event are expected to be within the range of accidents including severe (low probability, high consequences) accidents already evaluated in this HSW EIS. The HSW EIS analyzes several accident scenarios, including onsite facility fires, explosions, and earthquakes. See Volume I Section 5.11 and Volume II Appendix F. The HSW EIS also analyzes the impacts of accidents during transportation of waste in Volume I Section 5.8 and Volume II Appendix H. It is not possible to predict the probability of a malevolent event. However, in general, the LLW, MLLW, and TRU waste do not present an attractive target. The shipping containers used for transporting these materials are designed with safeguards commensurate with the potential hazard. In response to comments, DOE included a discussion of the potential impacts of acts of sabotage or terrorist attacks in Volume II Appendix H.

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The HSW EIS estimates that up to 33,900 shipments of LLW, MLLW, and TRU waste could be shipped to Hanford if the upper bound waste volumes are realized. The actual number of shipments is expected to be less than this.

The use of rail is not part of the proposed action evaluated in this HSW EIS. Shipments of waste by rail may require constructing a spur from the existing rail lines, which, if proposed, would require additional environmental review. DOE conducted a qualitative analysis of the potential impacts of transporting solid waste by rail (see Volume II, Appendix H).

Comments

E-0014/003

We understand the 70,000 truck loads of nuclear waste our government wants to ship to Hanford will deliver the equivalent of over 100 full-body x-rays per hour to those they pass on our freeways. We're certain it would be illegal for us to do that to unsuspecting citizens. We don't think the government should be allowed to do it either.

Transportation

Response

The consequences of a malevolent event are expected to be within the range of accidents including severe (low probability, high consequences) accidents already evaluated in this HSW EIS. The HSW EIS analyzes several accident scenarios, including onsite facility fires, explosions, and earthquakes. See Volume I Section 5.11 and Volume II Appendix F. The HSW EIS also analyzes the impacts of accidents during transportation of waste in Volume I Section 5.8 and Volume II Appendix H. It is not possible to predict the probability of a malevolent event. However, in general, the LLW, MLLW, and TRU waste do not present an attractive target. The shipping containers used for transporting these materials are designed with safeguards commensurate with the potential hazard. In response to comments, DOE included a discussion of the potential impacts of acts of sabotage or terrorist attacks in Volume II Appendix H.

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The Hanford Site has received thousands of shipments of radioactive waste from offsite generators over the years.

Waste transported to Hanford is characterized consistent with applicable RCRA and state regulations, and as appropriate, meets relevant manifesting, tracking and reporting requirements. In some cases these requirements do not apply because there are no RCRA-regulated or state-regulated constituents in the waste.

DOE is currently developing capabilities for certification of remote-handled TRU waste for shipment to WIPP for disposal. The radiation levels of remote-handled waste have not precluded DOE's ability to meet applicable RCRA requirements.

Offsite shipments of LLW, MLLW, and TRU waste can be conducted safely without exposing the public and environment to undue risks. This is ensured by a number of means that emphasize preventing releases of radioactive and hazardous material in transit including appropriate packaging, route selection, communications, vehicle safety, and driver training. In addition, in the unlikely event that an accidental release occurs, DOE provides the necessary support to local first responders to effectively mitigate, clean up, and monitor potential releases. Information about DOE transportation requirements and practices is presented in Volume I Section 2.2.4.

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The HSW EIS estimates that up to 33,900 shipments of LLW, MLLW, and TRU waste could be shipped to Hanford if the upper bound waste volumes are realized. The actual number of shipments is expected to be less than this.

With respect to concerns about the condition of roadways and bridges, the waste shipments to Hanford will predominantly travel on Interstate highways. Only in extremely rare instances would Interstate highway or bridge construction lead to a detour through municipal streets. Furthermore, the waste shipments will be conducted using heavy-combination trucks but are not "overweight" vehicles that require special overweight permits. The weights of the trucks that haul the waste to Hanford will be below legal-weight truck limits, similar to the vast majority of tractor-trailer vehicles that carry cargo on the Interstates every day.

Oregon's Department of Transportation (ODOT) has identified 487 bridges with some degree of cracking;

309 of those are likely candidates for repair and replacement. Two hundred and twenty-one of the critical bridges lie on I-5 and I-84. Oregon has developed a strategy to fix highways 20 (Bend to Ontario) and 97 (California border to the Washington State line) as alternative east-west and north-south routes that can be improved quickly (schedule for completion in 2005) and at least cost and could serve as detour routes, if necessary, for subsequent stages of the work to restore the interstate system. The subsequent stages of the project will address the bridges on I-84 and begin work on I-5, proceeding from the north to the south. As work progresses southward on I-5, lateral routes will be fixed that will reconnect the coastal parts and Central Oregon to I-5 as repairs continue southward. The repairs on the interstates are expected to be completed by 2015 (Oregon 2003).

During the period of repair, truckloads of radioactive/hazardous materials will stay on the interstates wherever possible and would typically not be detoured through cities and towns along the route. If construction/repair of a bridge is taking place, traffic would be detoured to the opposite side of the freeway from where construction/repair is taking place – the open half of the freeway would temporarily become a two-way road. If the entire bridge were to be closed, the most common procedure would be to have traffic exit the freeway at the interchange immediately before the bridge and enter the freeway on the other side of the bridge at the same interchange or at the next entrance. In such cases, having a small number of shipments travel a short distance on routes other than the interstate freeways would not substantially change the transportation risks or conclusions presented in the HSW EIS (This response is based in part on information presented by Mike Barry of the Oregon Department of Transportation during the public hearing in La Grande, Oregon on May 12, 2003. See Volume IV Appendix B for the transcript of the La Grande public meeting).

There are extensive DOT, NRC, and DOE requirements that apply to the transportation of radioactive materials and hazardous materials in general. Most shipments of waste to and from Hanford would have external dose rates much lower than the maximum allowed. There are also restrictions on how long a truck carrying radioactive shipments may be parked (49 CFR 173). A 200 mrem per hour dose rate to the public that is implied by the "100 full-body x-rays per hour" would not occur during routine transportation.

The amount of radiation exposure a person might receive from a shipment of radioactive material is a function of the source strength (usually the exposure rate in millirem per hour) and exposure time. While the shipment is moving, the exposure times are very small, measured in seconds, as the shipment passes by a potential receptor. In addition, the shipment is normally several to tens of meters away from potential receptors, which reduces the radiation dose rate to a fraction of the dose rate at the surface of the shipping container. Consequently, the individual doses received by the public while a shipment is moving are very small.

Shipments that have stopped for rest or refueling or are caught in traffic jams could expose individuals for a substantial length of time. Any single exposure event such as this would not be a public health concern because the dose rates are controlled to safe levels by regulations. The probability that an individual is exposed for long periods of time to shipments at truck/fuel stops or caught in traffic is extremely unlikely. Consequently, the risk to an individual associated with these relatively long-duration exposure scenarios is low.

Comments

L-0034/003

Inbound RH TRU waste contains long-lived radioisotopes such as plutonium, and emits at least 200 mrem (20 full body x-rays) per hour of radiation at the waste package surface. In addition, the SWEIS states that the TRU waste may also contain hazardous components; i.e. mixed TRU. USDOE has violated manifesting, tracking, and reporting requirements, and has not characterized the hazardous wastes of the incoming TRU shipments, in violation of RCRA, the Washington Hazardous Waste Management act, and the Hanford Site RCRA Permit. Further, documents received by Ecology state that some of this material has radiation levels that "preclude current visual, chemical, and NDE verification at Hanford."

These problems intensify all aspects of the issues related to the import of RH TRU, including potential environmental impacts of transportation, which the SWEIS still fails to adequately address. The SWEIS lists dozens of chemical and radiological releases associated with on site accidents, but continues to address off site transportation accidents only in terms of the historical number of traffic fatalities. Greg DeBruler, technical consultant for Columbia Riverkeeper has noted "We have to protect the interests of our groups' member families along these truck routes, to protect against our families being radiated by passing shipments, as well as from the never disclosed risks of accidents or terrorist incidents involving truckloads of Plutonium and chemical wastes."

THR-0001/004

[In] this EIS they failed to assess the true transportation risk that might occur. For example, state of Washington said, we've got nine bridges in the state -- pardon me, State of Oregon, we've got nine bridges that we have a concern of overweight loads. When they ship this transuranic waste, which is the stuff that we will say it's in barrels that's radioactive, the remote handled stuff, the hot stuff, according to their numbers, says that if you are sitting beside it, by it on a highway, if it was parked there and I was like sitting here for an hour, just looking at you for an hour, I'd get 20 chest x-rays, something like that, on a low case. But what they haven't done is they haven't analyzed the fact that they can't use, because these bridges can't support it, that they are going to have to take a route and come through some municipality. So they didn't do that in their analysis.

Response

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Transportation

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Transportation

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Comments

L-0044/108

Sec. 2.2.4.2, p. 2.36-39 This generic discussion of transportation regulation and emergency response is helpful background. But this section contains no information about what activities will specifically be undertaken as any alternatives in the EIS are implemented, or which might be affected by differences in volumes or differences in the choice of alternatives (e.g. onsite vs. off-site treatment of waste.) Nor does it contain the information that many of these regulations do not apply to shipments on the Hanford Site – c.f. Sec. 6.11, p. 6.14). Nor does it contain any information about potential terrorism, although this issue was raised in comments on the first draft HSW-EIS.

Response

The consequences of a malevolent event are expected to be within the range of accidents including severe (low probability, high consequences) accidents already evaluated in this HSW EIS. The HSW EIS analyzes several accident scenarios, including onsite facility fires, explosions, and earthquakes. See Volume I Section 5.11 and Volume II Appendix F. The HSW EIS also analyzes the impacts of accidents during transportation of waste in Volume I Section 5.8 and Volume II Appendix H. It is not possible to predict the probability of a malevolent event. However, in general, the LLW, MLLW, and TRU waste do not present an attractive target. The shipping containers used for transporting these materials are designed with safeguards commensurate with the potential hazard. In response to comments, DOE included a discussion of the potential impacts of acts of sabotage or terrorist attacks in Volume II Appendix H.

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Comments

L-0044/104

Sec. H.7 pp. H- 41-2 The discussion of risks of terrorist attack or diversion is inadequate. First, it implies NRC physical protection regulations apply to the shipments in question, which may not be the case for DOE shipments. Second, it assumes that maximizing fatalities is the only metric of interest to terrorists. Therefore, it ignores psychological and economic effects of terrorist acts. The analysis thus ignores the threat of diversion for a "dirty bomb" scenario. Third, while "most of the shipments . . . covered in this EIS are within the Hanford site boundaries, most of the shipment miles are not. Finally, because the analysis ignores the "dirty bomb" scenario, and because the shipments covered in the EIS are not (for the most part) Highway Route Controlled Quantities (HRCQ), requiring special physical protection, the large number of miles traversing "rural" territory may well increase opportunities for diversion. This analysis needs to be expanded and updated.

Response

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The statement in Section H.8 regarding NRC transportation regulations was intended to convey that these regulations are similar to DOT and DOE transportation regulations. However, to avoid any confusion regarding the applicability of the NRC regulations, the statement has been deleted.

Comments

F-0018/004

...what protection would truck drivers have from a terrorist hijacking?

Response

The consequences of a malevolent event are expected to be within the range of accidents including severe (low probability, high consequences) accidents already evaluated in this HSW EIS. The HSW EIS analyzes several accident scenarios, including onsite facility fires, explosions, and earthquakes. See Volume I Section 5.11 and Volume II Appendix F. The HSW EIS also analyzes the impacts of accidents during transportation of waste in Volume I Section 5.8 and Volume II Appendix H. It is not possible to predict the probability of a malevolent event. However, in general, the LLW, MLLW, and TRU waste do not present an attractive target. The shipping containers used for transporting these materials are designed with safeguards commensurate with the potential hazard. In response to comments, DOE included a discussion of the potential impacts of acts of sabotage or terrorist attacks in Volume II Appendix H.

Truck drivers for all hazardous material shipments are required to receive security training (68 FR 14509).

The training must provide an awareness of security risks, recognition of potential security threats, and methods of responding to potential security threats. In addition, truck drivers and other employees of hazardous material transportation companies that are required to have a security plan must receive in-depth training on the security plan and its implementation, including specific security procedures and actions to take in the event of a security breach. Since the offsite shipments are not believed to be attractive to terrorists due to their relatively low radioactive content and low hazards, DOE considers the security regulations promulgated by the DOT to be adequate to protect drivers and shipments carrying LLW, MLLW, and TRU waste.

Information about DOE transportation requirements and practices is presented in Volume I Section 2.2.4.

Comments

E-0043/027, EM-0217/027, EM-0218/027, L-0056/027, LM-0017/027, LM-0018/027

The HSW EIS failed to do an adequate impact analysis of transportation. There was no delineation of routes beyond Washington or Oregon, no plans to minimize risks to the people in towns en route; no analysis of transportation vehicles as possible terrorist targets; no analysis regarding DOE's consideration of rail as an alternative method of transporting waste; and no analysis regarding the possibility that Yucca Mountain may not accept the cesium-strontium capsules or the Hanford waste destined to go there.

Response

About 300,000,000 hazardous material shipments take place every year in the United States. Of those shipments, about 3,000,000 involve radioactive materials and less than 10,000 involve shipment of DOE radioactive materials.

Offsite shipments of LLW, MLLW, and TRU waste can be conducted safely without exposing the public and environment to undue risks. This is ensured by a number of means that emphasize preventing releases of radioactive and hazardous material in transit including appropriate packaging, route selection, communications, vehicle safety, and driver training. In addition, in the unlikely event that an accidental release occurs, DOE provides the necessary support to local first responders to effectively mitigate, clean up, and monitor potential releases. Information about DOE transportation requirements and practices is presented in Volume I Section 2.2.4.

DOE NEPA decisions and actions regarding the cesium and strontium capsules are not within the scope of the Hanford Solid Waste EIS. Disposal of cesium and strontium capsules at Yucca Mountain were evaluated in the Yucca Mountain Repository EIS (DOE 2002c).

While the probability of malicious events (including sabotage and terrorist attacks) cannot be determined, it is expected that the consequences of such events would be similar to accidents involving fires and explosions, which are discussed in this HSW EIS. See Volume I Sections 5.8 and 5.11 and associated Volume II Appendixes H and F.

In response to public comments, DOE has conducted a route- and generator-specific offsite transportation analysis using updated highway routing and 2000 census data. See Volume I Section 5.8 and Volume II Appendix H. The potential impacts identified in the updated evaluation are similar to those presented in the WM PEIS (DOE 1997b) and the WIPP SEIS-II (DOE 1997c), and would not change conclusions or DOE-wide waste management decisions based on those studies.

The use of rail is not part of the proposed action evaluated in this HSW EIS. Shipments of waste by rail may require constructing a spur from the existing rail lines, which, if proposed, would require additional environmental review. DOE conducted a qualitative analysis of the potential impacts of transporting solid waste by rail (see Volume II, Appendix H).

Comments

TLG-0008/003

Again, I think the real weak point in the EIS at this point is the probability distributions associated with the risk analysis. They should be highway specific. They should be specific to the terrain they're going to be going through. And they should also take into account the potential for worst-case scenarios where we actually dump stuff into our rivers.

Response

About 300,000,000 hazardous material shipments take place every year in the United States. Of those shipments, about 3,000,000 involve radioactive materials and less than 10,000 involve shipment of DOE radioactive materials.

Offsite shipments of LLW, MLLW, and TRU waste can be conducted safely without exposing the public and environment to undue risks. This is ensured by a number of means that emphasize preventing releases of radioactive and hazardous material in transit including appropriate packaging, route selection, communications, vehicle safety, and driver training. In addition, in the unlikely event that an accidental release occurs, DOE provides the necessary support to local first responders to effectively mitigate, clean up, and monitor potential releases. Information about DOE transportation requirements and practices is presented in Volume I Section 2.2.4.

RADTRAN uses route-specific accident statistics that account for geography, weather, driver error, traffic load, vehicle type, and road conditions.

In response to public comments, DOE has conducted a route- and generator-specific offsite transportation analysis using updated highway routing and 2000 census data. See Volume I Section 5.8 and Volume II Appendix H. The potential impacts identified in the updated evaluation are similar to those presented in the WM PEIS (DOE 1997b) and the WIPP SEIS-II (DOE 1997c), and would not change conclusions or DOE-wide waste management decisions based on those studies.

Comments

F-0011/002

Transporting additional nuclear waste to Hanford is dangerously ill advised!

F-0025/001

The shipping of offsite waste to Hanford poses a greater health risk both during transportation and on site, where storage is already unsafe.

TPO-0026/004

We have transportation risks, but it's really not clear how we would manage them.

TSP-0006/006

I think that the EIS does not consider transportation.

Response

About 300,000,000 hazardous material shipments take place every year in the United States. Of those shipments, about 3,000,000 involve radioactive materials and less than 10,000 involve shipment of DOE radioactive materials.

Offsite shipments of LLW, MLLW, and TRU waste can be conducted safely without exposing the public and environment to undue risks. This is ensured by a number of means that emphasize preventing releases of radioactive and hazardous material in transit including appropriate packaging, route selection, communications, vehicle safety, and driver training. In addition, in the unlikely event that an accidental release occurs, DOE provides the necessary support to local first responders to effectively mitigate, clean up, and monitor potential releases. Information about DOE transportation requirements and practices is presented in Volume I Section 2.2.4.

The Hanford Only waste volume has been evaluated in all action alternatives and the No Action Alternative to provide a better comparison with the impacts of adding offsite waste. The incremental impacts of offsite waste are the differences between the Lower and Upper Bound Volumes and the Hanford Only impacts for a given alternative.

In response to public comments, DOE has conducted a route- and generator-specific offsite transportation analysis using updated highway routing and 2000 census data. See Volume I Section 5.8 and Volume II Appendix H. The potential impacts identified in the updated evaluation are similar to those presented in the WM PEIS (DOE 1997b) and the WIPP SEIS-II (DOE 1997c), and would not change conclusions or DOE-wide waste management decisions based on those studies.

The HSW EIS evaluates several alternatives for the storage, treatment, and processing of waste from onsite and offsite generators. Evaluations in the WM PEIS, the HSW EIS, and related NEPA documents indicate that additional wastes could be handled at Hanford without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

Comments

E-0045/002

I am very concerned about the contamination of the Columbia River and the transport of waste on our highways.

Response

About 300,000,000 hazardous material shipments take place every year in the United States. Of those shipments, about 3,000,000 involve radioactive materials and less than 10,000 involve shipment of DOE radioactive materials.

Offsite shipments of LLW, MLLW, and TRU waste can be conducted safely without exposing the public and environment to undue risks. This is ensured by a number of means that emphasize preventing releases of radioactive and hazardous material in transit including appropriate packaging, route selection, communications, vehicle safety, and driver training. In addition, in the unlikely event that an accidental release occurs, DOE provides the necessary support to local first responders to effectively mitigate, clean up, and monitor potential releases. Information about DOE transportation requirements and practices is presented in Volume I Section 2.2.4.

In response to public comments, DOE has conducted a route- and generator-specific offsite transportation analysis using updated highway routing and 2000 census data. See Volume I Section 5.8 and Volume II Appendix H. The potential impacts identified in the updated evaluation are similar to those presented in the WM PEIS (DOE 1997b) and the WIPP SEIS-II (DOE 1997c), and would not change conclusions or DOE-wide waste management decisions based on those studies.

The HSW EIS evaluates impacts to the Columbia River and downstream populations for about 10,000 years. For all alternatives analyzed in this HSW EIS, DOE has analyzed the long-term movement of contaminants through soil and groundwater to the Columbia River. In all cases, it found that the water quality of the Columbia River would be virtually indistinguishable from the current river background levels. The concentrations of all the constituent contaminants were well below benchmark drinking water standards at a hypothetical well located near the Columbia River. The impacts of groundwater reaching the river are discussed in Volume I Sections 5.3 and Volume II Appendix G. See also Volume I Section 5.11 and 5.14 and

Volume II Appendixes F and L.

Comments

E-0043/058, EM-0217/058, EM-0218/058, L-0056/058, LM-0017/058, LM-0018/058

DOE is considering using rail as an alternative method of transporting waste. The present EIS should quantitatively analyze the impact of shipment of waste, the construction of a spur or development of an intermodal transfer capability if needed to ship waste by rail, rather than deferring the needed analysis to future National Environmental Policy Act reviews. The analysis should include all potential impacts of construction, accidents, and terrorism.

L-0044/105

Sec. H.9 Effects of Transporting Solid Wastes by Rail, pp. H43-44 The generic discussion may be interesting, but it provides little insight into decisions to be made under the EIS. The last paragraph says it is premature to discuss. However, several DOE documents, including the Performance Management Plan for Carlsbad include specific commitments to rail transport of wastes from Hanford. The Carlsbad office is currently negotiating rail protocols with the Western Governors' Association. Clearly some use of rail is more imminent than the EIS acknowledges. In any case, Ecology's original August 2002 comment that impacts of inter modal transfers should be analyzed is not adequately addressed.

L-0044/106

Sec. 2.2.4, p. 2.36 This section appears to anticipate rail transport more seriously than Appendix H (see comment # 4 above), but still does not include any analysis of impacts of intermodal transfers.

L-0044/131

In addition, the analyses are limited because they fail to address use of rail transport for waste shipments to WIPP, which appears to be in conflict with a commitment to support rail shipments from Hanford.

Response

The use of rail is not part of the proposed action evaluated in this HSW EIS. Shipments of waste by rail may require constructing a spur from the existing rail lines, which, if proposed, would require additional environmental review. DOE conducted a qualitative analysis of the potential impacts of transporting solid waste by rail (see Volume II, Appendix H).

Comments

L-0055/053

Although an analysis of nationwide transportation of wastes to Hanford from other DOE sites was not performed, the transportation impacts associated with those wastes in the states of Oregon and Washington were added to the revised draft. This EIS seems inadequate without knowing what kind, or how much waste is going to be transported to Hanford.

Response

In response to public comments, DOE has conducted a route- and generator-specific offsite transportation analysis using updated highway routing and 2000 census data. See Volume I Section 5.8 and Volume II Appendix H. The potential impacts identified in the updated evaluation are similar to those presented in the WM PEIS (DOE 1997b) and the WIPP SEIS-II (DOE 1997c), and would not change conclusions or DOE-wide waste management decisions based on those studies.

Comments

F-0030/005

What about an assessment of the dangers of trucking this waste from Ohio and California[?]

Transportation

L-0014/014, L-0022/014

The Department of Energy must give additional attention and support to the transportation of wastes and nuclear materials between DOE sites. Significant public concerns exist regarding these programs.

L-0039/022

An adequate transportation analysis has not been performed. For example, the HSW EIS estimated impacts in Oregon and Washington using generic transportation parameters. It does not consider the specific transport route conditions, which may result in alternate routes being used and the impacts on those routes.

L-0041/047

In addition, the section describing transportation impacts is horribly difficult for a layperson to understand the information that is provided. The final EIS should present the results of a new transportation analysis in clear language, rather than using scientific notation.

TSE-0028/001

It is fallacious to say that this EIS considered either the site specific or route specific impacts of importing transuranic wastes to Hanford.

Response

In response to public comments, DOE has conducted a route- and generator-specific offsite transportation analysis using updated highway routing and 2000 census data. See Volume I Section 5.8 and Volume II Appendix H. The potential impacts identified in the updated evaluation are similar to those presented in the WM PEIS (DOE 1997b) and the WIPP SEIS-II (DOE 1997c), and would not change conclusions or DOE-wide waste management decisions based on those studies.

Information about DOE transportation requirements and practices is presented in Volume I Section 2.2.4.

RADTRAN uses route-specific accident statistics that account for geography, weather, driver error, traffic load, vehicle type, and road conditions.

Comments

F-0009/002

Trucking waste from other parts of the country is wrong due to the dangers of transportation.

L-0013/001

I am very concerned about 70,000 trucks with nuclear waste traveling across our nation from all directions in the U.S. to Washington, Hanford nuclear waste area. We must have 5 or 10 depositories nationwide and each waste must be transported to the nearest depository. This will minimize in transit crisis, and additionally reduce the volume or the materials in any one area.

P-0013/003

Please plan to bury the waste somewhere closer to its origin - avoiding the dangers inherent in long-distance transport.

P-0023/002

Shipping 70,000 truckloads of radioactive and chemical waste increases risks to citizens all along the highways. How about keeping it where it is. We don't want it.

P-0044/001

… these patently insane plans to ship 70,000 tons of radioactive materials anywhere, much less to Hanford.

P-0072/002

Moving it [waste] around the country dangerously isn't going to be acceptable.

TPO-0002/002

70,000 truckloads is, this is kind of like the initial salvo. Once they get through that 70,000, it could go up to 150,000. It could go higher than 70.

Response

In response to public comments, DOE has conducted a route- and generator-specific offsite transportation analysis using updated highway routing and 2000 census data. See Volume I Section 5.8 and Volume II Appendix H. The potential impacts identified in the updated evaluation are similar to those presented in the WM PEIS (DOE 1997b) and the WIPP SEIS-II (DOE 1997c), and would not change conclusions or DOE-wide waste management decisions based on those studies.

The HSW EIS estimates that up to 33,900 shipments of LLW, MLLW, and TRU waste could be shipped to Hanford if the upper bound waste volumes are realized. The actual number of shipments is expected to be less than this.

Comments

F-0016/001

The subsidy of production of nuclear waste will tend to perpetuate itself. As government and industry planners get used to cheap disposal of nuclear waste, they will design into their future plans production of large amounts of nuclear waste. The prediction of 70,000 truckloads of waste is thus only the narrow end of a wedge. An adequate EIS would consider this, and would anticipate far greater amounts of nuclear waste needing to be dealt with.

TSE-0038/001

So I wonder how confident are we that 70,000 truck loads, we will [stay] 70,000 truck loads, how likely is it that once there is an expectation in the industry that you can get rid of nuclear waste for free, that will be built into further plans, and 70,000 truck loads will become 700,000?

Response

The HSW EIS estimates that up to 33,900 shipments of LLW, MLLW, and TRU waste could be shipped to Hanford if the upper bound waste volumes are realized. The actual number of shipments is expected to be less than this.

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4. See Volume III Section 2.0, Item 6 of the CRD for more examples of cleanup at Hanford.

DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

Transportation

The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

Charging DOE waste generators higher disposal costs is not expected to reduce the amount of waste generated by DOE sites or to increase the amount of waste reduction already occurring under the DOE pollution prevention and waste minimization program. The Pollution Prevention Act, Section 6002 of RCRA and several executive orders were enacted, in part, because it was recognized that (1) government organizations should make efforts to minimize the amount of waste they generate and (2) economic incentives generally do not work for government entities. For waste being disposed of at Hanford, the waste generator and the disposal facility are both part of the same government organization, the DOE. Although private companies can collect money today for work to be performed in later years, government organizations like DOE are precluded from collecting money to cover future costs (such as closure costs and long-term monitoring costs) without specific congressional approval.

The recent "Report to Congress - The Cost of Waste Disposal: Life Cycle Cost Analysis of Disposal of Department of Energy Low-Level Radioactive Waste at Federal and Commercial Facilities" (DOE 2002d) explains that waste disposal decisions should be made based on the total life-cycle cost of waste disposal. These decisions need to consider the costs for treatment, inspection and verification, disposal, closure, and long-term monitoring. The DOE pollution prevention and waste minimization program already requires waste disposal decisions to be made based on life-cycle costs and other factors. See Volume I Section 2.2.5 for a discussion of the DOE pollution prevention/waste minimization program.

Comments

F-0013/004

Oregon has expressed their concerns about the condition of their aging bridges and have made official statements about their desires not to have waste trucked through their state. Why have these concerns not been addressed? Why have the opinions and concerns of states not been adequately considered and respected?

Response

With respect to concerns about the condition of roadways and bridges, the waste shipments to Hanford will predominantly travel on Interstate highways. Only in extremely rare instances would Interstate highway or bridge construction lead to a detour through municipal streets. Furthermore, the waste shipments will be conducted using heavy-combination trucks but are not "overweight" vehicles that require special overweight permits. The weights of the trucks that haul the waste to Hanford will be below legal-weight truck limits, similar to the vast majority of tractor-trailer vehicles that carry cargo on the Interstates every day.

Oregon's Department of Transportation (ODOT) has identified 487 bridges with some degree of cracking; 309 of those are likely candidates for repair and replacement. Two hundred and twenty-one of the critical bridges lie on I-5 and I-84. Oregon has developed a strategy to fix highways 20 (Bend to Ontario) and 97 (California border to the Washington State line) as alternative east-west and north-south routes that can be improved quickly (schedule for completion in 2005) and at least cost and could serve as detour routes, if necessary, for subsequent stages of the work to restore the interstate system. The subsequent stages of the project will address the bridges on I-84 and begin work on I-5, proceeding from the north to the south. As work progresses southward on I-5, lateral routes will be fixed that will reconnect the coastal parts and Central Oregon to I-5 as repairs continue southward. The repairs on the interstates are expected to be completed by 2015 (Oregon 2003).

During the period of repair, truckloads of radioactive/hazardous materials will stay on the interstates wherever possible and would typically not be detoured through cities and towns along the route. If construction/repair of a bridge is taking place, traffic would be detoured to the opposite side of the freeway from where construction/repair is taking place – the open half of the freeway would temporarily become a two-way road. If the entire bridge were to be closed, the most common procedure would be to have traffic exit the freeway at the interchange immediately before the bridge and enter the freeway on the other side of the bridge at the same interchange or at the next entrance. In such cases, having a small number of shipments travel a short distance on routes other than the interstate freeways would not substantially change the transportation risks or conclusions presented in the HSW EIS (This response is based in part on information presented by Mike Barry of the Oregon Department of Transportation during the public hearing in La Grande, Oregon on May 12, 2003. See Volume IV Appendix B for the transcript of the La Grande public meeting).

Comments

P-0018/002

What liability insurance will be taken out by the gov't to pay for tragic accidents along the highways as waste is moved?

TPO-0015/005

Secondly, I cannot insure my house against nuclear accidents. So if one of those trucks that runs right by my house, on I-84 through Portland, spills something, leaks something, whatever -- and we just had a leak recently that shut down half the city from a very much safer truck -- well, I can't do anything about it.

Response

In the event of a nuclear incident involving DOE waste shipments, the federal government would be responsible in accordance with provisions of the Price Anderson Nuclear Hazards Indemnity Act.

Comments

P-0151/001

Please for the sake of the world and all living things DON'T attempt to move nuclear waste (WMD) [weapons of mass destruction] around the USA.

Response

The HSW EIS is not evaluating any proposals to transport Weapons of Mass Destruction.

Comments

L-0049/006

Section 3.4.8, page 3.35, line 34. This sentence states that the transportation is the same for all alternative groups. The No Action Alternative should be different.

Response

The sentence refers to the action alternatives, not the No Action Alternative. See Volume I Section 3.1.1 for description of the No Action Alternative.

Comments

L-0053/001

However, all risk assessments for releases during accidents, fires, earthquakes and transportation relied on for EIS are based on treated mixed TRU. If USDOE wishes to claim it is exempt from treatment requirements, then it must analyze all risks from prolonged storage of untreated mixed TRU.

TLG-0013/002

Crazily, and this is my last point here, but it's very important that this EIS be revised to do a real transportation analysis, because it relies on the old '97 document. That '97 document transportation risk analysis is based on an assumption that all the waste is treated before it's on the highway; for instance, the remote-handled, mixed transuranic waste. And it acknowledges that untreated waste has far greater impacts. And they don't know what it is. They don't know what the chemical composition is, they don't know what the impacts are. And it's much more stable after treatment. And they only modeled post-treatment. And the same is true for once it's at Hanford, they only modeled, for instance, what the impact is if you got this remote-handled transuranic waste to Hanford, there's an earthquake, and they expected it to kill 200 people offsite from the waste management PEIS analysis, you won't find this new one. And 200 offsite fatal cancers. And it's modeled on it coming after treatment, but we know this stuff is coming without treatment.

Response

Transportation impact evaluations are based on shipments of waste streams identified by DOE generators. The chemical and radionuclide concentrations in these waste streams have not been adjusted to reflect compliance with RCRA treatment standards or to reflect other treatment that may be needed to meet waste acceptance criteria at the receiving facilities.

The accident analyses in the HSW EIS do address chemical constituents and do not assume all mixed wastes are treated (See Volume II, Appendix H).

Comments

L-0055/050

DOE claims that 300 million hazardous material shipments occur in the United States each year. It is not accurate to compare shipments of compressed air and gasoline since they don't pose the same long-term hazard as a radioactive accident would.

Response

Compressed air, gasoline, and other non-radiological hazardous materials may present different short term and long term risks than radiological materials. However, because these risks are different does not mean they are insignificant. Transportation accidents analyzed in the HSW EIS did address radiological materials. See Volume I Section 5.8 and Volume II Appendix H.

Comments

L-0044/044

CRD (Re: Comment # 162) On August 21, 2002, the Department of Ecology commented on the lack of integration between the EIS process and State and local planning concerning receipt of waste from other US Department of Energy (USDOE) sites (see Comment Response Document Letter L095, comments 162 through 164). Ecology intended for the US Department of Energy to acknowledge a significant disparity in State and Federal plans, as exemplified by a letter from Tom Fitzsimmons to Carolyn Huntoon, dated March 21, 2001. Mr. Fitzsimmons stated clearly that the State does not wish to accept offsite waste while the USDOE defers action on serious problems already in existence.

The State filed a lawsuit on March 4, 2003, to stop shipments of transuranic waste to Hanford. A Federal Court judge has issued a preliminary injunction prohibiting additional shipments, based on Ecology's concerns. While the USDOE modified its waste volumes to include Hanford-only wastes, the preferred alternative is dismissive of the land to be used for additional waste volumes and impacts on the environment. Please address conflicting goals for acceptance of offsite waste fully.

Response

DOE acknowledges that the State of Washington has expressed concern with regard to shipment of offsite DOE waste to Hanford. However, DOE does not believe that transport of offsite waste to Hanford would violate state laws or applicable land use plans. On the contrary, shipments of DOE's offsite radioactive mixed waste would comply with applicable provisions of the State of Washington Hazardous Waste Management

Act.

The preferred alternative for disposal is Alternative Group D. Land use and other impacts for all alternatives and all waste volumes, including those from other DOE sites, are in Volume I Section 5.

Comments

TSE-0028/003

The accident analyses in this EIS are woefully inadequate, they assume that no one is exposed within 100 meters of the accident. And it fails to consider many of the actual chemical constituents and their immediate dangers to life and health values. Astonishingly, whoever the contractor was who prepared this left blank the immediately dangerous life and health values which are known for numerous chemicals. So, this EIS is not adequate in regards to the accident consequence[.]

Response

As noted in the text preceding the table in the final HSW EIS, the chemical concentrations at 100 m downwind from a severe transportation accident could potentially exceed the Temporary Emergency Exposure Limit-2 (TEEL-2) for 3 constituent chemicals. The "Immediately Dangerous to Life and Health" values are only presented for perspective where the estimated concentrations exceeded TEEL-2. The 100-m receptor distance for the evaluation is commonly used for both facility and transportation accidents because of limitations in the atmospheric transport models used to estimate downwind concentrations.

Comments

TSP-0012/003

The transportation of hazardous waste. I am currently working on becoming a volunteer firefighter. So I have gone through a HAZ-MAT class, and I have listened to lots of stuff. The way this toxic waste sounds, it sounds like it could be really bad, and really interesting to try to take care of, and firefighters will get contaminated, hospitals will get contaminated, it will be really bad.

Response

DOE recognizes that accidents in transit are likely to occur during the transportation of radioactive wastes to, from, and within Hanford. Due to processes and procedures designed to ensure appropriate packaging, vehicle safety, driver training, and other precautions, the likelihood of a significant release of radioactive materials from an accident in transit is very low. Even so, in the unlikely event of an accidental release in transit, DOE provides the necessary support and assistance to potential first responders to assure effective mitigation, cleanup, and monitoring of the potential release.

As discussed in Volume I, Section 2.2.4, local, state, tribal, and federal governments and carriers all have responsibility for preparing for and responding to transportation emergencies. State and tribal governments have primary responsibility for the health and welfare of their citizens and therefore have an interest in ensuring the safety of shipments of hazardous materials, including DOE-owned materials, within their boundaries. The Emergency Response Guidebook (DOT 2000) provides information to assist potential first responders to the scene of a transportation accident involving hazardous materials, including radioactive waste. The Federal Emergency Management Agency (FEMA) is responsible for the federal government's emergency response activities. DOT has established requirements for reporting transportation accidents involving radioactive materials and has a comprehensive training program on handling emergencies involving radioactive materials shipments. Carriers are required to notify the National Response Center (operated by the U.S. Coast Guard) of all releases of hazardous substances that exceed reportable quantities or levels of concern. The DOE Manual 460.2-1 expands these criteria and requires notification to the states (DOE 2002e).

DOE operates a Radiological Assistance Program (RAP) with eight Regional Coordinating Offices staffed with experts available for immediate assistance in offsite radiological monitoring and assessment. DOE RAP teams assist state, local, and tribal officials in identifying the material and monitoring to determine if there is a release and with general support.

Consistent with DOE Manual 460.2-1, DOE has developed the Transportation Emergency Preparedness Program (TEPP) to assist federal, state, tribal, and local authorities to prepare for transportation accidents involving radioactive materials. That assistance includes planning for emergencies as well as training for emergencies. For example, through education programs offered to state and tribal organizations, over 17,000 emergency response personnel in twenty states have been trained to respond to accidents involving radioactive material (Westinghouse 2001). See www.em.doe.gov/otem for additional information about TEPP.

DOE believes that the emergency preparedness planning, training, equipment, and post-accident assistance provided by DOE, other state and federal agencies, tribes, and carriers are adequate to protect local first responders to a potential transportation accident and the public from potential accidental releases in transit.

Comments

L-0038/001

Transportation of high level nuclear waste across our country poses unacceptable, unfathomable risk. Since 9-11, jet fueled aircraft flying at hundreds of miles per hour has not been factored into Environmental Impact Statements of any proposed nuclear waste transportation plan. It is not possible to build enough safety into the trucks or waste containers to withstand that kind of impact. Therefore, high level nuclear waste should remain where it is presently.

Response

The likelihood of successfully striking a relatively small moving target like a radioactive waste shipment with a fast-moving jet aircraft, as the commenter suggests, is extremely low. Even if such an event were to occur, the consequences are expected to be within the range of severe accident impacts presented in the HSW EIS, Volume II, Appendix H.

The HSW EIS does not evaluate any proposals or alternatives regarding offsite transportation of immobilized high-level radioactive waste (IHLW) that will be transported to Yucca Mountain for disposal. The HSW EIS does address, however, onsite transportation of immobilized low activity wastes (ILAW). The ILAW packages will be transported from the Waste Treatment Plant, currently under construction, to an onsite disposal facility located in either the 200 East or 200 West Areas of the Hanford Site. There are no plans to transport ILAW offsite.

Comments

L-0055/060

Does Figure S.6 include the potential impacts of "long-term" storage of RH-TRU wastes? Could the TRU in this figure be higher if these are taken into account? TRU waste was not considered a separate waste type until 1970. After 1970, it was stored in Low Level Burial Grounds and in trenches or caissons. This is classified as "suspect TRU" since at least part of it is TRU waste. Is this waste then not included in the TRU waste inventory? These waste types are inseparable from the impacts of the wastes analyzed in this HSW EIS

Response

TRU waste inventories evaluated in the HSW EIS include waste from offsite generators and suspect TRU wastes in the LLBGs. The HSW EIS assumes that 50% of the "suspect" TRU waste upon analysis would meet the definition of TRU waste. TRU waste, including waste received from offsite generators, would be shipped to WIPP.

Comments

E-0047/025

The impacts of treating non-standard TRU and RH TRU are not assessed.

Response

Capabilities needed for remote-handled (RH) TRU wastes and non-standard containers of TRU waste would be similar to those already provided in WRAP. These include nondestructive examination, nondestructive assay, headspace gas sampling, repackaging, and visual examination of waste packages. Part of the proposed action in this EIS is to provide this additional capability. These are described in various text boxes in Volume I Section 2.2.2.

Comments

L-0055/041

TRU waste is being reduced as DOE is now sending or preparing to send TRU waste to the Waste Isolation Pilot Plant in New Mexico. Actually, DOE can currently only send their Contact Handled (CH) waste to the WIPP in NM. It can not yet accept the Remotely Handled (RH) waste. Since Hanford will be classifying RH-TRU waste from Ohio and California, the ability of WIPP to accept this RH waste will be a limiting factor in how quickly the RH can be shipped from Hanford. It could be in a long-term storage mode at Hanford. DOE is planning on shipping all legacy CH-TRU waste to WIPP by September 2015. WIPP is not certified to accept RH-TRU waste yet. This waste will have to be stored at Hanford for an indefinite period of time.

Response

Capabilities needed for remote-handled (RH) TRU wastes and non-standard containers of TRU waste would be similar to those already provided in WRAP. These include nondestructive examination, nondestructive assay, headspace gas sampling, repackaging, and visual examination of waste packages. Part of the proposed action in this EIS is to provide this additional capability. These are described in various text boxes in Volume I Section 2.2.2.

Retrieval of TRU waste from the LLBGs has already started. Shipments of TRU waste from Hanford to WIPP have also started. As indicated in the Hanford Performance Management Plan (HPMP, DOE-RL 2002), approximately one-third of the containers (fifteen thousand containers) of suspect TRU waste from the LLBGs are scheduled to be retrieved by 2006 . No substantial releases are expected to occur before the waste is retrieved.

EPA authorization to dispose of RH-TRU waste at WIPP is pending. Approval of the permit by New Mexico

Environment Department is expected in the FY 2006 timeframe.

EPA has granted WIPP authorization to dispose of polychlorinated biphenyls (PCBs). In March 2002, WIPP applied for changes to its permit to allow it to dispose of waste containing PCBs. Approval of the permit revision by the New Mexico Environment Department is pending. Based on the assumption that the changes will be accepted, PCB treatment would not be required. See Volume I, Section 2.1.3.

Comments

E-0055/025

The EIS does not include analysis of necessary facilities for characterization, processing, treating and storing TRU waste and TRU mixed with hazardous waste (TRUM). It is highly likely that TRU waste exhumed at Hanford will be TRUM and will require processing or treatment prior to storage and shipping. The HSW EIS impact analysis for TRU waste is inadequate and does not meet DOE's previous commitments.

Response

Capabilities needed for remote-handled (RH) TRU wastes and non-standard containers of TRU waste would be similar to those already provided in WRAP. These include nondestructive examination, nondestructive assay, headspace gas sampling, repackaging, and visual examination of waste packages. Part of the proposed action in this EIS is to provide this additional capability. These are described in various text boxes in Volume I Section 2.2.2.

Most of the TRU waste will be contact handled, which can be certified through existing facilities (such as WRAP).

Comments

L-0044/077

Summary, pp. S.1-2 The introductory material ignores mixed TRU waste. It also asserts that "Hanford has long received TRU waste from off-site sources," which is contrary to information provided to the state and the public in the past.

Response

Capabilities needed for remote-handled (RH) TRU wastes and non-standard containers of TRU waste would be similar to those already provided in WRAP. These include nondestructive examination, nondestructive assay, headspace gas sampling, repackaging, and visual examination of waste packages. Part of the proposed action in this EIS is to provide this additional capability. These are described in various text boxes in Volume I Section 2.2.2.

Most of the TRU waste will be contact handled, which can be certified through existing facilities (such as WRAP).

The "long received" statement was intended to summarize shipments of several different waste types that have been made to Hanford. Hanford has long received LLW and MLLW from other sites. TRU waste has been received from BCL and ETEC. The text has been revised to help clarify.

Comments

L-0052/015

The ERWM is aware there is currently no way at Hanford to deal with RH-TRU other than to store it. This includes K-basin sludge, likely some of the contents of 618-10/11 burial grounds, and whatever Hanford receives from off-site. Much of this EIS is relying on the premise that TRU waste and High Level Waste will be shipped to repository sites in New Mexico and Nevada. The ERWM staff recently toured both of those sites and after hearing the various presentations we are under the impression that there is still a large degree of uncertainty associated with licensing and whether or not these sites will be accepted for their intended purposes. It would be prudent to inform people about this situation in the EIS. This document continues to assume that TRU wastes will be exported. As a result, the document contains no analysis for risk to groundwater and other resources from TRU. The ERWM finds this unacceptable. In addition, as there are no guarantees that all TRU will leave the site, and as Hanford currently is not prepared to [dispose] of TRU on-site, the ERWM does not support bringing in additional TRU from other sites.

Response

Capabilities needed for remote-handled (RH) TRU wastes and non-standard containers of TRU waste would be similar to those already provided in WRAP. These include nondestructive examination, nondestructive assay, headspace gas sampling, repackaging, and visual examination of waste packages. Part of the proposed action in this EIS is to provide this additional capability. These are described in various text boxes in Volume I Section 2.2.2.

EPA authorization to dispose of RH-TRU waste at WIPP is pending. Approval of the permit by New Mexico Environment Department is expected in the FY 2006 timeframe.

EPA has granted WIPP authorization to dispose of polychlorinated biphenyls (PCBs). In March 2002, WIPP applied for changes to its permit to allow it to dispose of waste containing PCBs. Approval of the permit revision by the New Mexico Environment Department is pending. Based on the assumption that the changes will be accepted, PCB treatment would not be required. See Volume I, Section 2.1.3.

The Hanford Only waste volume has been evaluated in all action alternatives and the No Action Alternative to provide a better comparison with the impacts of adding offsite waste. The incremental impacts of offsite waste are the differences between the Lower and Upper Bound Volumes and the Hanford Only impacts for a given alternative.

Comments

L-0052/014

TRU Waste. We remain very uncomfortable with the plans (or lack of them) for retrieving or mitigating impacts from pre-1970s TRU. DOE indicates the associated dangers have fed into the risk modeling process. However, the level of uncertainty in inventory of those wastes alone brings those model results into question.

Response

Retrieval of TRU waste from the LLBGs has already started. Shipments of TRU waste from Hanford to WIPP have also started. As indicated in the Hanford Performance Management Plan (HPMP, DOE-RL 2002), approximately one-third of the containers (fifteen thousand containers) of suspect TRU waste from the LLBGs are scheduled to be retrieved by 2006 . No substantial releases are expected to occur before the waste is retrieved.

Offsite TRU waste would not be sent to Hanford for disposal. It will have been shipped to WIPP before closure. Not withstanding the above, as encouraged by various commenters, the HSW EIS includes an evaluation that assumes only Hanford wastes are managed at Hanford in the future.

An expanded discussion of uncertainties associated with the HSW EIS impact analyses is included in Volume I Section 3.5.

Comments

L-0039/009

Transuranic wastes in burial grounds [are not adequately analyzed in this EIS.]

Response

Retrieval of TRU waste from the LLBGs has already started. Shipments of TRU waste from Hanford to WIPP have also started. As indicated in the Hanford Performance Management Plan (HPMP, DOE-RL 2002), approximately one-third of the containers (fifteen thousand containers) of suspect TRU waste from the LLBGs are scheduled to be retrieved by 2006 . No substantial releases are expected to occur before the waste is retrieved.

Waste streams resulting from Hanford cleanup actions are factored into the HSW EIS cumulative impact analysis. In some cases, waste streams are directly considered as part of the alternatives evaluation. For example, processing and certification of TRU waste from cleanup of the 618-10 and 618-11 Burial Grounds is part of the projected TRU waste volumes analyzed in all alternative groups.

TPA Milestone M-15-00C requires all 200 Area, non-tank farm, pre-record of decision site investigation activities to be completed by December 31, 2008. Site characterization information generated from TPA remedial investigation and LLBG RCRA permitting activities has been used in development of the HSW EIS.

Comments

L-0055/058

All TRU [will] eventually [be] shipped to WIPP. When and what assurances? TRU waste buried in 618-10 and 11 burial grounds eventually [will be] shipped to WIPP. DOE has put off the cleanup of this site. DOE claimed they did not have the technology available to clean up these "hot" sites. What is the time-table for this? This delay has resulted in new ground water contamination spreading towards the Columbia River.

Response

Retrieval of TRU waste from the LLBGs has already started. Shipments of TRU waste from Hanford to WIPP have also started. As indicated in the Hanford Performance Management Plan (HPMP, DOE-RL 2002), approximately one-third of the containers (fifteen thousand containers) of suspect TRU waste from the LLBGs are scheduled to be retrieved by 2006 . No substantial releases are expected to occur before the waste is retrieved.

Per the Tri-Party Agreement, TRU waste in the 618-10 and 618-11 burial grounds will be retrieved by 2018.

Comments

E-0051/003

Any waste "temporarily" held here that is brought from elsewhere would probably stay a long time and probably leak as well (it will be in unlined ditches!).

F-0010/002

I still have concerns regarding the use of unlined, soil trenches for unspecified periods of time. Despite ongoing public concern, DOE's preferred alternative still recommends storing TRU waste in the Low Level Burial Grounds for an undetermined time period. I again call on DOE to fully examine this issue, and to demonstrate that its treatment and disposal proposals are safe beyond a doubt.

Transuranic (TRU) Waste

F-0015/006, TSE-0014/006

...waste containers will degrade while "stored" at Hanford for 20 or more years

L-0044/128

Further, storage of TRU waste in unlined trenches is unacceptable.

L-0055/051

Local, State, tribal and federal governments and carriers all have the responsibility for preparing for and responding to transportation emergencies. It is good to see the tribes acknowledge as being able to respond. However, when it comes to a radioactive spill, only the federal agencies would have the skills and equipment necessary to contain it. This is further exacerbated by an aging highway system including many bridge issues in Oregon and the State of Oregon's budget constraints. DOE amended the ROD for TRU waste to allow for "temporary storage", characterization and certification from "small generator" sites at Hanford and at Savannah River sites. Again, what is the definition of "temporary storage"?

L-0055/065

According to the discussion Remote Handled TRU waste will be stored at Hanford until processing and certification capabilities are developed. DOE anticipates that WIPP will have its remote-handled acceptance criteria and infrastructure in place to begin receiving such waste in approximately the 2005 timeframe. This is an uncertainty. Is there a chance that this could be delayed? Or could this be extended if WIPP could not accept RH TRU waste?

Response

These TRU wastes are not expected to be stored onsite for an extended period of time. However, they are expected to be stored above ground at the Central Waste Complex and T Plant and (in the case of remote handled, non-mixed TRU waste) underground in concrete boxes so that they will have no contact with the soil. The storage of these wastes will be monitored in compliance with applicable RCRA, State of Washington dangerous waste regulations, and/or DOE requirements.

Comments

L-0028/004

We urge you to re-consider the current plan and act to move these materials to the New Mexico site as the state of Washington is demanding.

Response

Current plans are to ship transuranic waste from Hanford and other DOE sites to WIPP. Hanford has already shipped more than 1,292 drums of transuranic waste to WIPP to date (August 2003) and is accelerating its shipment schedule.

Comments

L-0059/001

I generally agree with the section "DOE Preferred Alternative" on page S.41. The methods for storage, treatment, and disposal appear to be reasonable and provide protection for the public, workers, and environment. However, I am anxious to hear that more frequent shipments of TRU waste are being made to the WIPP site, and that a long overdue treatment process for MLLW is operating and reducing the backlog of MLLW from the Hanford site. The problems with and orders from the State of Washington must be addressed and settled promptly. DOE must take appropriate actions in accordance with the Tri-Party Agreement to reach written agreements with the State to promptly permit shipment of TRU waste and MLLW in and out of Hanford.

Transuranic (TRU) Waste

Response

Current plans are to ship transuranic waste from Hanford and other DOE sites to WIPP. Hanford has already shipped more than 1,292 drums of transuranic waste to WIPP to date (August 2003) and is accelerating its shipment schedule.

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4. See Volume III Section 2.0, Item 6 of the CRD for more examples of cleanup at Hanford.

DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

Comments

F-0015/004, TSE-0014/004

Hanford lacks any facility to analyze the waste as required to meet hazardous waste laws and to ensure safe storage.

TSE-0017/003

...much of the TRU waste is not certifiable to be moved to WIPP[.]

TSE-0017/004

...much of it [the TRU waste] cannot be currently treated at Hanford, which means it will be there for some time[.]

Response

Current plans are to ship transuranic waste from Hanford and other DOE sites to WIPP. Hanford has already shipped more than 1,292 drums of transuranic waste to WIPP to date (August 2003) and is accelerating its shipment schedule.

Most of the TRU waste will be contact handled, which can be certified through existing facilities (such as WRAP).

Comments

E-0031/001, L-0031/001

This purpose of this letter is to express concern that the preferred alternative for the subject EIS does not specifically address the alternative of thermally treating transuranic (TRU) waste on-site at Hanford, and to recommend that thermal treatment for TRU waste be added to the preferred alternative as a means of removing all prohibited items that prevent the shipment and disposal of TRU waste.

In order to be disposed of at the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico, TRU waste must meet the shipping requirements specified by the U.S. Nuclear Regulatory Commission (NRC) and the disposal requirements specified in the Waste Analysis Plan (WAP) of the WIPP RCRA Permit. Hanford TRU waste, in many instances, does not meet these requirements for shipping and disposal, as the waste contains items that are prohibited by both the NRC and the WIPP RCRA Permit. Such prohibited items include liquids, aerosol cans, sealed containers, volatile organic compounds, PCBs, corrosives, reactives, ignitables, waste incompatible with the backfill used at WIPP, and waste that generates flammable gas, etc.

The preferred alterative for TRU waste operations in the EIS includes processing capability "such as size-reduction and repackaging technologies." Size-reduction and repackaging technologies will not solve the problem of having prohibited items in TRU waste. Although opening drums and sorting the waste on a table will successfully remove some prohibited items, such as liquids, aerosol cans, and sealed containers, these processes do not remove all prohibited items, and these processes unduly increase the potential for worker exposure to radiation. This TRU waste would still contain many items that would prohibit its shipment and disposal. Hence, without the capability to remove all prohibited items from the TRU waste, a large portion of Hanford's TRU waste would remain on-site in storage indefinitely, posing additional risk to workers, the public, and the environment.

Thermal treatment of TRU waste is recommended for inclusion in the preferred alternative because it is a means of removing all (not just some) prohibited items from TRU waste using a process that does not require sorting. There are commercially available thermal treatment processes that have no liquid effluent, and emit only water vapor and carbon dioxide into the air, thus minimizing long-term impacts to the environment by their use at the Hanford Site. Unlike low-level mixed waste (LLMW), TRU waste cannot be transported and treated off-site because of restrictions in the TRU waste Record of Decision; therefore, on-site treatment of TRU waste is the only alternative for this waste stream.

One commercially available thermal treatment process for TRU waste consists of two treatment stages, an in-drum pyrolysis process followed by a steam reforming process. In the first stage, TRU waste is heated in an inert environment to temperatures between 650°C and 750°C. Drums of waste are placed in an electrically heated pyrolysis chamber where water is evaporated, organics are volatized and pyrolyzed, and corrosives and reactive materials are converted into non-hazardous oxides or carbonate compounds. The pyrolyzed residue in the drums will be an inert, inorganic, carbon char containing radioactive metals.

A distinguishing characteristic of this process is that the system greatly minimizes criticality and contamination control issues during the processing of TRU waste. Moderate processing temperatures mitigate radioactive metal volatility, and very low off-gas flows essentially eliminate particulate carryover from the drummed wastes. Back-up protection to prevent radionuclides from becoming airborne is provided by replacing the existing drum lid with a lid that has a ceramic filter and an inorganic drum-to-lid sealing mechanism. The ceramic filter allows gas interchange, but prevents release of radioactive particles.

Stage two of this process is used to treat the off-gases from the pyrolysis process, and consists of a steam reformer and a downstream scrubber for neutralization of acid gases. The off-gas produced by pyrolysis consists of water vapor, volatized organics, and acid gases from the decomposition of cellulosic materials (i.e., paper, wipes, anti-contamination clothing, etc.), plastics, and other organics in the drums. The off-gas from the pyrolysis chamber is pulled by vacuum into the bottom of a steam reformer. The steam reforming process destroys residual organics in the off-gas, including RCRA and TSCA organic constituents. These organics are converted to carbon dioxide and water vapor in the steam reformer by a combination of steam reforming and oxidizing reactions.

Downstream of the steam reformer, wet scrubber technology is used to neutralize corrosive acid gases and particulates that are carried out of the reforming vessel with the off-gas. Scrubber liquids are concentrated, emptied into a 55-gallon drum, and then dried in the pyrolyzer; thus, the process produces no secondary liquid waste. Downstream of the scrubber, the off-gases are passed through a HEPA filter so that the emissions released to the atmosphere are carbon dioxide and water vapor. The system does not generate dioxins or furans, and is considered a non-incineration process by the U.S. Environmental Protection Agency (EPA). Pyrolysis and steam reforming processes are both recommended by the Secretary of Energy's Advisory Panel on Alternatives to Incineration (Blue Ribbon Panel).

The same system could be used for the treatment of both TRU waste and LLMW. The treated TRU waste would meet all NRC requirements for shipping and WIPP RCRA Permit requirements for disposal. Treatment of LLMW would remove all organics, including RCRA organics and TSCA PCBs. If the LLMW contained heavy metals, the treated residue would undergo secondary treatment (e.g., macroencapsulation or microencapsulation). The treated waste would then meet Land Disposal Restrictions. This one treatment process can accelerate the disposal of both LLMW and TRU waste. Having one process, instead of separate processes for LLMW and TRU waste, would minimize the short-term environmental impacts due to construction.

Thermal treatment of TRU and LLMW on-site waste would also reduce transportation risks. After treatment, TRU waste will not contain any untreated hazardous constituents, and the volume of the waste will have been reduced by thermal treatment (depending on the contents of the debris in the waste, documented volume reduction ranges from 20–90%). After pyrolysis, drums of debris waste will be compacted as part of the thermal treatment process, yielding a significant reduction in the number of TRU waste shipments from Hanford to WIPP in New Mexico. If the same thermal treatment system is used for LLMW, the transportation risks associated with the treatment of this waste stream are also reduced because LLMW would not have to be shipped off-site for treatment.

Response

The 1996 amendments to the WIPP Land Withdrawal Act exempted TRU mixed waste designated for disposal at WIPP from specific treatment standards and land disposal prohibitions of hazardous waste laws. Based on experience with TRU waste now being sent to WIPP (contact handled, mixed and non-mixed), it is anticipated that most TRU and TRU mixed waste would meet WIPP waste acceptance criteria without the need for substantial additional processing. Permitting of TRU waste disposal at WIPP is discussed in Volume I Section 2.1.3. Processing and certification of TRU to meet WIPP waste acceptance criteria is discussed in Volume I Section 2.2.2.

Comments

F-0017/003

No dumping of Plutonium Wastes in unlined trenches[!]

L-0014/007, L-0022/007

The importation of TRU wastes from other DOE sites for repackaging, certification, and storage prior to shipment offsite for disposal is acceptable. Permanent disposal of these wastes at Hanford is not acceptable.

Response

The TRU waste will not be disposed of at Hanford. It will be processed as necessary and shipped to WIPP.

Transuranic (TRU) Waste

These TRU wastes are not expected to be stored onsite for an extended period of time. However, they are expected to be stored above ground at the Central Waste Complex and T Plant and (in the case of remote handled, non-mixed TRU waste) underground in concrete boxes so that they will have no contact with the soil. The storage of these wastes will be monitored in compliance with applicable RCRA, State of Washington dangerous waste regulations, and/or DOE requirements.

Comments

L-0044/098

Sec. 1.3.2.3, p.1.10; Sec. 2.1.3, pp. 2.8-2.11; Appendix C. Sec. C.4, p. 11 Bullet 3 states that Hanford will manage transuranic (TRU) waste from "some other DOE sites that do not have capacity" to manage them. Sec. 2.1.3 does not classify the form or quantify the volume of offsite TRU waste that will be managed at Hanford. Sec. 3.3.3 states only that an added 1500 cu. m. [cubic meters] of TRU waste would be received for temporary storage and shipment to WIPP; separate volumes of CH and RH TRU should be specified. Appendix C, section C.4 Transuranic Waste asserts that the volume of TRU waste from offsite could be added to the Hanford Lower Bound without significant environmental impact. A reader cannot readily ascertain how the USDOE determined the negligible impact; therefore, its validity is questionable.

Response

The specific offsite TRU waste volumes can be calculated from the flowcharts in Volume II Appendix B. About 1,473 cubic meters would be CH-TRU waste and 84 cubic meters would be RH-TRU waste.

The Hanford Only waste volume has been evaluated in all action alternatives and the No Action Alternative to provide a better comparison with the impacts of adding offsite waste. The incremental impacts of offsite waste are the differences between the Lower and Upper Bound Volumes and the Hanford Only impacts for a given alternative.

Comments

L-0055/064

DOE would need additional capabilities to treat MLLW, RH-MLLW, RH-TRU, and non-standard items since they cannot be accepted by commercial facilities. When would these facilities be built? It appears that waste of many different kinds would be stored at Hanford in unstable forms before they could be processed. This increases the hazard to the environment.

Response

The HSW EIS assumes these treatment capabilities will be available by 2012. Waste is stored at Hanford consistent with applicable RCRA, state, and DOE requirements.

Comments

E-0047/014

[The HSW EIS fails to assess:] The condition of TRU containers in the LLBG.

Response

Retrieval of stored TRU waste from the LLBGs was evaluated in the HDW EIS (DOE 1987), and a subsequent evaluation was prepared for retrieval of about 15,000 drum equivalents of the waste for processing, certification and shipment to WIPP (DOE 2002b). Based on experience gained during retrieval of that waste, DOE would evaluate the condition of remaining waste to be retrieved and prepare additional environmental reviews as necessary. The previous analyses for retrieval of TRU waste are summarized in Volume I Section 1.5.2.

Comments

TPO-0019/003

Despite ongoing public concern, DOE's preferred alternative still recommends storing TRU waste in the low-level burial grounds for an undetermined time period. I again call on DOE to fully examine this issue and to demonstrate that its treatment and disposal proposals are safe beyond a doubt[.]

Response

Per the Tri-Party Agreement, TRU waste in the 618-10 and 618-11 burial grounds will be retrieved by 2018.

Retrieval of TRU waste from the LLBGs has already started. Shipments of TRU waste from Hanford to WIPP have also started. As indicated in the Hanford Performance Management Plan (HPMP, DOE-RL 2002), approximately one-third of the containers (fifteen thousand containers) of suspect TRU waste from the LLBGs are scheduled to be retrieved by 2006 . No substantial releases are expected to occur before the waste is retrieved.

Comments

E-0047/036

An alternative that assumes all TRU waste will be shipped from the generator site directly to WIPP for treatment and disposal and not Hanford.

E-0050/008

Many of these transportation risks are unnecessary, particularly those involving shipment of transuranic waste (TRU). The EIS discusses plans for shipping TRU for temporary storage, repackaging, and certification prior to sending the TRU to the Waste Isolation Pilot Plant (WIPP) for permanent disposal/storage. The EIS speaks of using both Hanford facilities and mobile processing units to ready this waste for reshipment to WIPP. It would make more sense to send the mobile processing units to the point of origin of the TRU, process the waste into the TRUPACT, HalfPACT, or RH-72B containers there, and then send it directly from the point of origin to WIPP. The TRUPACT containers are designed to minimize risks due to radiation exposures or traffic accidents during shipment of TRU waste. Therefore, it makes no sense to ship these wastes to Hanford before they have been packaged so as to minimize risks of an accident or exposure. Only wastes generated at Hanford should be packaged at Hanford for shipment to WIPP.

E-0055/003

The revised draft HSWEIS is totally inadequate to fulfill the requirements of NEPA, which USDOE had previously failed to meet before attempting to ship TRU from ETEC and Battelle to Hanford. Not only does it fail to address the impacts from not treating the TRU, and from not operating in a manner that assures that all TRU is stored as if it is Mixed Waste unless fully characterized and proven not to have hazardous wastes present, the revised draft fails to meet numerous commitments made in the USDOE's 1997 Waste Management Programmatic EIS and subsequent TRU Record of Decision for site wide and project specific NEPA reviews of the impacts of transporting TRU to Hanford and storing or treating the TRU at Hanford. Most obviously, the USDOE fails to consider the alternative of transporting the wastes only once – to the WIPP disposal facility for TRU, in New Mexico – and treating and processing the TRU there before disposal, instead of first transporting untreated and uncertified TRU to Hanford for prolonged storage.

F-0015/003, TSE-0014/003

The U.S. Department of Energy does not even know what is in the highly radioactive remote handled transuranic waste that it wants to ship to Hanford. It has designated them "non-verifiable."

F-0017/004

No transportation of Plutonium wastes through my city! You haven't even bothered to do an EIS on that madness.

Transuranic (TRU) Waste

L-0047/001

I think it is very dangerous for the DOE to bring in any more plutonium waste to Hanford. Other sites should be surveyed and evaluated before a decision is made. There are better locations where pits are lined with concrete to prevent waste from leaching into the ground. There is too much danger of leakage into the Columbia River at Hanford. I hereby register my opposition to any more waste going to Hanford.

P-0065/001

I would like to register my resistance to DOE plans to ship transuranic waste to Hanford for storage. Hanford is already the nation's most contaminated site -- it hardly needs more.

TSE-0010/005

Should the Department of Energy truck in more transuranic waste? Not if we want to clean it up or continue to move forward. So, I say, with this comment, effectively Hanford cannot be a destination for more transuranic waste.

Response

Most of DOE's TRU waste is being sent directly from the generators to WIPP.

The Hanford Only waste volume has been evaluated in all action alternatives and the No Action Alternative to provide a better comparison with the impacts of adding offsite waste. The incremental impacts of offsite waste are the differences between the Lower and Upper Bound Volumes and the Hanford Only impacts for a given alternative.

This HSW EIS analyzes the storage and processing for shipment to WIPP of all TRU waste expected to be received from offsite DOE generators.

In response to public comments, DOE has conducted a route- and generator-specific offsite transportation analysis using updated highway routing and 2000 census data. See Volume I Section 5.8 and Volume II Appendix H. The potential impacts identified in the updated evaluation are similar to those presented in the WM PEIS (DOE 1997b) and the WIPP SEIS-II (DOE 1997c), and would not change conclusions or DOE-wide waste management decisions based on those studies.

Comments

L-0044/127

Treatment of hazardous components of TRU waste is not addressed. Ecology notes that the USDOE acknowledged hazardous components in TRU waste streams but does not address treatment of those components. In addition, the means by which RH and nonstandard TRU packages would be processed is not developed. The USDOE asserts that non-standard TRU processing will begin in 2015 and RH [remote handled] processing will begin in 2013, but no attempt is made to explain how the USDOE will establish methods to accomplish such processing.

Response

Treatment technologies are identified in the text boxes in Volume I Section 2. The same technologies would be used in either a modified T Plant or a new waste processing facility. General technologies have also been identified for each of the waste streams in Volume I Section 2.1. Final selection of specific technologies will need to wait until detailed design of the facilities.

The 1996 amendments to the WIPP Land Withdrawal Act exempted TRU mixed waste designated for disposal at WIPP from specific treatment standards and land disposal prohibitions of hazardous waste laws. Based on experience with TRU waste now being sent to WIPP (contact handled, mixed and non-mixed), it is anticipated that most TRU and TRU mixed waste would meet WIPP waste acceptance criteria without the need for substantial additional processing. Permitting of TRU waste disposal at WIPP is discussed in Volume I Section 2.1.3. Processing and certification of TRU to meet WIPP waste acceptance criteria is discussed in Volume I Section 2.2.2.

Comments

L-0055/029

Hanford DOE has limited capacity to treat MLLW at Hanford. Will the contractors be able to treat the MLLW and LLW that will be arriving at Hanford since they can only treat a limited quantity? If not, how will the MLLW be stored at Hanford before treatment to assure its stability? Or will it be treated before arriving at Hanford?

Response

Part of the purpose of the EIS is to allow DOE to obtain additional treatment capability to support cleanup of the Hanford Site. LLW and MLLW received from offsite generators is assumed to meet applicable treatment standards and arrives ready for disposal.

Comments

TSP-0015/003

Another thing is that to look into the microbes, the bugs that actually eat plutonium waste, medical waste, mixed waste. They started out eating chemical waste, and now they have been evolved by the government to actually eat radioactive waste. And this could clear up a lot of mess if we could get that going.

Response

Evaluation of the use of microbes as a process to treat radioactive waste is still in the research and development stages. Should alternative treatment technologies, such as this, become available in the future they would be addressed in subsequent environmental evaluations.

The treatment of MLLW at Hanford is discussed in Volume I Section 2.1.2 of the HSW EIS.

Comments

L-0055/030

Category 3 LLW requires grouting waste in the trench or placing it in high-integrity containers. What is the half life of this category 3 waste? Grout does not have a half life that is likely to last several thousand years. If this waste is harmful enough to require grouting, then vitrification should also be considered.

Response

The analyses in the HSW EIS assume that the in-trench grouting and the high-integrity containers would provide additional protection of radioactive constituents for 300 years. See Volume II Appendix G.1.

Comments

THR-0002/005

And in this EIS DOE wants to dump low-level, mixed and the low-activity tank waste all together. That's one of the options, the alternatives. And although basically this would mix very different radioactive and chemical wastes all together in the same burial ground, which can cause reactions and different deteriorations of the liners.

THR-0006/001

I think the idea of mixing all the wastes together is a bad idea, dumping it all together. That is not going to let you clean it up later, which is what's going to have to happen.

TSE-0031/005

It [the DEIS] does not include nonreactive hazardous wastes.

Response

Mixed low-level waste is required to meet land disposal restriction (LDR) treatment standards prior to disposal and it will be treated as necessary. The treatment process is designed, in part, to preclude waste interactions. Disposal of low-level waste and mixed low-level waste together in the same lined disposal facility is a safe, legally compliant practice already used onsite at the Environmental Restoration Disposal Facility.

Comments

TPO-0011/001

The low-level mix that is now mixed with chemical waste, apparently this statement has not addressed that properly, and that they do not know how the chemicals will mix with the low-level waste. I've heard of -- so that they don't know how it will mix, so therefore, they don't know what could happen. And they're completely ignoring this, apparently, in this statement. The other thing, one of the other things that concerned me, was the fact that -- well, part of this chemical mix includes the solvents that allow plutonium to travel more easily.

Response

Mixed low-level waste is required to meet land disposal restriction (LDR) treatment standards prior to disposal and it will be treated as necessary. The treatment process is designed, in part, to preclude waste interactions. Disposal of low-level waste and mixed low-level waste together in the same lined disposal facility is a safe, legally compliant practice already used onsite at the Environmental Restoration Disposal Facility.

As indicated in Volume I Section 5.3, existing groundwater monitoring data does not indicate that releases from the LLBGs have occurred. As indicated in Volume I Section 4.5.3.3, the carbon tetrachloride in the groundwater under Low-Level Waste Management Area 4 is from an upgradient source. Groundwater impacts from Low-Level Waste Management Areas 1, 2, 3, and 4 are discussed in the Hanford Site-Groundwater Monitoring for Fiscal Year 2001 document (Hartman et al. 2002). Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4.

Sampling being conducted as part of the ongoing CERCLA program in the LLW Management Area 4 has indicated the presence of carbon tetrachloride vapors in and near several trenches. During the trench sampling, industrial hygienists conducted repeated air monitoring at the top of the vent risers above trenches—a required health and safety practice for all sampling activities to protect the workers from potentially being exposed during the sampling. After the carbon tetrachloride had been detected in the air at the bottom of the trench, industrial hygienists again monitored the trench to ensure that other workers who entered this area in the burial ground would not be exposed. The measurements for all "organics" in the air above the trench (including carbon tetrachloride and its decay products) showed readings ranging from "not detectable" to 4 ppm—well below the standard set by the Occupational Safety and Health Administration (OSHA) of 10 ppm per day during a 40-hour work week. Samples taken in the "breathing zone" did not show any level of organics. The monitoring at the surface of the trenches indicated that toxic vapors were not emanating from the vent risers. Monitoring above and below the surface continues. Based on monitoring results and activities to be performed, industrial hygienists specify protective measures to be taken to protect workers. Common measures might include protective clothing, respiratory protection, and removal of contaminants from the work area.

Additional sampling for organic compounds, including carbon tetrachloride, in the Low Level Burial Grounds is being conducted as part of the on-going TRU waste retrieval activities. This sampling started October 15, 2003 and is being conducted in accordance with a State of Washington Department of Ecology approved Sampling and Analysis Plan (SAP). Sampling results will be used both for helping reduce risks during retrieval and to provide information for remediation planning.

In response to carbon tetrachloride vapors found in previous vent riser sampling in trench 4 of LLBG 218-W-4C, a vapor extraction system has been installed and started operation November 15, 2003. This system is currently intended to operate until the carbon tetrachloride concentrations are less than or equal to 10 ppmv. This work is being conducted prior to retrieval in order to reduce the likelihood that higher levels of carbon tetrachloride will be encountered during retrieval that could pose a higher risk to workers and slow progress on retrieval.

Retrieval of the suspect transuranic waste from this burial ground has already started and is anticipated to be complete within the next few years, with Trench 4 retrieval completed by the end of 2006. If the retrievably stored waste is the source of the carbon tetrachloride vapors, the completion of this retrieval will eliminate the source of contamination. Additional sampling results from the SAP sampling after the removal of the retrievably stored waste will provide information to assist in determining appropriate actions after the waste is removed.

Comments

E-0048/006

The EIS assumes hazardous and radioactive waste can be adequately buried at Hanford. This encourages increased production of such waste. However, since there really is no safe way to dispose of toxic materials with half lives longer than humans will probably be around, the sensible thing to do would be to not produce toxic wastes in the first place.

F-0002/005

Stop creating radioactive and hazardous waste[.]

L-0011/004

STOP GENERATING THE WASTE!

L-0020/005, TSE-0021/005

I will settle for nothing less than the complete halt of the manufacturing of radioactive nuclear waste, and the immediate clean-up of the DOE's deplorable legacy has left our children to contend with. The people of this country will not stand for this type of behavior.

P-0054/001

Stop the production.

TPO-0013/010

We will never have a sane, responsible process for clean up until we eliminate the source of the wastes.

TPO-0016/001

Number one is, this site has done a tremendous amount of damage to the environment already. In terms of nuclear weapons complex overall within the United States, it has the lion's share of nuclear waste…...Hanford's done its share.

TSP-0003/005

I want to see us stop creating this waste.

TSP-0014/002

Well, we have had 50 years to work out the emergency situation and figure out what we are going to do with this radioactive material. And instead all we do is generate more of it. And don't solve the problem at all.

Response

Some additional wastes will be generated as part of the cleanup of Hanford Site and other DOE sites. However, plutonium production, the source of most of the waste created, has stopped at Hanford. TRU waste, high-level waste, and spent nuclear fuel will be sent to underground repositories in other states that have been designed to safely contain the waste.

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4. See Volume III Section 2.0, Item 6 of the CRD for more examples of cleanup at Hanford.

Waste

DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

Comments

THR-0014/002

… if they kept this waste where it's produced, San Francisco, Los Angeles, "Phila-dam-delphia" [sic], wherever, if they stored the waste where it came from, we wouldn't have this problem. But do you know what, I'd bet they'd think twice about manufacturing as much waste as they manufacture.

Response

Some additional wastes will be generated as part of the cleanup of Hanford Site and other DOE sites. However, plutonium production, the source of most of the waste created, has stopped at Hanford. TRU waste, high-level waste, and spent nuclear fuel will be sent to underground repositories in other states that have been designed to safely contain the waste.

DOE's radioactive waste will continue to be disposed of in several states around the country where there are existing DOE and commercial disposal facilities. See Volume I, Figure 1.2.

Comments

L-0014/011, L-0022/011

The 618-10 and 11 waste disposal sites must be addressed as priority items due to their proximity to Energy Northwest facilities and the Columbia River.

Response

Waste streams resulting from Hanford cleanup actions are factored into the HSW EIS cumulative impact analysis. In some cases, waste streams are directly considered as part of the alternatives evaluation. For example, processing and certification of TRU waste from cleanup of the 618-10 and 618-11 Burial Grounds is part of the projected TRU waste volumes analyzed in all alternative groups.

Comments

TSE-0031/001

It [the DEIS] does not include high-level waste.

TSE-0031/003

It [the DEIS] does not include spent nuclear fuel.

TSE-0031/008

It [the DEIS] does not include commercial nuclear fuel.

TSE-0031/009

It [the DEIS] does not include high-level waste from other sites.

Response

DOE plans to dispose of HLW and spent nuclear fuel from commercial nuclear power and DOE facilities at the Yucca Mountain National Repository being developed under the Nuclear Waste Policy Act. Storage of HLW or spent nuclear fuel is not within the scope of this EIS.

Comments

L-0041/035

The large representative elemental volumes used to conduct the numerical fate and transport modeling will tend to minimize DOE's ability to predict contaminant fluctuations at specific vadose and groundwater monitoring wells. Oregon recommends that DOE conduct more specific numerical modeling studies of the proposed waste trenches to verify environmental impacts. Revised modeling should include key model performance and design expectations and refined inventories (based upon mass), while incorporating smaller scale geologic features that have been demonstrated to effect lateral and vertical transport. This modeling can then be used to establish the mass capacity of each trench.

Response

The HSSWAC would be revised as needed, based on periodic performance assessment updates prepared during disposal facility operations, to ensure that long-term impacts would not exceed established dose standards. The HSSWAC may also incorporate requirements for greater confinement of higher-activity LLW and MLLW through disposal in high-integrity containers, or by grouting the waste in place in the disposal facility.

The maximum point of impact from multiple and widely dispersed sources may not necessarily be directly underneath the Low Level Burial Grounds or at the Low Level Burial Ground boundary. To model the groundwater impacts from multiple and widely dispersed disposal units over long periods of time, a 1-km point of analysis location was deemed to be more appropriate and representative than a regulatory point of compliance well location, for purposes of NEPA analysis. The point of analysis approach is considered technically appropriate for a NEPA evaluation of groundwater impacts over the long-term (10,000 years) time period analyzed. The 1-km point of analysis is not intended to represent the proposed locations for actual monitoring wells that would be used during the operational and closure time period. Groundwater impacts at the facility boundary (about 100 meters) have been added to the impacts identified for the preferred alternative and are discussed qualitatively for the other alternatives. A discussion of the differences between the 1-km point of analysis and the disposal facility boundary is provided in Volume I Section 5.3 and Volume II Appendix G.

Comments

F-0030/001

How much new waste is to be brought in?

Response

The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. See Volume I Section 3.3 and Volume II Appendices B and C for a description of the waste volumes.

Comments

E-0043/010, EM-0217/010, EM-0218/010, L-0056/010, LM-0017/010, LM-0018/010

The HSW EIS also fails to give an exact quantity of waste that would be imported. Instead, it gives lower and upper boundaries. This quantification is error because
1) each extreme of these ranges could produce very different environmental
2) there is no clear estimate of pre-1970 TRU waste;
3) the EIS is vague about what "suspect" TRU encompasses; and
4) the EIS should specify whether waste generated from tank remediation is included in the estimates.

The EIS should 1) pinpoint the exact quantity and source of each type of waste to be disposed at Hanford; 2) state explicitly the relative proportions of waste going to Nevada Test Site versus the Hanford Site; and 3) elaborate on the nature of "suspect" TRU.

Also, the HSW EIS fails to include an inventory or classification of several radionuclides that occur in sufficient quantity to be 'of interest' (ex: iodine-129). The draft HSW EIS is not complete without this data.

Response

The HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. The waste volumes evaluated include a Lower Bound waste volume consisting mainly of Hanford waste, and an Upper Bound volume that includes additional quantities of offsite waste that Hanford might receive consistent with WM PEIS decisions. The HSW EIS includes an evaluation of Hanford Only waste. The Hanford waste evaluation provides a basis with which to determine the impacts of varying quantities of offsite waste at Hanford. See Volume I Section 3.3 and Volume II Appendices B and C for a description of the waste volumes.

More quantitative analysis of Iodine-129 and cumulative impacts has been added to Volume I Section 5.14 and Volume II Appendix L.

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS (DOE 1997b) decisions regarding certain TRU waste, LLW, and MLLW streams. Site-specific waste management actions at Hanford involve transportation, treatment and processing of TRU waste and MLLW, disposal of LLW, MLLW and ILAW, and storage of LLW, MLLW, and TRU waste. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

The WM PEIS was a comprehensive evaluation of DOE nationwide waste management. The WM PEIS evaluated a broad suite of alternatives for waste management across the DOE complex, including managing most waste at generator facilities, or consolidating waste management at fewer sites that have existing facilities suitable to accept waste from other facilities. The impacts of those alternatives were compared for a variety of waste volumes at different DOE sites, including larger quantities of waste than are evaluated in the HSW EIS. The general result of the WM PEIS was that radioactive and hazardous wastes generated at a DOE site should be disposed of at that site unless the site was not capable of or not technically able to support those actions. DOE determined there was sufficient information in the WM PEIS to support decisions regarding the sites that were suitable for long-term waste management missions. Those decisions included processing and disposing of Hanford waste at Hanford, and the importation of wastes from other sites that could not adequately handle them. Decisions made as part of the WM PEIS made Hanford available for the disposal of low-level waste and mixed low-level waste from other DOE generators. The initial WM PEIS decisions related to LLW, MLLW, and TRU waste were issued between January 1998 and February 2000.

Comments

L-0044/112

Waste volume forecasts do not include significant inventories of waste and contamination that may, under reasonably expected actions, require storage, treatment, and/or disposal in Hanford's waste management facilities. Cumulative impact analysis is based on incomplete inventories of waste and contamination and an incomplete understanding of contaminant movement in the vadose zone and groundwater.

Groundwater analyses suggest that if full inventories of contaminants were included, and impacts were projected at facility boundaries as required by regulation, drinking water standards would be exceeded, even if only the "Hanford-only" waste volumes were assumed. These incomplete analyses suggest likely exceedences, given margins of uncertainty that must be associated with the calculations. Yet, the Revised HSW-EIS does not discuss measures that could mitigate these potential impacts, such as increased groundwater and vadose zone monitoring, or more complete waste treatment.

Response

The HSW EIS uses best available data for estimating inventories of hazardous and radioactive wastes. These data are obtained from information management systems maintained at Hanford and other DOE sites. Most of the waste will be generated by environmental restoration activities, and there is uncertainty about the amounts that will be generated. Areas of uncertainty are discussed in Volume I Section 3.5.

The HSW EIS uses the definition of cumulative impact as defined by the CEQ Regulations (40 CFR 1508.7): "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Potential cumulative impacts associated with implementing the HSW EIS alternative groups are summarized in Volume I Section 5.14. Past, current, and future Hanford activities include treatment and disposal of tank waste, CERCLA remediation projects, previously disposed of waste, decontamination and decommissioning of the Hanford production reactors and other facilities, waste in the PUREX tunnels, operation of a commercial LLW disposal facility by U.S. Ecology, and operation of the Columbia Generating Station by Energy Northwest. Cumulative impacts of storage, treatment, and disposal activities for a range of waste volumes are evaluated and expanded in the final HSW EIS. For most resource and potential impact areas, the combined effects from the alternative groups for the Hanford Only, Lower Bound and Upper Bound waste volumes, or for the No Action Alternative for the Hanford Only and Lower Bound waste volumes, when added to the impacts of these other activities, are small.

The maximum point of impact from multiple and widely dispersed sources may not necessarily be directly underneath the Low Level Burial Grounds or at the Low Level Burial Ground boundary. To model the groundwater impacts from multiple and widely dispersed disposal units over long periods of time, a 1-km point of analysis location was deemed to be more appropriate and representative than a regulatory point of compliance well location, for purposes of NEPA analysis. The point of analysis approach is considered technically appropriate for a NEPA evaluation of groundwater impacts over the long-term (10,000 years) time period analyzed. The 1-km point of analysis is not intended to represent the proposed locations for actual monitoring wells that would be used during the operational and closure time period. Groundwater impacts at the facility boundary (about 100 meters) have been added to the impacts identified for the preferred alternative and are discussed qualitatively for the other alternatives. A discussion of the differences between the 1-km point of analysis and the disposal facility boundary is provided in Volume I Section 5.3 and Volume II Appendix G.

Several mitigation measures have been built into the alternatives addressed in the final HSW EIS, including installation of barriers, liners, and leachate collection systems in disposal facilities; treatment of MLLW to meet applicable RCRA and state requirements; and in-trench grouting or use of HICs for Cat 3 LLW and MLLW. Revised analyses in the final HSW EIS indicate that such measures would reduce the estimated releases and levels of groundwater contamination. As set forth in Volume I Section 5.3, for the action alternatives, constituent concentrations in groundwater at 1 km from the disposal facilities are expected to be below the benchmark drinking water standards. Water quality in the Columbia River would be virtually indistinguishable from the current background levels.

Comments

L-0044/085

Appendix C, pp. C.1-4 The summary (p. S.2) links the proposed action to cleanup and closure of DOE sites across the country. Sec. A.1.2 deals with equity issues, focusing on integrated cleanup. When one comes to Appendix C, however, it is not clear whether the forecasts of off-site waste include only waste from cleanup and closure of sites, or wastes from continuing operation. Paths to Closure (June 1998) [DOE 1998a], one of the sources cited in Appendix C, "was developed under the assumption that the EM program will not accept any newly-generated, non-EM waste after FY 2000." (P. S.11 of Paths to Closure.) It is not clear from the text or tables in Appendix C whether other sources used (which have differing assumptions, time frames, etc.) are also limited to wastes generated before FY 2001 or to be generated only by EM in its cleanup activities. If the forecasts include wastes generated by other DOE programs in the future, then the scope of the activities in the EIS go beyond supporting an integrated national cleanup of legacy wastes and closure of sites.

Response

The HSW EIS uses best available data for estimating inventories of hazardous and radioactive wastes. These data are obtained from information management systems maintained at Hanford and other DOE sites. Most of the waste will be generated by environmental restoration activities, and there is uncertainty about the amounts that will be generated. Areas of uncertainty are discussed in Volume I Section 3.5.

Assumptions regarding waste volume identification and selection methodology are presented in Volume II Appendix C Section C.1.

Comments

E-0043/047, EM-0217/047, EM-0218/047, L-0056/047, LM-0017/047, LM-0018/047

DOE stated on page 1-42 of that study that "DOE still does not have sufficient information on the volume or contaminant composition of [the ER transferred wastes] to perform a meaningful impact evaluation at this time," and "very little information is available to DOE about the composition of environmental wastes."

L-0055/042

The Performance Management Plan targets cleanup to 2035 or sooner, but the technical baseline which forecasts waste volumes doesn't accommodate these accelerated initiatives yet. This next level of detail will not be available until January 2004. This EIS seems to be early. DOE needs a better ideal of waste volumes to be able to target cleanup and management. Otherwise, these are just guesses.

Response

The HSW EIS uses best available data for estimating inventories of hazardous and radioactive wastes. These data are obtained from information management systems maintained at Hanford and other DOE sites. Most of the waste will be generated by environmental restoration activities, and there is uncertainty about the amounts that will be generated. Areas of uncertainty are discussed in Volume I Section 3.5.

Volume II Appendix N in the revised draft EIS and the final HSW EIS expand on the C3T process and the HPMP (DOE-RL 2002). See also Volume I Section 1.4.

Comments

E-0047/027

Fails to consider waste minimization, like compaction etc.

Response

Waste minimization and pollution prevention practices are used at all DOE sites to control waste management costs and to comply with regulatory requirements. The Pollution Prevention Act is discussed in Volume I Section 6.17. DOE's pollution prevention/waste minimization program is discussed in Volume I Section 2.2.5 and Volume II Appendix N.

The programmatic NEPA document, addressing DOE waste management practices, is the Waste Management Programmatic EIS (WM PEIS, DOE 1997b). DOE's pollution prevention program is evaluated in Appendix G of the WM PEIS .

Comments

L-0019/007, TSE-0002/007

Failure to address options for source reduction by aggressively pursuing non-nuclear alternatives [is a an open issue in the revised draft.]

Response

Waste minimization and pollution prevention practices are used at all DOE sites to control waste management costs and to comply with regulatory requirements. The Pollution Prevention Act is discussed in Volume I Section 6.17. DOE's pollution prevention/waste minimization program is discussed in Volume I Section 2.2.5 and Volume II Appendix N.

The programmatic NEPA document, addressing DOE waste management practices, is the Waste Management Programmatic EIS (WM PEIS, DOE 1997b). DOE's pollution prevention program is evaluated in Appendix G of the WM PEIS .

The HSW EIS does not evaluate proposals for power production.

Comments

L-0014/013, L-0022/013

The proposed disposal of the K Basin sludge as TRU wastes following interim storage of the wastes in the T Plant has not been adequately analyzed. The Environmental Assessment (EA), which was prepared several years ago for the packaging and movement of the sludge to the T Plant for interim storage did not address the processing and packaging of these wastes for disposal at the WIPP. Information must be provided regarding the acceptability of these materials for disposal of WIPP.

Response

Radioactive solid wastes, including those containing polychlorinated biphenyls (PCBs) and other substances regulated under the Toxic Substances Control Act (TSCA), considered within this HSW EIS are shown in Volume I Section 2 Figure 2.1. Descriptions of the waste streams are contained in subsequent sections. PCB-commingled waste is discussed in Volume I Section 2.1.3.3, and K Basin sludge is discussed in Volume I Section 2.1.3.7. Information on the volume of waste associated with each stream is contained in Volume I Section 3.4. The impacts of these waste streams are analyzed in Volume I Section 5.

EPA authorization to dispose of RH-TRU waste at WIPP is pending. Approval of the permit by New Mexico Environment Department is expected in the FY 2006 timeframe.

EPA has granted WIPP authorization to dispose of polychlorinated biphenyls (PCBs). In March 2002, WIPP applied for changes to its permit to allow it to dispose of waste containing PCBs. Approval of the permit revision by the New Mexico Environment Department is pending. Based on the assumption that the changes will be accepted, PCB treatment would not be required. See Volume I, Section 2.1.3.

Comments

L-0044/141

Health impacts from disposal of chemicals is absent from the RHSW EIS. Ecology maintains that chemical inventory must be estimated and added risk to the health of workers, the public, and future residents evaluated

Response

The HSW EIS includes the impacts of all LLBG previously disposed waste in its evaluations of long-term groundwater impacts in Volume I Section 5.3, Volume I Section 5.11, Volume I Section 5.14, and in Volume II Appendixes F, G, and L. LLBG previously disposed waste includes LLW disposed of since 1962, LLW disposed before and after the regulatory definition of TRU promulgated in 1970, and wastes disposed before and after the application of RCRA hazardous waste management standards to certain Hanford LLW streams in 1987. The HSW EIS impact estimates are based on chemical and radionuclide inventories. Past-buried LLBG wastes will be addressed within the framework for managing RCRA past practice and CERCLA units established under the TPA.

Hazardous chemicals in MLLW have been characterized and documented since the implementation of RCRA at DOE facilities beginning in 1987. MLLW currently in storage, and MLLW that may be received in the future, would be treated to applicable state or federal standards for land disposal. Therefore, disposal of that waste is not expected to present a hazard over the long term because the hazardous constituents would either be destroyed or stabilized by the treatment. Inventories of hazardous materials in stored and forecast waste are either very small, or consist of materials with low mobility. See Volume II Appendixes F and G.

Inventories of hazardous chemicals in waste were not generally maintained by industries in the United States prior to the implementation of RCRA. Consistent with these general practices, inventories of hazardous chemicals in radioactive waste were not required to be determined or documented before the application of RCRA to radioactive mixed waste at DOE facilities in late 1987. Wastes placed in the LLBGs before late 1987 have not been specifically characterized for hazardous chemical content, but they have been evaluated in the EIS alternatives relative to their radionuclide inventories. In addition, preliminary estimates of chemical inventories in this waste have been developed for analysis in the HSW EIS, and a summary of their potential impacts on groundwater has been added to Volume I Section 5.3 and Volume II Appendix G.

In addition, the October 23, 2003 Settlement Agreement contains proposed milestones in the M-91-03-01 Tri-Party Agreement Change Package for retrieval and characterization of suspect TRU waste retrievably stored in the Hanford LLBGs (United States of America and Ecology 2003). As part of that agreement, DOE will manage the retrievably stored LLBG waste under the following assumptions: (1) all retrievably stored suspect TRU waste in the LLBGs is potentially mixed waste; and (2) retrievably stored suspect TRU waste will be managed as mixed waste unless and until it is designated as non-mixed through the WAC 173-303 designation process.

Interactions among different types of waste that could potentially mobilize radionuclides have also been considered as part of the HSW EIS analysis. However, such interactions typically require specific chemical environments or large volumes of liquid as a mobilizing agent, neither of which are known to be present in the solid waste disposal facilities currently in use (see discussion in Volume II Appendix G). Possible effects of this type could be mitigated by selecting candidate disposal sites to avoid placing waste in locations where previous contamination exists.

Waste

Waste sites and residual soil contamination remaining at Hanford over the long term, and which are not specifically evaluated as part of the HSW EIS alternatives, have been evaluated previously as part of NEPA or CERCLA reviews. In those studies, the risks associated with older solid waste burials, tank waste residuals and leaks, and contaminated soil sites were found to be very small, even for alternatives that considered stabilization of the waste in place (DOE 1987, DOE and Ecology 1996, Bryce et al. 2002). Further evaluation of tank wastes is anticipated in the "Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single-Shell Tanks at the Hanford Site" (68 FR 1052). The cumulative groundwater impacts analysis in the HSW EIS also includes those wastes, as described in Volume I Section 5.14 and Volume II Appendix L.

DOE plans to characterize pre-1970 inactive burial grounds and contaminated soil sites, as well as the active LLBGs considered in the HSW EIS alternatives, under the RCRA past practice or CERCLA processes to determine whether further remedial action would be required before the facilities are closed. As part of that process, the long-term risks from these wastes would either be confirmed to be minimal, or the waste would be remediated by removal, stabilization, or other remedial actions to reduce its potential hazard. In all cases, the impacts from these previously disposed wastes would be the same for all alternative groups considered in the HSW EIS, and would not affect the comparisons of impacts among the alternatives or the decisions made regarding disposal of waste received in the future.

Comments

E-0047/010

During the siting process for the Environmental Restoration Disposal Facility DOE and EPA made a commitment to the public that this facility would not be used for the treatment of or disposal of off-site waste and CRK feels strongly that DOE should continue to honor this commitment.

Question # 16- Does DOE and EPA have any plans to back out of its earlier commitment that the Environmental Restoration Disposal Facility would not be used for the treatment or storage of off-site waste?

Response

This EIS does not evaluate a proposal to dispose of waste from offsite generators in the ERDF. Some of the alternatives in the HSW EIS evaluate cases where offsite waste would be disposed of near the ERDF site. However, this was modeled and evaluated as a facility near ERDF rather than as a part of ERDF.

Comments

E-0047/015

[The HSWEIS fails to assess:] The inventories and associated impacts from chemicals known to be already land disposed (nitrates, carbon tetrachloride).

E-0047/016

Failure to include all waste streams inventories and its associated impact from the huge amount of chemical known to be disposed at solid waste burial grounds (e.g. 6.2 tons of nitrate at solid waste burial grounds).

L-0017/007

Many hazardous wastes known to be present in Hanford's low-level burial grounds are not included in USDOE's evaluation. These contaminants include, among others, mercury, beryllium and carbon tetrachloride (known carcinogen). These omissions are irresponsible for health and jurisdictional reasons. The State of Washington regulates mixed wastes but cannot regulate purely radioactive waste. We need the State's help in protecting the people of the Northwest. Better characterization of these mixed wastes is needed

L-0039/008

Hazardous or mixed wastes buried in the low-level burial grounds, and releases from the burial grounds [are not adequately analyzed in this EIS.]

L-0044/004

The RHSW EIS lacks adequate data on the inventory of waste through characterization. There is very little information about the inventory of dangerous wastes in the burial grounds.

P-0092/001

The new draft EIS which is supposed to analyze the risks of importing and burying radioactive and chemical waste at Hanford, reissued in April, still fails to adequately address citizen's concerns.

TSE-0027/004

The amount of toxic chemicals is amazing. And then all the mixes of wastes are mind boggling.

Response

Hazardous chemicals in MLLW have been characterized and documented since the implementation of RCRA at DOE facilities beginning in 1987. MLLW currently in storage, and MLLW that may be received in the future, would be treated to applicable state or federal standards for land disposal. Therefore, disposal of that waste is not expected to present a hazard over the long term because the hazardous constituents would either be destroyed or stabilized by the treatment. Inventories of hazardous materials in stored and forecast waste are either very small, or consist of materials with low mobility. See Volume II Appendixes F and G.

Inventories of hazardous chemicals in waste were not generally maintained by industries in the United States prior to the implementation of RCRA. Consistent with these general practices, inventories of hazardous chemicals in radioactive waste were not required to be determined or documented before the application of RCRA to radioactive mixed waste at DOE facilities in late 1987. Wastes placed in the LLBGs before late 1987 have not been specifically characterized for hazardous chemical content, but they have been evaluated in the EIS alternatives relative to their radionuclide inventories. In addition, preliminary estimates of chemical inventories in this waste have been developed for analysis in the HSW EIS, and a summary of their potential impacts on groundwater has been added to Volume I Section 5.3 and Volume II Appendix G.

In addition, the October 23, 2003 Settlement Agreement contains proposed milestones in the M-91-03-01 Tri-Party Agreement Change Package for retrieval and characterization of suspect TRU waste retrievably stored in the Hanford LLBGs (United States of America and Ecology 2003). As part of that agreement, DOE will manage the retrievably stored LLBG waste under the following assumptions: (1) all retrievably stored suspect TRU waste in the LLBGs is potentially mixed waste; and (2) retrievably stored suspect TRU waste will be managed as mixed waste unless and until it is designated as non-mixed through the WAC 173-303 designation process.

Interactions among different types of waste that could potentially mobilize radionuclides have also been considered as part of the HSW EIS analysis. However, such interactions typically require specific chemical environments or large volumes of liquid as a mobilizing agent, neither of which are known to be present in the solid waste disposal facilities currently in use (see discussion in Volume II Appendix G). Possible effects of this type could be mitigated by selecting candidate disposal sites to avoid placing waste in locations where previous contamination exists.

Waste sites and residual soil contamination remaining at Hanford over the long term, and which are not specifically evaluated as part of the HSW EIS alternatives, have been evaluated previously as part of NEPA or CERCLA reviews. In those studies, the risks associated with older solid waste burials, tank waste residuals and leaks, and contaminated soil sites were found to be very small, even for alternatives that considered stabilization of the waste in place (DOE 1987, DOE and Ecology 1996, Bryce et al. 2002). Further evaluation of tank wastes is anticipated in the "Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single-Shell Tanks at the Hanford Site" (68 FR 1052). The cumulative groundwater impacts analysis in the HSW EIS also includes those wastes, as described in Volume

I Section 5.14 and Volume II Appendix L.

DOE plans to characterize pre-1970 inactive burial grounds and contaminated soil sites, as well as the active LLBGs considered in the HSW EIS alternatives, under the RCRA past practice or CERCLA processes to determine whether further remedial action would be required before the facilities are closed. As part of that process, the long-term risks from these wastes would either be confirmed to be minimal, or the waste would be remediated by removal, stabilization, or other remedial actions to reduce its potential hazard. In all cases, the impacts from these previously disposed wastes would be the same for all alternative groups considered in the HSW EIS, and would not affect the comparisons of impacts among the alternatives or the decisions made regarding disposal of waste received in the future.

Comments

P-0126/001

The EIS does not fully address the impact of additional wastes to be shipped to Hanford. The wastes currently buried in trenches is not completely characterized and its treatment, and the costs connected thereto, will be complicated and increased if more waste is accepted at the Hanford site.

Response

Hazardous chemicals in MLLW have been characterized and documented since the implementation of RCRA at DOE facilities beginning in 1987. MLLW currently in storage, and MLLW that may be received in the future, would be treated to applicable state or federal standards for land disposal. Therefore, disposal of that waste is not expected to present a hazard over the long term because the hazardous constituents would either be destroyed or stabilized by the treatment. Inventories of hazardous materials in stored and forecast waste are either very small, or consist of materials with low mobility. See Volume II Appendixes F and G.

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DOE plans to characterize pre-1970 inactive burial grounds and contaminated soil sites, as well as the active LLBGs considered in the HSW EIS alternatives, under the RCRA past practice or CERCLA processes to determine whether further remedial action would be required before the facilities are closed. As part of that process, the long-term risks from these wastes would either be confirmed to be minimal, or the waste would be remediated by removal, stabilization, or other remedial actions to reduce its potential hazard. In all cases, the impacts from these previously disposed wastes would be the same for all alternative groups considered in the HSW EIS, and would not affect the comparisons of impacts among the alternatives or the decisions made regarding disposal of waste received in the future.

The Hanford Only waste volume has been evaluated in all action alternatives and the No Action Alternative to provide a better comparison with the impacts of adding offsite waste. The incremental impacts of offsite waste are the differences between the Lower and Upper Bound Volumes and the Hanford Only impacts for a given alternative.

Comments

E-0019/003, L-0026/003

The draft HSW-EIS has failed to include as a waste source the largest single contributor to groundwater contamination. The excluded source term is the packaged WTP salt waste from the Liquid Effluent Treatment Facility (LETF) (Reference 3, page 4-39). WTP process condensates containing technetium and iodine are treated in LETF and soluble salts removed as a solid salt and packaged for disposal. All the WTP processes produce process condensate and scrubber solutions treated by the LETF. The quantity for each process or supplemental technology is a function of the ILAW process conditions and the flowsheet for process condensate treatment. Some of the processes may result in exceeding the regulatory limit for groundwater radiation exposure.

Response

The Solid Waste Integrated Forecast Technical (SWIFT) Report was the basis for solid radioactive waste expected to be generated in the future at the Hanford Site. This report includes estimates of waste expected from the Liquid Effluent Treatment Facility (LETF), including the salt wastes associated with the treatment of liquid effluents from the Waste Treatment Plant. These salt wastes are included in the Hanford Only volumes of LLW and MLLW analyzed in the HSW EIS. In addition, the radionuclide inventory associated with the salt waste from LETF is a substantial contributor to the 3,200 curies of technetium and 5 curies of iodine in the Hanford Only inventory.

Comments

E-0026/007

It [the EIS] fails to address hazardous waste disposal.

Response

The HSW EIS evaluates the disposal of MLLW, which is radioactive solid waste that also has status as hazardous waste under RCRA and State of Washington regulations. Hanford's non-radioactive hazardous waste is disposed of at offsite commercial facilities, consistent with previous NEPA decisions.

Comments

TSE-0011/008

Secondarily, it's [waste is] not going to be retrievable in the form that it's being currently put.

Response

Waste disposed in LLBGs is not expected to be retrieved once disposed of.

Comments

E-0055/017

Also, incredibly, USDOE fails to adopt the approach of the Washington Departments of Ecology and Health in not issuing a final EIS on the disposal site until the investigation of releases is completed, and alternatives can be presented for changing operations, closure and remediation. We urge USDOE to adopt the same approach and not issue a final EIS until the Hanford LLBGs are investigated for releases and inventoried for the wastes they contain, and alternatives for their closure and remediation can be presented – along with consideration of the cumulative impacts from all Hanford Low-Level Waste Burial Grounds.

L-0052/005

There appear to be no plans to retrieve or mitigate impacts from pre-1970 TRU. We submit that the level of risk associated with these burials remains significantly uncertain. DOE may be confident that contamination from alternative actions presented in this EIS will not compound already existing contamination because the existing plumes should have moved by the time the new contamination would reach those areas. However, we contend that the overall uncertainties of inventory and its status already in the vadose zone and/or groundwater at Hanford do not leave room for such sweeping confidence the zones will be relatively clean when new contaminants enter them.

L-0054/009

Second, it [the SW EIS] needs to address pre-1970 TRU waste that is buried in the low-level burial grounds (LLBG) which clearly is under the purview of the Solid Waste Program.

L-0059/003

Some of the radioactive material that was discarded prior to 1970 is what we would now designate as TRU waste [is missing from this EIS]. There is a limited number (many fewer than the total) of waste sites at Hanford that should be characterized to determine which sites in addition to 618-10, 618-11 and the caissons in 200-W contain TRU waste in non-RCRA-compliant burials. Then the portions of each site containing TRU waste should be retrieved, packaged, and shipped to WIPP for permanent disposal.

THR-0002/004

DOE needs to acknowledge that these contamination risks are going on right now, and these need to be included in the Environmental Impact Statement so we know what the risks are from adding more wastes to these burial grounds.

Response

Waste in inactive burial grounds closed before 1970, tank waste residuals, and other contaminated soil sites are not within the scope of alternatives considered in the HSW EIS. Wastes placed in the LLBGs before 1970 consist of a relatively small volume (less than 10,000 m3) and the radionuclide inventories have been included in the HSW EIS alternatives analyses. Wastes placed in the LLBGs before late 1987 have not been specifically characterized for hazardous chemical content, but they have been evaluated in the EIS alternatives relative to their radionuclide inventories. In addition, preliminary estimates of chemical inventories in this waste have been developed for analysis in the HSW EIS, and a summary of their potential impacts on groundwater is presented in Volume I Section 5.3 and Volume II Appendix G.

Waste

Waste sites and residual soil contamination remaining at Hanford over the long term, and which are not specifically evaluated as part of the HSW EIS alternatives, have been evaluated previously as part of NEPA or CERCLA reviews. In those studies, the risks associated with older solid waste burials, tank waste residuals and leaks, and contaminated soil sites were found to be very small, even for alternatives that considered stabilization of the waste in place (DOE 1987, DOE and Ecology 1996, Bryce et al. 2002). Further evaluation of the risks from Hanford tank waste is anticipated in the Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Waste and Closure of Single-Shell Tanks at the Hanford Site (68 FR 1052). The cumulative groundwater impact analysis in the HSW EIS also includes an evaluation of these wastes, as described in Volume I Section 5.14 and Volume II Appendix L.

DOE plans to characterize pre-1970 inactive burial grounds and contaminated soil sites, as well as the active LLBGs considered in the HSW EIS alternatives, under the RCRA past practice or CERCLA processes to determine whether further remedial action would be required before the facilities are closed. As part of that process, the long-term risks from these wastes would either be confirmed to be minimal, or the waste would be remediated by removal, stabilization, or other remedial action to reduce its potential hazard. In all cases, the impacts from these previously disposed wastes would be the same for all alternative groups considered in the HSW EIS, and would not affect the comparisons of impacts among the alternatives or the decisions made regarding disposal of waste received in the future.

TPA Milestone M-15-00C requires all 200 Area, non-tank farm, pre-record of decision site investigation activities to be completed by December 31, 2008. Site characterization information generated from TPA remedial investigation and LLBG RCRA permitting activities has been used in development of the HSW EIS.

Comments

L-0055/006

A large section of the people that commented on the draft Hanford Solid Waste EIS wanted DOE to demonstrate the ability to quantify and address the waste on the Hanford Site before accepting off site materials. Instead a sliding scale of upward and lower bounds of estimated waste to be received by Hanford is presented. It is extremely unclear that if after over a decade that DOE has real solid estimate in the amount both in physical volume and radioactivity and location of all its sources of waste. The large sliding scale of projected waste volumes is disconcerting and potentially very alarming. It is clear that a fixed volume for storage should be established then more detailed analysis can be refined and completed.

Response

The HSW EIS does not use a "sliding scale" with respect to the waste volumes analyzed. Rather, the EIS evaluates projected waste volume totals that could be expected at Hanford if only Hanford's waste were processed as compared to the maximum total waste volume that could be received at Hanford. This permits a comparison of potential impacts that would encompass the uncertainties regarding quantities of waste that could ultimately be managed at the site. The waste volumes evaluated also include a Lower Bound waste volume consisting mainly of Hanford waste.

The Hanford Only waste volume has been evaluated in all action alternatives and the No Action Alternative to provide a better comparison with the impacts of adding offsite waste. The incremental impacts of offsite waste are the differences between the Lower and Upper Bound Volumes and the Hanford Only impacts for a given alternative.

Comments

THR-0011/003

...what they're calling low-level waste is not low-level waste. Some of it's so radioactive and so dangerous, and yet it's termed low-level waste merely because it doesn't fit into any of the other categories. It's not a measure of how radioactive or how dangerous it is.

Response

DOE appreciates the need for careful management of low level waste.

Comments

L-0041/022

The EIS discusses the disposition of failed low-activity waste melters but does not include any information on the fate of the high-level waste (HLW) melters. This discussion should include the proposed waste classification of the HLW melters, how this classification was arrived at, and where the HLW melters will be disposed.

L-0041/023

The EIS discussion on the disposal of failed low-activity waste melters is inadequate. In particular, the EIS needs to discuss the condition of any partially vitrified waste remaining in the failed melters, its waste immobilization performance characteristics, and the performance characteristics of the melters themselves as waste containers. This analysis should be conducted for varying amounts of partially vitrified waste in the melters up to the maximum expected for any type of failure.

L-0054/008

The EIS analysis has several major problems associated with it. First, it addresses high-level waste (immobilized low-activity waste/high-level waste melters), which does not fall under the purview of the Solid Waste Program, but is regulated by the Nuclear Waste Policy Act as defense waste. Analysis of impacts from this waste stream needs to be decoupled from the SWEIS analysis.

L-0059/004

The HLW melters removed from the Waste Treatment Plant will not necessarily meet the requirements for disposal in a RCRA-compliant facility at Hanford. This is particularly true if the outlet of the melter plugs and HLW solidifies inside the melter. I understand that this general subject is to be addressed in the Tank Waste EIS.

Response

For purposes of analysis, this HSW EIS analyzed the disposal of 6,825 cubic meters of Hanford WTP melters that would meet applicable requirements, such as those under the HSSWAC for onsite disposal of MLLW. The disposition of all melters from vitrification at Hanford will be addressed in DOE's Tank Retrieval and Closure EIS. In addition, the Yucca Mountain Repository Environmental Impact Statement evaluated transportation and disposal of melters from Hanford as part of the cumulative impacts analysis (see DOE 2002c - Volume II, Appendix A). The text of the final HSW EIS has been clarified. See Volume I Section 2.1.

Comments

L-0044/022

CRD, 3.80 Original comment #17 asked if TRUM [transuranic mixed] was considered and analyzed in the scope of the EIS. DOE's response was that since TRU-M was going to WIPP without treatment, they did not make a distinction between TRU and TRU-M. Section 2.1.3 addresses this, and states they expect that WIPP will take RH waste by 2005. The issue of whether the LDR storage prohibition applies to continued storage of Hanford TRU-M is currently in litigation. The EIS should not assume treatment will not be required; moreover, no mention was made about restrictions for PCB or ignitable/reactive wastes.

Response

The discussion in the HSW EIS is based on DOE's understanding of applicable law. Should there be changes in applicable law, DOE will propose actions to comply with such revised requirements.

The 1996 amendments to the WIPP Land Withdrawal Act exempted TRU mixed waste designated for disposal at WIPP from specific treatment standards and land disposal prohibitions of hazardous waste laws. Based on experience with TRU waste now being sent to WIPP (contact handled, mixed and non-mixed), it is anticipated that most TRU and TRU mixed waste would meet WIPP waste acceptance criteria without the need for substantial additional processing. Permitting of TRU waste disposal at WIPP is discussed in Volume I Section 2.1.3. Processing and certification of TRU to meet WIPP waste acceptance criteria is discussed in Volume I Section 2.2.2.

EPA authorization to dispose of RH-TRU waste at WIPP is pending. Approval of the permit by New Mexico Environment Department is expected in the FY 2006 timeframe.

EPA has granted WIPP authorization to dispose of polychlorinated biphenyls (PCBs). In March 2002, WIPP applied for changes to its permit to allow it to dispose of waste containing PCBs. Approval of the permit revision by the New Mexico Environment Department is pending. Based on the assumption that the changes will be accepted, PCB treatment would not be required. See Volume I, Section 2.1.3.

Comments

L-0044/083

Sec. S.5, pp. S.19-21 The statement at the bottom of p. S.19, continuing at the top of S.21, should be amended to indicate that storage of RH TRU at Hanford will continue after WIPP is certified to receive such wastes if any characterization, treatment or packaging is required at Hanford, since Hanford's capability to undertake these tasks is not scheduled until well after DOE's scheduled 2005 WIPP RH TRU waste acceptance date.

Response

EPA authorization to dispose of RH-TRU waste at WIPP is pending. Approval of the permit by New Mexico Environment Department is expected in the FY 2006 timeframe.

EPA has granted WIPP authorization to dispose of polychlorinated biphenyls (PCBs). In March 2002, WIPP applied for changes to its permit to allow it to dispose of waste containing PCBs. Approval of the permit revision by the New Mexico Environment Department is pending. Based on the assumption that the changes will be accepted, PCB treatment would not be required. See Volume I, Section 2.1.3.

Comments

L-0044/097

CRD, p. 3.18 Original comment #52 questions DOE's assumption that WIPP will take PCBs and suggests that EIS considerations should be made based on existing conditions. DOE's response that EPA has indicated acceptance, but the final decision has not been made. DOE sticks to their assumptions.

Response

EPA has granted WIPP authorization to dispose of polychlorinated biphenyls (PCBs). In March 2002, WIPP applied for changes to its permit to allow it to dispose of waste containing PCBs. Approval of the permit revision by the New Mexico Environment Department is pending. Based on the assumption that the changes will be accepted, PCB treatment would not be required. See Volume I Section 2.1.3.

Comments

TSE-0031/014

So, I am joining the chorus, asking for the Waste Management EIS to be withdrawn, reworked, so that we can feel the whole elephant, so we can understand what the nation is expecting of all of the sites in the country that are taking waste and giving waste, before we begin to accept new waste.

Response

The WM PEIS (DOE 1997b) was a comprehensive evaluation of DOE nationwide waste management. The WM PEIS evaluated a broad suite of alternatives for waste management across the DOE complex, including managing most waste at generator facilities, or consolidating waste management at fewer sites that have existing facilities suitable to accept waste from other facilities. The impacts of those alternatives were compared for a variety of waste volumes at different DOE sites, including larger quantities of waste than are evaluated in the HSW EIS. The general result of the WM PEIS was that radioactive and hazardous wastes generated at a DOE site should be disposed of at that site unless the site was not capable of or not technically able to support those actions. DOE determined there was sufficient information in the WM PEIS to support decisions regarding the sites that were suitable for long-term waste management missions. Those decisions included processing and disposing of Hanford waste at Hanford, and the importation of wastes from other sites that could not adequately handle them. A discussion of the WM PEIS is provided in Volume I Section 1.5. Decisions made as part of the WM PEIS made Hanford available for the disposal of low-level waste and mixed low-level waste from other DOE generators. The initial WM PEIS decisions related to LLW, MLLW, and TRU waste were issued between January 1998 and February 2000.

The total amount of radioactivity expected to leave Hanford is much greater than the amount of radioactivity expected to come to Hanford. About 400 MCi of radioactivity are currently onsite. About 375 MCi are expected to be shipped to the Waste Isolation Pilot Plant in New Mexico, the geologic repository for spent nuclear fuel and high-level waste proposed for Yucca Mountain in Nevada, and other places. Less than 10 MCi would be expected to come to Hanford even if all the offsite waste evaluated in this HSW EIS were to come to Hanford. See Volume I Section 1 Figure 1.4.

DOE believes this HSW EIS complies with applicable NEPA requirements.

Comments

P-0021/001

Please explain why Hanford is now being considered for more toxic waste. The clean-up of radioactivity has barely begun and now we're supposed to take on more?

Response

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS (DOE 1997b) decisions regarding certain TRU waste, LLW, and MLLW streams. Site-specific waste management actions at Hanford involve transportation, treatment and processing of TRU waste and MLLW, disposal of LLW, MLLW and ILAW, and storage of LLW, MLLW, and TRU waste. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

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DOE site should be disposed of at that site unless the site was not capable of or not technically able to support those actions. DOE determined there was sufficient information in the WM PEIS to support decisions regarding the sites that were suitable for long-term waste management missions. Those decisions included processing and disposing of Hanford waste at Hanford, and the importation of wastes from other sites that could not adequately handle them. Decisions made as part of the WM PEIS made Hanford available for the disposal of low-level waste and mixed low-level waste from other DOE generators. The initial WM PEIS decisions related to LLW, MLLW, and TRU waste were issued between January 1998 and February 2000.

DOE is committed to cleaning up the Hanford Site in accordance with the Tri-Party Agreement (TPA) and applicable environmental requirements under federal and state laws and regulations. As of February 1, 2003, DOE had met 99% of its TPA milestones on or ahead of schedule. A lot in the way of cleanup has happened at Hanford over the last decade. Portions of the site have already been cleaned up, removed from the National Priority List (NPL), and released for other uses (e.g., the 1100 Operable Unit). As part of the river corridor cleanup, DOE is remediating contaminated soil sites, decommissioning the plutonium production reactors and associated facilities, removing production reactor fuel from the K Basins to interim storage in the 200 Area, and treating groundwater contaminated by past operations. Groundwater contamination beneath the Hanford Site is being studied and remediated by the ongoing CERCLA program in accordance with the Tri-Party Agreement. See Volume II Appendix N, Section N.2.4. See Volume III Section 2.0, Item 6 of the CRD for more examples of cleanup at Hanford.

DOE is responsible for the cleanup of dozens of sites around the country. DOE's approach is to consolidate and dispose of radioactive waste from all its cleanup efforts in the safest and most cost-effective manner possible. Hanford and other sites would be available for the disposal of low-level waste and mixed low-level waste; WIPP is used for the disposal of TRU waste; Yucca Mountain is expected to be used for the disposal of high-level waste and spent nuclear fuel. Many more curies of waste will be sent offsite from Hanford than will be received from offsite. Analysis indicates that these wastes could be handled without complicating future remediations, or diverting resources or disposal capacity from other Hanford cleanup activities.

The Hanford clean-up effort is expected to be completed in 2035, followed by a long-term stewardship program that ensures waste remaining onsite is appropriately managed.

The total amount of radioactivity expected to leave Hanford is much greater than the amount of radioactivity expected to come to Hanford. About 400 MCi of radioactivity are currently onsite. About 375 MCi are expected to be shipped to the Waste Isolation Pilot Plant in New Mexico, the geologic repository for spent nuclear fuel and high-level waste proposed for Yucca Mountain in Nevada, and other places. Less than 10 MCi would be expected to come to Hanford even if all the offsite waste evaluated in this HSW EIS were to come to Hanford. See Volume I Section 1 Figure 1.4.

Comments

F-0013/001

It [the SW EIS draft] fails to address reasonable alternatives to solid waste disposal at Hanford.

Response

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS (DOE 1997b) decisions regarding certain TRU waste, LLW, and MLLW streams. Site-specific waste management actions at Hanford involve transportation, treatment and processing of TRU waste and MLLW, disposal of LLW, MLLW and ILAW, and storage of LLW, MLLW, and TRU waste. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

The WM PEIS was a comprehensive evaluation of DOE nationwide waste management. The WM PEIS evaluated a broad suite of alternatives for waste management across the DOE complex, including managing most waste at generator facilities, or consolidating waste management at fewer sites that have existing facilities suitable to accept waste from other facilities. The impacts of those alternatives were compared for a variety of waste volumes at different DOE sites, including larger quantities of waste than are evaluated in the HSW EIS. The general result of the WM PEIS was that radioactive and hazardous wastes generated at a DOE site should be disposed of at that site unless the site was not capable of or not technically able to support those actions. DOE determined there was sufficient information in the WM PEIS to support decisions regarding the sites that were suitable for long-term waste management missions. Those decisions included processing and disposing of Hanford waste at Hanford, and the importation of wastes from other sites that could not adequately handle them. Decisions made as part of the WM PEIS made Hanford available for the disposal of low-level waste and mixed low-level waste from other DOE generators. The initial WM PEIS decisions related to LLW, MLLW, and TRU waste were issued between January 1998 and February 2000.

The HSW EIS evaluates alternatives for disposal of LLW, MLLW, ILAW, and WTP melters in either independent or combined-use facilities that comply with RCRA and state standards for disposal of hazardous wastes. The alternatives have been configured consistent with the WM PEIS and its records of decision, the HSW EIS notice of intent, and comments received during public review periods. Descriptions of these alternatives are presented in Volume I Section 3. Volume I Figure 3.1 shows the many options possible for treatment, storage, and disposal of HSW EIS waste streams. Options include a No Action Alternative, waste disposal in LLBG trenches, waste disposal in the Environmental Restoration Disposal Facility (ERDF) and in ERDF-like mega-trenches at various locations, use of lined and capped facilities that would comply with Resource Conservation and Recovery Act (RCRA) Subtitle C hazardous waste requirements, and disposal of LLW in lined trenches with leachate collection systems that would meet the substantive requirements of federal and state hazardous waste management regulations. The HSW EIS does not evaluate any alternatives for the disposal of MLLW in trenches that are not lined and that do not fully meet RCRA Subtitle C requirements. The potential environmental impacts of the HSW EIS alternatives are presented in Volume I Section 5 and related Volume II appendixes.

Comments

TLG-0002/005

We're also troubled by the entire process. In 1999, the Federal Government did a national Environmental Impact Statement, they said "Hanford and the Nevada test site are our choices for places to dispose of large amounts of mixed low-level radioactive waste and low-level radioactive waste." And that there would be site-specific analysis to basically affirm that that was the right decision to make. And instead, as we read this, we see that this Environmental Impact Statement doesn't necessarily validate that decision. It assumes that was the correct decision. In making that assumption, then it looks only at disposing of waste at Hanford.

Response

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS (DOE 1997b) decisions regarding certain TRU waste, LLW, and MLLW streams. Site-specific waste management actions at Hanford involve transportation, treatment and processing of TRU waste and MLLW, disposal of LLW, MLLW and ILAW, and storage of LLW, MLLW, and TRU waste. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

The WM PEIS was a comprehensive evaluation of DOE nationwide waste management. The WM PEIS evaluated a broad suite of alternatives for waste management across the DOE complex, including managing most waste at generator facilities, or consolidating waste management at fewer sites that have existing facilities suitable to accept waste from other facilities. The impacts of those alternatives were compared for a variety of waste volumes at different DOE sites, including larger quantities of waste than are evaluated in the HSW EIS. The general result of the WM PEIS was that radioactive and hazardous wastes generated at a DOE site should be disposed of at that site unless the site was not capable of or not technically able to support those actions. DOE determined there was sufficient information in the WM PEIS to support decisions regarding the sites that were suitable for long-term waste management missions. Those decisions included processing and disposing of Hanford waste at Hanford, and the importation of wastes from other sites that could not adequately handle them. Decisions made as part of the WM PEIS made Hanford available for the disposal of low-level waste and mixed low-level waste from other DOE generators. The initial WM PEIS decisions related to LLW, MLLW, and TRU waste were issued between January 1998 and February 2000.

This HSW EIS evaluates a range of waste receipts at Hanford to encompass the uncertainties regarding quantities of waste that would ultimately be managed at the site. This HSW EIS now includes an evaluation of Hanford Only waste in Volume II Appendix M. A Hanford Only waste volume was evaluated to better show the incremental impacts to Hanford of managing waste from offsite generators.

Comments

L-0033/005

NEPA makes specific requirements against attempts to piecemeal the decision making process in order to conceal the true impact of the decision. This EIS must disclose and evaluate the environmental impact of the total amount of Transuranic waste that is proposed to be shipped to Hanford. The courts have ruled that the Waste Management Programmatic Environmental Impact Statement is inadequate. Reliance upon the Record of Decision issued in February 2000 makes this EIS inadequate.

L-0039/023

Environmental Restoration wastes (not adequately addressed in the WMPEIS). The Board advised DOE in Advice Number 133 that many stakeholders felt that the WMPEIS analysis was not detailed enough to support selection of Hanford as a repository for complex-wide disposal of LLW and MLLW. The WMPEIS excluded Environmental Restoration waste from analysis. Consequently, the WMPEIS can make no decisions, and it provides no authority for deciding what to do with such wastes. The WMPEIS notes:

"If DOE had sufficient information about the ER transferred wastes, it would analyze their impacts in the same manner as the impacts of the WM wastes are evaluated in the WMPEIS. Unfortunately, DOE still does not have sufficient information on the volume or contaminant composition of these wastes to perform a meaningful impact evaluation at this time." Page 1-42

"Additionally, very little information is available to DOE about the composition of environmental wastes. This prevents the Department from evaluating the impacts of managing these wastes at this time." Page 1-42

THR-0004/005

As Greg mentioned, there are process concerns also, because we have the Programmatic EIS that was developed back in the late '90s. Things have changed. Things have modified. We've improved. We know more now than we did then. Let's incorporate that information.

Response

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS (DOE 1997b) decisions regarding certain TRU waste, LLW, and MLLW streams. Site-specific waste management actions at Hanford involve transportation, treatment and processing of TRU waste and MLLW, disposal of LLW, MLLW and ILAW, and storage of LLW, MLLW, and TRU waste. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

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HSW EIS. The general result of the WM PEIS was that radioactive and hazardous wastes generated at a DOE site should be disposed of at that site unless the site was not capable of or not technically able to support those actions. DOE determined there was sufficient information in the WM PEIS to support decisions regarding the sites that were suitable for long-term waste management missions. Those decisions included processing and disposing of Hanford waste at Hanford, and the importation of wastes from other sites that could not adequately handle them. Decisions made as part of the WM PEIS made Hanford available for the disposal of low-level waste and mixed low-level waste from other DOE generators. The initial WM PEIS decisions related to LLW, MLLW, and TRU waste were issued between January 1998 and February 2000.

DOE believes this HSW EIS complies with applicable NEPA requirements.

The HSW EIS uses best available data for estimating inventories of hazardous and radioactive wastes. These data are obtained from information management systems maintained at Hanford and other DOE sites. Most of the waste will be generated by environmental restoration activities, and there is uncertainty about the amounts that will be generated. Areas of uncertainty are discussed in Volume I Section 3.5.

The WM PEIS provided a comparative basis among DOE sites supporting decisions regarding the Department's national waste management strategy. Some of the site-specific actions associated with these roles may involve additional environmental reviews such as that provided in this HSW EIS. Similarly, decisions and actions to support DOE's compliance with RCRA and CERCLA are site-specific in nature and would be conducted accordingly.

Comments

L-0055/008

Clearly some high level waste such as the melters from the Vitrification facility and ground water will remain on the Hanford site. The characterization of Hanford as a low level and mixed waste repository is misleading. A detailed understanding of the complete volume of waste at Hanford and nationally is necessary, it is inappropriate to conduct this analysis as a single narrowly defined project. This decision requested again is to allow for the storage of a yet quantified amount of Mixed Low Level radioactive waste and Low Level radioactive waste. DOE-RL has already received TRU waste from other sources without the capacity to treat and dispose of waste. The fact that some hazardous waste is currently being treated off site by commercial entities without the discussion of the volume of that waste is also an issue.

Response

The HSW EIS evaluates the consequences of various site-specific alternatives to the ongoing waste management program at Hanford, consistent with WM PEIS (DOE 1997b) decisions regarding certain TRU waste, LLW, and MLLW streams. Site-specific waste management actions at Hanford involve transportation, treatment and processing of TRU waste and MLLW, disposal of LLW, MLLW and ILAW, and storage of LLW, MLLW, and TRU waste. A discussion of the WM PEIS and other NEPA review documents relevant to the HSW EIS can be found in Volume I Section 1.5.

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WM PEIS

disposal of low-level waste and mixed low-level waste from other DOE generators. The initial WM PEIS decisions related to LLW, MLLW, and TRU waste were issued between January 1998 and February 2000.

The Hanford Only waste volume has been evaluated in all action alternatives and the No Action Alternative to provide a better comparison with the impacts of adding offsite waste. The incremental impacts of offsite waste are the differences between the Lower and Upper Bound Volumes and the Hanford Only impacts for a given alternative.

Part of the purpose of the EIS is to allow DOE to obtain additional treatment capability to support cleanup of the Hanford Site. LLW and MLLW received from offsite generators is assumed to meet applicable treatment standards and arrives ready for disposal.

Regarding TRU waste received from other sites, DOE plans to temporarily store this waste and prepare it for shipment to WIPP for disposal. The TRU waste will not be disposed of at Hanford.

The HSW EIS evaluates several alternatives for treatment of waste to allow disposal in accordance with the HSSWAC. Alternatives include offsite commercial treatment, onsite treatment in existing facilities, and treatment at a new onsite facility. All action alternatives evaluated in the EIS include treatment and final disposal of waste. The No Action alternative, mandated for evaluation under NEPA, is the only alternative in which waste would remain in storage indefinitely.

Comments

E-0043/006, EM-0217/006, EM-0218/006, L-0056/006, LM-0017/006, LM-0018/006

Also, because the PEIS did not contain analysis of the impacts of RCRA and CERCLA ER wastes, the PEIS is not an authority for decisions regarding these wastes.

E-0055/018

The Waste Management Programmatic EIS (USDOE, 1997) (WMPEIS) [DOE, 1997] was admitted to be legally inadequate for failure to include Environmental Restoration (ER) program wastes which would be transferred to sites such as Hanford for disposal as part of the Waste Management Program. USDOE violates both NEPA and commitments made pursuant to litigation over the WMPEIS to consider:

· the impacts of transfers of ER wastes to Hanford;

· the chemical and radiological properties of ER wastes proposed to be shipped to Hanford;

· cumulative impacts from adding ER wastes to: a) Hanford's own existing and future wastes requiring disposal; and, b) USDOE's Waste Management Program wastes.

Response

The WM PEIS provided a comparative basis among DOE sites supporting decisions regarding the Department's national waste management strategy. Some of the site-specific actions associated with these roles may involve additional environmental reviews such as that provided in this HSW EIS. Similarly, decisions and actions to support DOE's compliance with RCRA and CERCLA are site-specific in nature and would be conducted accordingly.

Comments

P-0063/002

There are other places to store nuclear waste, such as the underground nuclear bomb test site in Nevada, which is already saturated with nuclear waste and radioactivity. Seek alternative uses for spent nuclear waste. Fund creative uses of weaker radioactive material.

Response

The Yucca Mountain site, when it becomes operational, will be the nation's repository for high-level radioactive wastes. Transuranic wastes that are not high-level wastes would be disposed of at the Waste Isolation Pilot Plant in New Mexico. Hanford, Nevada Test Site, and certain other major DOE sites will be used for disposal of LLW and MLLW.

4.0 Location of Comments and Responses

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	EM-0217/054	3.61

Gilbert, Clare Government Accountability Project	EM-0217/055 EM-0217/056 EM-0217/057 EM-0217/058 EM-0217/059 EM-0217/060 EM-0217/061 EM-0217/062 EM-0217/063 EM-0217/064 EM-0217/065 EM-0217/066 EM-0217/067 EM-0217/068 EM-0217/069 EM-0217/070 EM-0217/071 EM-0217/072 EM-0217/073 EM-0217/074 EM-0217/075	3.28 3.263 3.339 3.365 3.245 3.259 3.271 3.201 3.80 3.324 3.67 3.253 3.256 3.254 3.14 3.339 3.231 3.200 3.198 3.129 3.245
Gilbert, Clare Government Accountability Project	LM-0017/001 LM-0017/002 LM-0017/003 LM-0017/004 LM-0017/005 LM-0017/006 LM-0017/007 LM-0017/008 LM-0017/009 LM-0017/010 LM-0017/011 LM-0017/012 LM-0017/013 LM-0017/014 LM-0017/015 LM-0017/016 LM-0017/017 LM-0017/018 LM-0017/019 LM-0017/020 LM-0017/021 LM-0017/022 LM-0017/023 LM-0017/024 LM-0017/025 LM-0017/026 LM-0017/027	3.306 3.147 3.147 3.309 3.122 3.409 3.245 3.245 3.17 3.390 3.321 3.298 3.61 3.334 3.191 3.218 3.302 3.99 3.249 3.263 3.29 3.17 3.191 3.341 3.188 3.279 3.362

Gilbert, Clare Government Accountability Project	LM-0017/028	3.341
	LM-0017/029	3.345
	LM-0017/030	3.208
	LM-0017/031	3.212
	LM-0017/032	3.212
	LM-0017/033	3.244
	LM-0017/034	3.53
	LM-0017/035	3.216
	LM-0017/036	3.309
	LM-0017/037	3.263
	LM-0017/038	3.341
	LM-0017/039	3.255
	LM-0017/040	3.14
	LM-0017/041	3.339
	LM-0017/042	3.234
	LM-0017/043	3.147
	LM-0017/044	3.90
	LM-0017/045	3.147
	LM-0017/046	3.12
	LM-0017/047	3.392
	LM-0017/048	3.147
	LM-0017/049	3.245
	LM-0017/050	3.131
	LM-0017/052	3.131
	LM-0017/053	3.300
	LM-0017/054	3.61
	LM-0017/055	3.28
	LM-0017/056	3.263
	LM-0017/057	3.339
	LM-0017/058	3.365
	LM-0017/059	3.245
	LM-0017/060	3.259
	LM-0017/061	3.271
	LM-0017/062	3.201
	LM-0017/063	3.80
	LM-0017/064	3.324
	LM-0017/065	3.67
	LM-0017/066	3.253
	LM-0017/067	3.256
	LM-0017/068	3.254
	LM-0017/069	3.14
	LM-0017/070	3.339
	LM-0017/071	3.231
	LM-0017/072	3.200
	LM-0017/073	3.198
	LM-0017/074	3.129
	LM-0017/075	3.245

Gill, Rita	P-0075/001 P-0075/002 P-0075/003 P-0075/004	3.147 3.61 3.3 3.345
Gioiosa, Charles	EM-0094/001	3.132
Gittings, Rosalie	L-0035/001 L-0035/002 L-0035/003 L-0035/004 L-0035/005	3.147 3.333 3.253 3.147 3.61
Glor, Poppy	EM-0063/001	3.132
Goldman, Emerald	P-0120/001	3.147
Gonzales, Joseph	EM-0067/001	3.132
Gordon, Jan E	L-0001/001 L-0001/002 L-0001/003 L-0001/004	3.147 3.147 3.345 3.147
Government Accountability Project Carpenter, Tom	E-0043/001 E-0043/002 E-0043/003 E-0043/004 E-0043/005 E-0043/006 E-0043/007 E-0043/008 E-0043/009 E-0043/010 E-0043/011 E-0043/012 E-0043/013 E-0043/014 E-0043/015 E-0043/016 E-0043/017 E-0043/018 E-0043/019 E-0043/020 E-0043/021 E-0043/022 E-0043/023 E-0043/024 E-0043/025 E-0043/026 E-0043/027 E-0043/028 E-0043/029	3.306 3.147 3.147 3.309 3.122 3.409 3.245 3.245 3.17 3.390 3.321 3.298 3.61 3.334 3.191 3.218 3.302 3.99 3.249 3.263 3.29 3.17 3.191 3.341 3.188 3.279 3.362 3.341 3.345

Government Accountability Project Carpenter, Tom	E-0043/030	3.208
	E-0043/031	3.212
	E-0043/032	3.212
	E-0043/033	3.244
	E-0043/034	3.53
	E-0043/035	3.216
	E-0043/036	3.309
	E-0043/037	3.263
	E-0043/038	3.341
	E-0043/039	3.255
	E-0043/040	3.14
	E-0043/041	3.339
	E-0043/042	3.234
	E-0043/043	3.147
	E-0043/044	3.90
	E-0043/045	3.147
	E-0043/046	3.12
	E-0043/047	3.392
	E-0043/048	3.147
	E-0043/049	3.245
	E-0043/050	3.131
	E-0043/052	3.131
	E-0043/053	3.300
	E-0043/054	3.61
	E-0043/055	3.28
	E-0043/056	3.263
	E-0043/057	3.339
	E-0043/058	3.365
	E-0043/059	3.245
	E-0043/060	3.259
	E-0043/061	3.271
	E-0043/062	3.201
	E-0043/063	3.80
	E-0043/064	3.324
	E-0043/065	3.67
	E-0043/066	3.253
	E-0043/067	3.256
	E-0043/068	3.254
	E-0043/069	3.14
	E-0043/070	3.339
	E-0043/071	3.231
	E-0043/072	3.200
	E-0043/073	3.198
	E-0043/074	3.129
	E-0043/075	3.245
Government Accountability Project Carpenter, Tom	L-0056/001	3.306
	L-0056/002	3.147
	L-0056/003	3.147

Government Accountability Project Carpenter, Tom	L-0056/004	3.309
	L-0056/005	3.122
	L-0056/006	3.409
	L-0056/007	3.245
	L-0056/008	3.245
	L-0056/009	3.17
	L-0056/010	3.390
	L-0056/011	3.321
	L-0056/012	3.298
	L-0056/013	3.61
	L-0056/014	3.334
	L-0056/015	3.191
	L-0056/016	3.218
	L-0056/017	3.302
	L-0056/018	3.99
	L-0056/019	3.249
	L-0056/020	3.263
	L-0056/021	3.29
	L-0056/022	3.17
	L-0056/023	3.191
	L-0056/024	3.341
	L-0056/025	3.188
	L-0056/026	3.279
	L-0056/027	3.362
	L-0056/028	3.341
	L-0056/029	3.345
	L-0056/030	3.208
	L-0056/031	3.212
	L-0056/032	3.212
	L-0056/033	3.244
	L-0056/034	3.53
	L-0056/035	3.216
	L-0056/036	3.309
	L-0056/037	3.263
	L-0056/038	3.341
	L-0056/039	3.255
	L-0056/040	3.14
	L-0056/041	3.339
	L-0056/042	3.234
	L-0056/043	3.147
	L-0056/044	3.90
	L-0056/045	3.147
	L-0056/046	3.12
	L-0056/047	3.392
	L-0056/048	3.147
	L-0056/049	3.245
	L-0056/050	3.131
	L-0056/052	3.131

Government Accountability Project Carpenter, Tom	L-0056/053 L-0056/054 L-0056/055 L-0056/056 L-0056/057 L-0056/058 L-0056/059 L-0056/060 L-0056/061 L-0056/062 L-0056/063 L-0056/064 L-0056/065 L-0056/066 L-0056/067 L-0056/068 L-0056/069 L-0056/070 L-0056/071 L-0056/072 L-0056/073 L-0056/074 L-0056/075	3.300 3.61 3.28 3.263 3.339 3.365 3.245 3.259 3.271 3.201 3.80 3.324 3.67 3.253 3.256 3.254 3.14 3.339 3.231 3.200 3.198 3.129 3.245
Government Accountability Project Carpenter, Tom	TPO-0016/001 TPO-0016/003 TPO-0016/004 TPO-0016/005	3.387 3.147 3.183 3.318
Government Accountability Project Carpenter, Tom	TSE-0022/001 TSE-0022/002 TSE-0022/003	3.127 3.186 3.309
Government Accountability Project Gilbert, Clare	EM-0217/001 EM-0217/002 EM-0217/003 EM-0217/004 EM-0217/005 EM-0217/006 EM-0217/007 EM-0217/008 EM-0217/009 EM-0217/010 EM-0217/011 EM-0217/012 EM-0217/013 EM-0217/014 EM-0217/015 EM-0217/016 EM-0217/017 EM-0217/018	3.306 3.147 3.147 3.309 3.122 3.409 3.245 3.245 3.17 3.390 3.321 3.298 3.61 3.334 3.191 3.218 3.302 3.99

Government Accountability Project Gilbert, Clare	EM-0217/019	3.249
	EM-0217/020	3.263
	EM-0217/021	3.29
	EM-0217/022	3.17
	EM-0217/023	3.191
	EM-0217/024	3.341
	EM-0217/025	3.188
	EM-0217/026	3.279
	EM-0217/027	3.362
	EM-0217/028	3.341
	EM-0217/029	3.345
	EM-0217/030	3.208
	EM-0217/031	3.212
	EM-0217/032	3.212
	EM-0217/033	3.244
	EM-0217/034	3.53
	EM-0217/035	3.216
	EM-0217/036	3.309
	EM-0217/037	3.263
	EM-0217/038	3.341
	EM-0217/039	3.255
	EM-0217/040	3.14
	EM-0217/041	3.339
	EM-0217/042	3.234
	EM-0217/043	3.147
	EM-0217/044	3.90
	EM-0217/045	3.147
	EM-0217/046	3.12
	EM-0217/047	3.392
	EM-0217/048	3.147
	EM-0217/049	3.245
	EM-0217/050	3.131
	EM-0217/052	3.131
	EM-0217/053	3.300
	EM-0217/054	3.61
	EM-0217/055	3.28
	EM-0217/056	3.263
	EM-0217/057	3.339
	EM-0217/058	3.365
	EM-0217/059	3.245
	EM-0217/060	3.259
	EM-0217/061	3.271
	EM-0217/062	3.201
	EM-0217/063	3.80
	EM-0217/064	3.324
	EM-0217/065	3.67
	EM-0217/066	3.253
	EM-0217/067	3.256

Government Accountability Project Gilbert, Clare	EM-0217/068 EM-0217/069 EM-0217/070 EM-0217/071 EM-0217/072 EM-0217/073 EM-0217/074 EM-0217/075	3.254 3.14 3.339 3.231 3.200 3.198 3.129 3.245
Government Accountability Project Gilbert, Clare	LM-0017/001 LM-0017/002 LM-0017/003 LM-0017/004 LM-0017/005 LM-0017/006 LM-0017/007 LM-0017/008 LM-0017/009 LM-0017/010 LM-0017/011 LM-0017/012 LM-0017/013 LM-0017/014 LM-0017/015 LM-0017/016 LM-0017/017 LM-0017/018 LM-0017/019 LM-0017/020 LM-0017/021 LM-0017/022 LM-0017/023 LM-0017/024 LM-0017/025 LM-0017/026 LM-0017/027 LM-0017/028 LM-0017/029 LM-0017/030 LM-0017/031 LM-0017/032 LM-0017/033 LM-0017/034 LM-0017/035 LM-0017/036 LM-0017/037 LM-0017/038 LM-0017/039 LM-0017/040	3.306 3.147 3.147 3.309 3.122 3.409 3.245 3.245 3.17 3.390 3.321 3.298 3.61 3.334 3.191 3.218 3.302 3.99 3.249 3.263 3.29 3.17 3.191 3.341 3.188 3.279 3.362 3.341 3.345 3.208 3.212 3.212 3.244 3.53 3.216 3.309 3.263 3.341 3.255 3.14

Government Accountability Project Gilbert, Clare	LM-0017/041	3.339
	LM-0017/042	3.234
	LM-0017/043	3.147
	LM-0017/044	3.90
	LM-0017/045	3.147
	LM-0017/046	3.12
	LM-0017/047	3.392
	LM-0017/048	3.147
	LM-0017/049	3.245
	LM-0017/050	3.131
	LM-0017/052	3.131
	LM-0017/053	3.300
	LM-0017/054	3.61
	LM-0017/055	3.28
	LM-0017/056	3.263
	LM-0017/057	3.339
	LM-0017/058	3.365
	LM-0017/059	3.245
	LM-0017/060	3.259
	LM-0017/061	3.271
	LM-0017/062	3.201
	LM-0017/063	3.80
	LM-0017/064	3.324
	LM-0017/065	3.67
	LM-0017/066	3.253
	LM-0017/067	3.256
	LM-0017/068	3.254
	LM-0017/069	3.14
	LM-0017/070	3.339
	LM-0017/071	3.231
	LM-0017/072	3.200
	LM-0017/073	3.198
	LM-0017/074	3.129
	LM-0017/075	3.245
Government Accountability Project Morelli, Billie	EM-0218/001	3.306
	EM-0218/002	3.147
	EM-0218/003	3.147
	EM-0218/004	3.309
	EM-0218/005	3.122
	EM-0218/006	3.409
	EM-0218/007	3.245
	EM-0218/008	3.245
	EM-0218/009	3.17
	EM-0218/010	3.390
	EM-0218/011	3.321
	EM-0218/012	3.298
	EM-0218/013	3.61
	EM-0218/014	3.334

Government Accountability Project Morelli, Billie	EM-0218/015	3.191
	EM-0218/016	3.218
	EM-0218/017	3.302
	EM-0218/018	3.99
	EM-0218/019	3.249
	EM-0218/020	3.263
	EM-0218/021	3.29
	EM-0218/022	3.17
	EM-0218/023	3.191
	EM-0218/024	3.341
	EM-0218/025	3.188
	EM-0218/026	3.279
	EM-0218/027	3.362
	EM-0218/028	3.341
	EM-0218/029	3.345
	EM-0218/030	3.208
	EM-0218/031	3.212
	EM-0218/032	3.212
	EM-0218/033	3.244
	EM-0218/034	3.53
	EM-0218/035	3.216
	EM-0218/036	3.309
	EM-0218/037	3.263
	EM-0218/038	3.341
	EM-0218/039	3.255
	EM-0218/040	3.14
	EM-0218/041	3.339
	EM-0218/042	3.234
	EM-0218/043	3.147
	EM-0218/044	3.90
	EM-0218/045	3.147
	EM-0218/046	3.12
	EM-0218/047	3.392
	EM-0218/048	3.147
	EM-0218/049	3.245
	EM-0218/050	3.131
	EM-0218/052	3.131
	EM-0218/053	3.300
	EM-0218/054	3.61
	EM-0218/055	3.28
	EM-0218/056	3.263
	EM-0218/057	3.339
	EM-0218/058	3.365
	EM-0218/059	3.245
	EM-0218/060	3.259
	EM-0218/061	3.271
	EM-0218/062	3.201
	EM-0218/063	3.80

Government Accountability Project Morelli, Billie	EM-0218/064 EM-0218/065 EM-0218/066 EM-0218/067 EM-0218/068 EM-0218/069 EM-0218/070 EM-0218/071 EM-0218/072 EM-0218/073 EM-0218/074 EM-0218/075	3.324 3.67 3.253 3.256 3.254 3.14 3.339 3.231 3.200 3.198 3.129 3.245
Government Accountability Project Morelli, Billie	LM-0018/001 LM-0018/002 LM-0018/003 LM-0018/004 LM-0018/005 LM-0018/006 LM-0018/007 LM-0018/008 LM-0018/009 LM-0018/010 LM-0018/011 LM-0018/012 LM-0018/013 LM-0018/014 LM-0018/015 LM-0018/016 LM-0018/017 LM-0018/018 LM-0018/019 LM-0018/020 LM-0018/021 LM-0018/022 LM-0018/023 LM-0018/024 LM-0018/025 LM-0018/026 LM-0018/027 LM-0018/028 LM-0018/029 LM-0018/030 LM-0018/031 LM-0018/032 LM-0018/033 LM-0018/034 LM-0018/035 LM-0018/036	3.306 3.147 3.147 3.309 3.122 3.409 3.245 3.245 3.17 3.390 3.321 3.298 3.61 3.334 3.191 3.218 3.302 3.99 3.249 3.263 3.29 3.17 3.191 3.341 3.188 3.279 3.362 3.341 3.345 3.208 3.212 3.212 3.244 3.53 3.216 3.309

Government Accountability Project Morelli, Billie	LM-0018/037 LM-0018/038 LM-0018/039 LM-0018/040 LM-0018/041 LM-0018/042 LM-0018/043 LM-0018/044 LM-0018/045 LM-0018/046 LM-0018/047 LM-0018/048 LM-0018/049 LM-0018/050 LM-0018/052 LM-0018/053 LM-0018/054 LM-0018/055 LM-0018/056 LM-0018/057 LM-0018/058 LM-0018/059 LM-0018/060 LM-0018/061 LM-0018/062 LM-0018/063 LM-0018/064 LM-0018/065 LM-0018/066 LM-0018/067 LM-0018/068 LM-0018/069 LM-0018/070 LM-0018/071 LM-0018/072 LM-0018/073 LM-0018/074 LM-0018/075	3.263 3.341 3.255 3.14 3.339 3.234 3.147 3.90 3.147 3.12 3.392 3.147 3.245 3.131 3.131 3.300 3.61 3.28 3.263 3.339 3.365 3.245 3.259 3.271 3.201 3.80 3.324 3.67 3.253 3.256 3.254 3.14 3.339 3.231 3.200 3.198 3.129 3.245
Gowen, Margie	EM-0173/001	3.132
Graham, Ariel	EM-0003/001	3.132
Graham, Holly G	P-0042/001 P-0042/002	3.147 3.147
Graham, Kimberly	EM-0097/001	3.132
Greene, Linda	F-0001/001 F-0001/002 F-0001/003	3.345 3.147 3.147
Greene, Linda	TSP-0002/001 TSP-0002/002	3.345 3.42

Greene, Linda	TSP-0002/003	3.147
Greene, William (Bill)	TSP-0001/001 TSP-0001/002 TSP-0001/003 TSP-0001/004 TSP-0001/005 TSP-0001/006 TSP-0001/007	3.147 3.345 3.345 3.345 3.221 3.281 3.147
Greenhalgh, Deborah	TSP-0015/001 TSP-0015/002 TSP-0015/003 TSP-0015/004 TSP-0015/005	3.281 3.338 3.384 3.281 3.221
Gregory, Marilyn	EM-0104/001	3.132
Greubel, Marie	P-0083/001	3.128
Grieff, Pamela	P-0149/001 P-0149/002 P-0149/003	3.117 3.61 3.147
Griffiths, Eddie	P-0160/001 P-0160/002	3.147 3.281
Grover, Ravi	E-0006/001 E-0006/002	3.203 3.147
Grubert, Amy	EM-0102/001	3.132
Hale, D	P-0103/001	3.109
Hale, Jeremy C	E-0056/001	3.281
Haler, Larry Hanford Communities	L-0062/001 L-0062/002 L-0062/003 L-0062/004 L-0062/005	3.281 3.281 3.145 3.263 3.345
Hamblin, MaryEllen	L-0002/001	3.147
Hamblin, MaryEllen	L-0003/001 L-0003/002 L-0003/003 L-0003/004	3.147 3.147 3.147 3.147
Hamilton, Ben	EM-0135/001	3.132
Hanford Advisory Board Martin, Todd	L-0039/001 L-0039/002 L-0039/003 L-0039/004 L-0039/005 L-0039/006 L-0039/007 L-0039/008 L-0039/009 L-0039/010	3.309 3.277 3.277 3.17 3.17 3.17 3.17 3.395 3.376 3.17

Hanford Advisory Board Martin, Todd	L-0039/011 L-0039/012 L-0039/013 L-0039/014 L-0039/015 L-0039/016 L-0039/017 L-0039/018 L-0039/019 L-0039/020 L-0039/021 L-0039/022 L-0039/023	3.196 3.181 3.49 3.302 3.17 3.99 3.181 3.268 3.261 3.306 3.17 3.365 3.407
Hanford Communities Haler, Larry	L-0062/001 L-0062/002 L-0062/003 L-0062/004 L-0062/005	3.281 3.281 3.145 3.263 3.345
Hanford Information Network Riggs, Doug	TPO-0006/001 TPO-0006/002 TPO-0006/003 TPO-0006/004 TPO-0006/005	3.281 3.29 3.17 3.309 3.147
Hanford Watch Knight, Paige	L-0012/001 L-0012/002 L-0012/003 L-0012/004 L-0012/005 L-0012/006 L-0012/007 L-0012/008 L-0012/009 L-0012/010 L-0012/011	3.108 3.206 3.26 3.112 3.108 3.302 3.147 3.181 3.333 3.6 3.147
Hansen, Michelle K	LM-0002/001	3.132
Hansen, Ray	P-0037/001	3.147
Haral, Catherine Marley	P-0170/001	3.86
Harding, Karen	F-0024/001 F-0024/002 F-0024/003 F-0024/004 F-0024/005 F-0024/006 F-0024/007	3.306 3.147 3.309 3.117 3.298 3.302 3.261
Harding, Karen	THR-0017/001 THR-0017/002	3.3 3.147

Harding, Keith	F-0023/001 F-0023/002 F-0023/003 F-0023/004	3.306 3.117 3.337 3.147
Harding, Keith	THR-0016/001	3.38
Harris, Howard L	P-0115/001 P-0115/002	3.147 3.147
Harris, Marti	EM-0119/001	3.132
Harrison, Cheryl	EM-0086/001	3.132
Hart, Karen	EMM-0003/001	3.132
Hayes, Linda	E-0033/001	3.147
Heacock, Harold W	L-0014/001 L-0014/002 L-0014/003 L-0014/004 L-0014/005 L-0014/006 L-0014/007 L-0014/008 L-0014/009 L-0014/010 L-0014/011 L-0014/012 L-0014/013 L-0014/014 L-0014/015	3.41 3.187 3.298 3.41 3.104 3.17 3.380 3.70 3.69 3.70 3.388 3.281 3.393 3.365 3.122
Heacock, Harold W	L-0022/001 L-0022/002 L-0022/003 L-0022/004 L-0022/005 L-0022/006 L-0022/007 L-0022/008 L-0022/009 L-0022/010 L-0022/011 L-0022/012 L-0022/013 L-0022/014 L-0022/015	3.41 3.187 3.298 3.41 3.104 3.17 3.380 3.70 3.69 3.70 3.388 3.281 3.393 3.365 3.122
Heart of America Northwest Lee, Hyun S	L-0053/001	3.369
Heart of America Northwest Pollet, Gerald	E-0053/001 E-0053/002 E-0053/003	3.326 3.221 3.230

Heart of America Northwest Pollet, Gerald	E-0053/004	3.286
Heart of America Northwest Pollet, Gerald	E-0054/001	3.323
Heart of America Northwest Pollet, Gerald	E-0055/001 E-0055/002 E-0055/003 E-0055/004 E-0055/005 E-0055/006 E-0055/007 E-0055/008 E-0055/009 E-0055/010 E-0055/011 E-0055/015 E-0055/016 E-0055/017 E-0055/018 E-0055/019 E-0055/020 E-0055/021 E-0055/022 E-0055/023 E-0055/024 E-0055/025 E-0055/026 E-0055/027 E-0055/028	3.61 3.334 3.382 3.73 3.195 3.345 3.308 3.309 3.309 3.145 3.287 3.302 3.61 3.399 3.409 3.329 3.17 3.199 3.275 3.99 3.99 3.374 3.14 3.53 3.341
Heart of America Northwest Pollet, Gerald	TLG-0013/001 TLG-0013/002	3.341 3.369
Heart of America Northwest Pollet, Gerald	TPO-0012/001	3.309
Heart of America Northwest Pollet, Gerald	TRI-0001/002 TRI-0001/003 TRI-0001/004 TRI-0001/005 TRI-0001/006 TRI-0001/007 TRI-0001/008 TRI-0001/009 TRI-0001/010 TRI-0001/011 TRI-0001/012 TRI-0001/013 TRI-0001/014 TRI-0001/015 TRI-0001/016	3.309 3.244 3.330 3.330 3.147 3.61 3.14 3.29 3.104 3.221 3.104 3.104 3.104 3.92 3.147

Heart of America Northwest Pollet, Gerald	TRI-0001/017	3.302
Heart of America Northwest Pollet, Gerald	TSE-0028/001 TSE-0028/002 TSE-0028/003 TSE-0028/004 TSE-0028/005	3.365 3.339 3.371 3.195 3.286
Hedenblad, Linda	EM-0212/001	3.132
Hedlund, Bob	TPO-0023/001	3.40
Henigson, Robert	EM-0037/001	3.132
Hernandez, Sean	EM-0207/001	3.132
Herner, Betty	EM-0049/001	3.132
Herron, Kathleen	LM-0001/001	3.132
Herzog, Hans K	P-0031/001	3.333
Hess, Susan	THR-0018/001	3.345
Hildebrandt, Marcia M	EM-0100/001	3.132
Hillary, J	F-0031/001 F-0031/002	3.309 3.117
Hippert, Dona	E-0050/001 E-0050/002 E-0050/003 E-0050/004 E-0050/005 E-0050/006 E-0050/007 E-0050/008 E-0050/009 E-0050/010	3.309 3.147 3.147 3.309 3.17 3.302 3.341 3.382 3.61 3.298
Hirschfeld, Nancy	EM-0016/001	3.132
Hittler, William E	EM-0098/001	3.132
Hodge, Douglas	P-0106/001	3.86
Hodges, Alison	F-0008/001 F-0008/002 F-0008/003	3.247 3.309 3.147
Hodges, Robert S	F-0009/001 F-0009/002 F-0009/003	3.147 3.366 3.147
Holenstein, Cherie	TPO-0021/001 TPO-0021/002 TPO-0021/003 TPO-0021/004	3.318 3.120 3.147 3.147
Holenstein, Kathryn	P-0157/001 P-0157/002	3.147 3.147
Holenstein, Mark	P-0158/001	3.147

Holenstein, Miranda, Anna, Kathryn, Hally and Riley	P-0155/001 P-0155/002	3.147 3.147
Holenstein, Shawn. Miranda, Anna, Kathryn, Hally and Riley	P-0163/001	3.147
Horn, Diane	EM-0024/001	3.132
Horowitz, Tina	EM-0015/001	3.132
Horst, Lynda M. – see Shelley Cimon		
Howard, Bruce	P-0025/001	3.147
Howe, Christine	P-0168/001	3.147
Hume, Barbara	EM-0052/001	3.132
Huntington, Aaron	EM-0156/001	3.132
Huston, Doug Oregon Office of Energy	TPO-0007/001 TPO-0007/002 TPO-0007/003	3.281 3.28 3.276
Iafrate, Barbara A	P-0079/001	3.147
Inslee, Jay U.S. House of Representatives	L-0018/001 L-0018/002 L-0018/003 L-0018/004 L-0018/005	3.281 3.147 3.61 3.333 3.61
Inslee, Jay U.S. House of Representatives (Comments read into the Seattle public meeting transcript by Kennie Endelman)	TSE-0001/001 TSE-0001/002 TSE-0001/003 TSE-0001/004 TSE-0001/005	3.281 3.147 3.61 3.333 3.61
Iuro, Margaret	EM-0181/001	3.132
Jackson, M	LM-0015/001 LM-0015/002 LM-0015/003 LM-0015/004	3.147 3.261 3.8 3.117
Jackson, Robert L	P-0132/001	3.147
Jacobson, Lawrence	EM-0184/001	3.132
James, Lenard	EM-0186/001	3.132
James, Susan	LM-0016/001 LM-0016/002 LM-0016/003 LM-0016/004	3.147 3.261 3.8 3.117
Japha, Irene R	P-0048/001 P-0048/002	3.147 3.147
Jeremiah	E-0044/001 E-0044/002 E-0044/003 E-0044/004	3.309 3.206 3.199 3.232

Jim, Russell Confederated Tribes and Bands of the Yakama Nation	L-0054/001 L-0054/002 L-0054/003 L-0054/004 L-0054/005 L-0054/006 L-0054/007 L-0054/008 L-0054/009 L-0054/010 L-0054/011 L-0054/012 L-0054/013 L-0054/014 L-0054/015 L-0054/016	3.272 3.337 3.309 3.272 3.12 3.39 3.12 3.401 3.399 3.17 3.199 3.78 3.309 3.122 3.56 3.309
Johansen, James	EM-0202/001	3.132
Johns, Linda M	P-0113/001 P-0113/002 P-0113/003	3.3 3.345 3.147
Johnson, Allen E	P-0088/001 P-0088/002	3.147 3.147
Johnson, Marjorie	P-0058/001	3.3
Johnston, Anne	E-0016/001	3.147
Jones, Claire	L-0047/001	3.382
Judd, Connie J	P-0087/001 P-0087/002	3.147 3.147
Juhl, Brandon	EM-0193/001	3.132
Kaiser, Charlotte	P-0091/001 P-0091/002	3.147 3.147
Kammerzell, Alfred	P-0118/001 P-0118/002	3.147 3.147
Katrosick, Joe	THR-0007/001	3.42
Keehn, Dell E	P-0141/001	3.3
Kehoe, Eric	EM-0133/001	3.132
Kelly, Brian	E-0045/001 E-0045/002	3.147 3.364
Kelly, Brian	TLG-0001/001 TLG-0001/002	3.147 3.147
Kenneweg, Kathleen	EM-0159/001	3.132
Kenton, Owen	TLG-0006/001 TLG-0006/002 TLG-0006/003	3.147 3.345 3.2
Kenton, Richard	TLG-0007/001	3.345
Kesich, John	EM-0144/001	3.132

Kessler, Keith	EM-0093/001	3.132
Kimsey, Gretchen B	P-0086/001	3.345
King, Mary Ann	EM-0018/001	3.132
King, Sara	EM-0116/001	3.132
Kinney, Wayne – see Ron Wyden		
Kipper, Paul J	EM-0069/001	3.132
Klein, Nancy	P-0130/001	3.147
Kline, Galena	EM-0050/001	3.132
Knight, Page – see David Wu		
Knight, Paige Hanford Watch	L-0012/001 L-0012/002 L-0012/003 L-0012/004 L-0012/005 L-0012/006 L-0012/007 L-0012/008 L-0012/009 L-0012/010 L-0012/011	3.108 3.206 3.26 3.112 3.108 3.302 3.147 3.181 3.333 3.6 3.147
Kopp, Helen	EM-0204/001	3.132
Korb, Nancy	L-0038/001 L-0038/002	3.372 3.111
Kroening, Nancy	TSE-0027/001 TSE-0027/002 TSE-0027/003 TSE-0027/004 TSE-0027/005 TSE-0027/006 TSE-0027/007 TSE-0027/008 TSE-0027/009	3.147 3.212 3.219 3.395 3.345 3.6 3.108 3.60 3.147
Kroening, Nancy	TSE-0040/001	3.212
Kugler, Tony	EM-0191/001	3.132
LaFave, Jared	EM-0101/001	3.132
Lamb, Marilyn	TPO-0014/001 TPO-0014/002 TPO-0014/003 TPO-0014/004 TPO-0014/005 TPO-0014/006	3.38 3.147 3.147 3.3 3.40 3.11
LaPierre, Sharri	E-0015/001	3.147
LaPierre, Sharri	EMM-0010/001	3.132
Lauman, Dina	EM-0048/001	3.132
Lawrence, Elizabeth M	P-0121/001	3.147

Lawton, Larry	EMM-0007/001	3.132
Leavitt, Donna	EM-0068/001	3.132
Lee, Dione	EM-0054/001	3.132
Lee, Hyun – see Gerald Pollet		
Lee, Hyun	TSE-0018/001	3.341
Lee, Hyun	TSE-0037/001	3.341
Lee, Hyun S Heart of America Northwest	L-0053/001	3.369
Leed, Jean	P-0041/001	3.128
Leider, Allan R	EM-0013/001	3.132
Lewallen, S	LM-0007/001 LM-0007/002 LM-0007/003 LM-0007/004	3.147 3.261 3.8 3.117
Lewis, Evelyn	EM-0170/001	3.132
Lewis, Timothy	EM-0039/001	3.132
Lichtenwald, Daniel	THR-0008/001 THR-0008/002 THR-0008/003 THR-0008/004	3.309 3.3 3.85 3.189
Lill, Nancy Enz	EM-0017/001	3.132
Lindvall, Marian	P-0036/001 P-0036/002	3.3 3.345
Livermore, Mont	EM-0085/001	3.132
Lomber, Jonathan	EM-0123/001	3.132
Longhurst, Margaret	L-0036/001	3.147
Longley, Jeanne	E-0011/001	3.147
Longwill, James R	F-0004/001 F-0004/002	3.3 3.345
Loudiana	E-0018/001 E-0018/002	3.121 3.306
Lowe, Kimberly	EM-0147/001	3.132
Luxem, Dave & Deb	EM-0117/001	3.132
Lynette, Robert	EM-0083/001	3.132
Lynn, Sue	P-0172/001	3.147
Ma, Jessica	EM-0029/001	3.132
Mackay, Mary	TSP-0008/001 TSP-0008/002	3.181 3.345
Mackinney, Sarah	EM-0190/001	3.132
MacRae, D.	EM-0183/001	3.132
Mallant, Lisa J	P-0139/001 P-0139/002	3.3 3.345
Mareno, B	LM-0008/001 LM-0008/002	3.147 3.261

Mareno, B	LM-0008/003 LM-0008/004	3.8 3.117
Marett, Susan & Robert	EMM-0004/001	3.132
Marioni, Paul	P-0007/001 P-0007/002	3.147 3.345
Marks, John	P-0164/001 P-0164/002	3.3 3.281
Marois, Martha	EM-0169/001	3.132
Marquam, Barbara J	P-0071/001	3.147
Martin, Todd Hanford Advisory Board	L-0039/001 L-0039/002 L-0039/003 L-0039/004 L-0039/005 L-0039/006 L-0039/007 L-0039/008 L-0039/009 L-0039/010 L-0039/011 L-0039/012 L-0039/013 L-0039/014 L-0039/015 L-0039/016 L-0039/017 L-0039/018 L-0039/019 L-0039/020 L-0039/021 L-0039/022 L-0039/023	3.309 3.277 3.277 3.17 3.17 3.17 3.17 3.395 3.376 3.17 3.196 3.181 3.49 3.302 3.17 3.99 3.181 3.268 3.261 3.306 3.17 3.365 3.407
Massie, T. A.	P-0124/001 P-0124/002 P-0124/003	3.147 3.8 3.147
Mathies, David Kratz	EM-0103/001	3.132
Mattison, Glenn	EM-0164/001	3.132
Mattson, Virginia	P-0094/001 P-0094/002	3.147 3.8
Mayo, Dixie Jo	EM-0027/001	3.132
McAdams, Paul	TPO-0020/001 TPO-0020/002	3.61 3.40
McAninch, Edward	P-0046/001 P-0046/002	3.309 3.147
McAninch, Edward M	F-0018/001 F-0018/002 F-0018/003	3.309 3.42 3.345

McAninch, Edward M	F-0018/004	3.361
McCauley, Patricia	EM-0180/001	3.132
McClurg, Abraham W	P-0047/001 P-0047/002 P-0047/003 P-0047/004	3.147 3.3 3.309 3.147
McCreary, Andrew	EM-0032/001	3.132
McCullough, Jim	E-0028/001	3.147
McCullough, Reiko	E-0029/001	3.117
McDermott, Jim U.S. House of Representatives	L-0019/001 L-0019/002 L-0019/003 L-0019/004 L-0019/005 L-0019/006 L-0019/007 L-0019/008 L-0019/009 L-0019/010	3.147 3.345 3.61 3.29 3.92 3.188 3.393 3.147 3.147 3.147
McDermott, Jim U.S. House of Representatives (Comments read into the Seattle public meeting transcript by Jim Trombold)	TSE-0002/001 TSE-0002/002 TSE-0002/003 TSE-0002/004 TSE-0002/005 TSE-0002/006 TSE-0002/007 TSE-0002/008 TSE-0002/009 TSE-0002/010	3.147 3.345 3.61 3.29 3.92 3.188 3.393 3.147 3.147 3.147
McEneny, Sharon M	P-0135/001 P-0135/002 P-0135/003 P-0135/004	3.39 3.3 3.17 3.147
McGraw, David	E-0023/001	3.128
McGuire, Matthew	EM-0208/001	3.132
McIntyre, K	LM-0005/001 LM-0005/002 LM-0005/003 LM-0005/004	3.147 3.261 3.8 3.117
McKee, Don & Denise	E-0034/001	3.117
McLean, Sammy	P-0062/001 P-0062/002 P-0062/003	3.309 3.147 3.345
McRae, Lyle G	EM-0036/001	3.132
McRoberts, Carol Raging Grannies	TSE-0004/001 TSE-0004/002	3.3 3.147

McRoberts, Carol Raging Grannies	TSE-0004/003 TSE-0004/004 TSE-0004/005 TSE-0004/006 TSE-0004/007 TSE-0004/008 TSE-0004/009 TSE-0004/010	3.147 3.147 3.3 3.333 3.8 3.61 3.147 3.147
McRoberts, James C	EM-0134/001	3.132
Merrill, Judy	THR-0005/001 THR-0005/002 THR-0005/003 THR-0005/004 THR-0005/005 THR-0005/006	3.186 3.309 3.341 3.17 3.215 3.61
Meshke, Beth	E-0048/001 E-0048/002 E-0048/003 E-0048/004 E-0048/005 E-0048/006 E-0048/007	3.281 3.147 3.11 3.61 3.345 3.387 3.332
Metrick, Nancy	TPO-0011/001 TPO-0011/002 TPO-0011/003 TPO-0011/004 TPO-0011/005 TPO-0011/006 TPO-0011/007 TPO-0011/008 TPO-0011/009 TPO-0011/010 TPO-0011/011 TPO-0011/012	3.385 3.186 3.181 3.147 3.147 3.17 3.339 3.203 3.3 3.104 3.281 3.147
Mikalson, Amanda	EM-0043/001	3.132
Miko, Colleen	EM-0064/001	3.132
Miller, Fred	F-0016/001	3.367
Miller, Fred	TSE-0025/001 TSE-0025/002 TSE-0025/003	3.109 3.147 3.278
Miller, Fred	TSE-0038/001	3.367
Miller, Judith	EM-0033/001	3.132
Miller, Kevin	E-0013/001	3.88
Miller, Pat	EM-0110/001	3.132
Miller, Stan	P-0002/001	3.147

Mills, Kaaren	P-0026/001 P-0026/002 P-0026/003	3.147 3.345 3.8
Milton, Jennifer	EM-0174/001	3.132
Minick, Jim	P-0097/001 P-0097/002 P-0097/003 P-0097/004	3.309 3.147 3.147 3.147
Mink, Ron	P-0131/001 P-0131/002	3.147 3.281
Misawic, Dawn	EM-0203/001	3.132
Mitchell, Jo Bennett	P-0018/001 P-0018/002	3.147 3.369
Mitchell, Joseph J	P-0111/001	3.147
Mitzner, Karen	E-0022/001 E-0022/002 E-0022/003	3.147 3.3 3.147
Mitzner, Karen	P-0129/001 P-0129/002	3.99 3.345
Moak-Kean, Lori	EM-0022/001	3.132
Mock, Vernon D and Barbara A	P-0067/001	3.147
Modrich, Tom	THR-0019/001	3.339
Mohn, Ken W	P-0015/001	3.147
Montgomery, Gary	E-0003/001 E-0003/002 E-0003/003	3.147 3.3 3.345
Moore IV, Will	TSP-0012/001 TSP-0012/002 TSP-0012/003	3.6 3.67 3.371
Moore, Barry S Contemporary Technologies Inc.	E-0046/001	3.306
Moore, Jennifer	TSE-0019/001 TSE-0019/002	3.147 3.61
Moore, Jessica	P-0101/001 P-0101/002	3.61 3.61
Moos, Marion	TSP-0011/001 TSP-0011/002 TSP-0011/003 TSP-0011/004	3.147 3.345 3.61 3.181
Morelli, Billie Government Accountability Project	EM-0218/001 EM-0218/002 EM-0218/003 EM-0218/004 EM-0218/005 EM-0218/006	3.306 3.147 3.147 3.309 3.122 3.409

Morelli, Billie Government Accountability Project	EM-0218/007	3.245
	EM-0218/008	3.245
	EM-0218/009	3.17
	EM-0218/010	3.390
	EM-0218/011	3.321
	EM-0218/012	3.298
	EM-0218/013	3.61
	EM-0218/014	3.334
	EM-0218/015	3.191
	EM-0218/016	3.218
	EM-0218/017	3.302
	EM-0218/018	3.99
	EM-0218/019	3.249
	EM-0218/020	3.263
	EM-0218/021	3.29
	EM-0218/022	3.17
	EM-0218/023	3.191
	EM-0218/024	3.341
	EM-0218/025	3.188
	EM-0218/026	3.279
	EM-0218/027	3.362
	EM-0218/028	3.341
	EM-0218/029	3.345
	EM-0218/030	3.208
	EM-0218/031	3.212
	EM-0218/032	3.212
	EM-0218/033	3.244
	EM-0218/034	3.53
	EM-0218/035	3.216
	EM-0218/036	3.309
	EM-0218/037	3.263
	EM-0218/038	3.341
	EM-0218/039	3.255
	EM-0218/040	3.14
	EM-0218/041	3.339
	EM-0218/042	3.234
	EM-0218/043	3.147
	EM-0218/044	3.90
	EM-0218/045	3.147
	EM-0218/046	3.12
	EM-0218/047	3.392
	EM-0218/048	3.147
	EM-0218/049	3.245
	EM-0218/050	3.131
	EM-0218/052	3.131
	EM-0218/053	3.300
	EM-0218/054	3.61
	EM-0218/055	3.28

Morelli, Billie Government Accountability Project	EM-0218/056 EM-0218/057 EM-0218/058 EM-0218/059 EM-0218/060 EM-0218/061 EM-0218/062 EM-0218/063 EM-0218/064 EM-0218/065 EM-0218/066 EM-0218/067 EM-0218/068 EM-0218/069 EM-0218/070 EM-0218/071 EM-0218/072 EM-0218/073 EM-0218/074 EM-0218/075	3.263 3.339 3.365 3.245 3.259 3.271 3.201 3.80 3.324 3.67 3.253 3.256 3.254 3.14 3.339 3.231 3.200 3.198 3.129 3.245
Morelli, Billie Government Accountability Project	LM-0018/001 LM-0018/002 LM-0018/003 LM-0018/004 LM-0018/005 LM-0018/006 LM-0018/007 LM-0018/008 LM-0018/009 LM-0018/010 LM-0018/011 LM-0018/012 LM-0018/013 LM-0018/014 LM-0018/015 LM-0018/016 LM-0018/017 LM-0018/018 LM-0018/019 LM-0018/020 LM-0018/021 LM-0018/022 LM-0018/023 LM-0018/024 LM-0018/025 LM-0018/026 LM-0018/027 LM-0018/028	3.306 3.147 3.147 3.309 3.122 3.409 3.245 3.245 3.17 3.390 3.321 3.298 3.61 3.334 3.191 3.218 3.302 3.99 3.249 3.263 3.29 3.17 3.191 3.341 3.188 3.279 3.362 3.341

Morelli, Billie Government Accountability Project	LM-0018/029	3.345
	LM-0018/030	3.208
	LM-0018/031	3.212
	LM-0018/032	3.212
	LM-0018/033	3.244
	LM-0018/034	3.53
	LM-0018/035	3.216
	LM-0018/036	3.309
	LM-0018/037	3.263
	LM-0018/038	3.341
	LM-0018/039	3.255
	LM-0018/040	3.14
	LM-0018/041	3.339
	LM-0018/042	3.234
	LM-0018/043	3.147
	LM-0018/044	3.90
	LM-0018/045	3.147
	LM-0018/046	3.12
	LM-0018/047	3.392
	LM-0018/048	3.147
	LM-0018/049	3.245
	LM-0018/050	3.131
	LM-0018/052	3.131
	LM-0018/053	3.300
	LM-0018/054	3.61
	LM-0018/055	3.28
	LM-0018/056	3.263
	LM-0018/057	3.339
	LM-0018/058	3.365
	LM-0018/059	3.245
	LM-0018/060	3.259
	LM-0018/061	3.271
	LM-0018/062	3.201
	LM-0018/063	3.80
	LM-0018/064	3.324
	LM-0018/065	3.67
	LM-0018/066	3.253
	LM-0018/067	3.256
	LM-0018/068	3.254
	LM-0018/069	3.14
	LM-0018/070	3.339
	LM-0018/071	3.231
	LM-0018/072	3.200
	LM-0018/073	3.198
	LM-0018/074	3.129
	LM-0018/075	3.245
Morgan, Robert A	P-0024/001	3.147

Muehlensachs, Atis	TSE-0024/001 TSE-0024/002 TSE-0024/003 TSE-0024/004 TSE-0024/005 TSE-0024/006	3.309 3.309 3.324 3.281 3.39 3.147
Mullay, Betty	EM-0010/001	3.132
Munoz, Robert	EMM-0009/001	3.132
Mystic Healer, Lynn	THR-0015/001	3.281
Nailen, Michael C	P-0014/001 P-0014/002	3.147 3.147
Naylor, Mikela M	P-0006/001	3.37
Neighbors, Donna	EM-0143/001	3.132
Nelson, Amanda	EM-0197/001	3.132
Nelson, Judy	THR-0012/001 THR-0012/002 THR-0012/003 THR-0012/004 THR-0012/005 THR-0012/006	3.309 3.309 3.339 3.147 3.147 3.147
Nelson, Rebecca	F-0021/001 F-0021/002 F-0021/003 F-0021/004 F-0021/005 F-0021/006	3.6 3.147 3.147 3.61 3.337 3.309
Newkirk, Cherie	EM-0021/001	3.132
Newman, Eileen	E-0008/001 E-0008/002 E-0008/003	3.3 3.345 3.147
Neymeyr, Amy	P-0146/001 P-0146/002	3.117 3.309
Nez Perce Environmental Restoration and Waste Management Sobotta, Patrick	L-0052/001 L-0052/002 L-0052/003 L-0052/004 L-0052/005 L-0052/006 L-0052/007 L-0052/008 L-0052/009 L-0052/010 L-0052/011 L-0052/012 L-0052/013	3.147 3.293 3.270 3.17 3.399 3.99 3.210 3.99 3.186 3.206 3.345 3.334 3.88

Nez Perce Environmental Restoration and Waste Management Sobotta, Patrick	L-0052/014 L-0052/015	3.375 3.375
Niles, Ken Oregon Office of Energy	L-0041/001 L-0041/002 L-0041/003 L-0041/004 L-0041/005 L-0041/007 L-0041/008 L-0041/009 L-0041/010 L-0041/011 L-0041/012 L-0041/013 L-0041/014 L-0041/015 L-0041/016 L-0041/017 L-0041/018 L-0041/019 L-0041/020 L-0041/021 L-0041/022 L-0041/023 L-0041/024 L-0041/025 L-0041/026 L-0041/027 L-0041/028 L-0041/029 L-0041/030 L-0041/031 L-0041/032 L-0041/033 L-0041/034 L-0041/035 L-0041/036 L-0041/037 L-0041/038 L-0041/039 L-0041/040 L-0041/041 L-0041/042 L-0041/043 L-0041/044 L-0041/045 L-0041/046	3.281 3.6 3.278 3.309 3.249 3.26 3.17 3.10 3.183 3.302 3.99 3.99 3.297 3.297 3.297 3.259 3.61 3.226 3.226 3.212 3.401 3.401 3.334 3.334 3.260 3.92 3.99 3.99 3.206 3.196 3.235 3.217 3.58 3.389 3.211 3.184 3.202 3.196 3.209 3.6 3.301 3.234 3.326 3.94 3.345

Niles, Ken Oregon Office of Energy	L-0041/047 L-0041/048 L-0041/049 L-0041/050 L-0041/051 L-0041/052 L-0041/053 L-0041/054 L-0041/055 L-0041/056 L-0041/057 L-0041/058 L-0041/059 L-0041/060 L-0041/061 L-0041/062 L-0041/063	3.365 3.33 3.3 3.193 3.302 3.259 3.216 3.216 3.259 3.66 3.83 3.309 3.69 3.92 3.58 3.292 3.279
Niles, Ken Oregon Office of Energy for Nuclear Safety	TLG-0002/001 TLG-0002/002 TLG-0002/003 TLG-0002/004 TLG-0002/005 TLG-0002/006	3.309 3.281 3.17 3.99 3.406 3.260
Nordlund, James M	EM-0058/001	3.132
Nudelman, Revella S	P-0136/001 P-0136/002	3.128 3.147
O'Beirne, Reed	L-0010/001	3.147
O'Brien, Florence	EM-0059/001	3.132
Ohnemus, Kenneth	EM-0096/001	3.132
Olson, James L	P-0167/001 P-0167/002 P-0167/003	3.147 3.345 3.147
Olson, Jane	EM-0056/001	3.132
Oregon Hanford Cleanup Board Cimon, Shelley	E-0049/001 E-0049/002 E-0049/003 E-0049/004 E-0049/005 E-0049/006 E-0049/007 E-0049/008 E-0049/009 E-0049/010 E-0049/011	3.281 3.309 3.99 3.3 3.302 3.17 3.345 3.53 3.17 3.202 3.334
Oregon Hanford Cleanup Board Cimon, Shelley	L-0048/001 L-0048/002 L-0048/003	3.281 3.309 3.99

Oregon Hanford Cleanup Board Cimon, Shelley	L-0048/004 L-0048/005 L-0048/006 L-0048/007 L-0048/008 L-0048/009 L-0048/010 L-0048/011	3.3 3.302 3.17 3.345 3.53 3.17 3.202 3.334
Oregon Office of Energy for Nuclear Safety Niles, Ken	TLG-0002/001 TLG-0002/002 TLG-0002/003 TLG-0002/004 TLG-0002/005 TLG-0002/006	3.309 3.281 3.17 3.99 3.406 3.260
Oregon Office of Energy Huston, Doug	TPO-0007/001 TPO-0007/002 TPO-0007/003	3.281 3.28 3.276
Oregon Office of Energy Niles, Ken	L-0041/001 L-0041/002 L-0041/003 L-0041/004 L-0041/005 L-0041/007 L-0041/008 L-0041/009 L-0041/010 L-0041/011 L-0041/012 L-0041/013 L-0041/014 L-0041/015 L-0041/016 L-0041/017 L-0041/018 L-0041/019 L-0041/020 L-0041/021 L-0041/022 L-0041/023 L-0041/024 L-0041/025 L-0041/026 L-0041/027 L-0041/028 L-0041/029 L-0041/030 L-0041/031 L-0041/032	3.281 3.6 3.278 3.309 3.249 3.26 3.17 3.10 3.183 3.302 3.99 3.99 3.297 3.297 3.297 3.259 3.61 3.226 3.226 3.212 3.401 3.401 3.334 3.334 3.260 3.92 3.99 3.99 3.206 3.196 3.235

Oregon Office of Energy Niles, Ken	L-0041/033 L-0041/034 L-0041/035 L-0041/036 L-0041/037 L-0041/038 L-0041/039 L-0041/040 L-0041/041 L-0041/042 L-0041/043 L-0041/044 L-0041/045 L-0041/046 L-0041/047 L-0041/048 L-0041/049 L-0041/050 L-0041/051 L-0041/052 L-0041/053 L-0041/054 L-0041/055 L-0041/056 L-0041/057 L-0041/058 L-0041/059 L-0041/060 L-0041/061 L-0041/062 L-0041/063	3.217 3.58 3.389 3.211 3.184 3.202 3.196 3.209 3.6 3.301 3.234 3.326 3.94 3.345 3.365 3.33 3.3 3.193 3.302 3.259 3.216 3.216 3.259 3.66 3.83 3.309 3.69 3.92 3.58 3.292 3.279
Oregon Office of Energy Stoops, Tom	THR-0004/001 THR-0004/002 THR-0004/003 THR-0004/004 THR-0004/005 THR-0004/006 THR-0004/007	3.309 3.281 3.17 3.17 3.407 3.263 3.309
Osborn, John	TSP-0009/001 TSP-0009/002 TSP-0009/003 TSP-0009/004 TSP-0009/005	3.29 3.92 3.345 3.345 3.306
Osborn, Joy	LM-0012/001 LM-0012/002 LM-0012/003 LM-0012/004	3.147 3.261 3.8 3.117
Ostrich, Marion	EM-0046/001	3.132

Pagan, M	P-0038/001	3.147
Page, Chris	EM-0136/001	3.132
Page, Kathleen	EM-0011/001	3.132
Palmer, Cheryle	EM-0115/001	3.132
Palmer, Roberta	P-0152/001	3.147
Parker, Judith & David	EM-0031/001	3.132
Patton, Mary	L-0008/001	3.147
Paul, Eileen C	P-0030/001 P-0030/002 P-0030/003 P-0030/004	3.147 3.147 3.3 3.345
Pease, Mary	EM-0152/001	3.132
Pellett, Howard	L-0042/001	3.132
Pellett, Howard A	P-0074/001 P-0074/002 P-0074/003	3.318 3.147 3.345
Pelsor, Melissa	F-0013/001 F-0013/002 F-0013/003 F-0013/004 F-0013/005	3.405 3.215 3.341 3.368 3.309
Pennell, Phyllis H	P-0004/001	3.147
People for Environmental Action and Children's Health Spirit, Bright	F-0002/001 F-0002/002 F-0002/003 F-0002/004 F-0002/005	3.203 3.345 3.61 3.92 3.387
People for Environmental Action and Children's Health Spirit, Bright	TSP-0003/001 TSP-0003/002 TSP-0003/003 TSP-0003/004 TSP-0003/005	3.203 3.345 3.42 3.61 3.387
Pereira, Barbara	P-0082/001 P-0082/002	3.147 3.345
Pereira, Barbara	TPO-0004/001 TPO-0004/002	3.147 3.147
Perreault, John	TSE-0017/001 TSE-0017/002 TSE-0017/003 TSE-0017/004 TSE-0017/005 TSE-0017/006 TSE-0017/007 TSE-0017/008 TSE-0017/009	3.17 3.92 3.378 3.378 3.345 3.37 3.42 3.147 3.147
Peterson, Daniel	P-0010/001	3.147

Peterson, Everett	L-0013/001 L-0013/002	3.366 3.94
Peterson, MerryAnn	P-0029/001 P-0029/002	3.61 3.147
Petrich, Dean	P-0063/001 P-0063/002	3.147 3.410
Piccola, George S	EM-0108/001	3.132
Pielow, Winifred L	P-0011/001	3.128
Pirzadeh, Michelle EPA Office of Ecosystems and Communities, US EPA Region 10	L-0049/001 L-0049/002 L-0049/003 L-0049/004 L-0049/005 L-0049/006 L-0049/007 L-0049/008 L-0049/009	3.266 3.265 3.302 3.191 3.104 3.369 3.322 3.345 3.99
Pluchos, Bernice S	P-0119/001	3.147
Polishuk, Sandra	P-0050/001 P-0050/002 P-0050/003	3.147 3.309 3.309
Polishuk, Sandy	TPO-0009/001 TPO-0009/002 TPO-0009/003	3.147 3.147 3.345
Pollet, Gerald Heart of America Northwest (Comments submitted through e-mail from Hyun Lee)	E-0053/001 E-0053/002 E-0053/003 E-0053/004	3.326 3.221 3.230 3.286
Pollet, Gerald Heart of America Northwest	E-0054/001	3.323
Pollet, Gerald Heart of America Northwest	E-0055/001 E-0055/002 E-0055/003 E-0055/004 E-0055/005 E-0055/006 E-0055/007 E-0055/008 E-0055/009 E-0055/010 E-0055/011 E-0055/015 E-0055/016 E-0055/017 E-0055/018 E-0055/019 E-0055/020	3.61 3.334 3.382 3.73 3.195 3.345 3.308 3.309 3.309 3.145 3.287 3.302 3.61 3.399 3.409 3.329 3.17

Pollet, Gerald Heart of America Northwest	E-0055/021 E-0055/022 E-0055/023 E-0055/024 E-0055/025 E-0055/026 E-0055/027 E-0055/028	3.199 3.275 3.99 3.99 3.374 3.14 3.53 3.341
Pollet, Gerald Heart of America Northwest	TLG-0013/001 TLG-0013/002	3.341 3.369
Pollet, Gerald Heart of America Northwest	TPO-0012/001	3.309
Pollet, Gerald Heart of America Northwest	TRI-0001/002 TRI-0001/003 TRI-0001/004 TRI-0001/005 TRI-0001/006 TRI-0001/007 TRI-0001/008 TRI-0001/009 TRI-0001/010 TRI-0001/011 TRI-0001/012 TRI-0001/013 TRI-0001/014 TRI-0001/015 TRI-0001/016 TRI-0001/017	3.309 3.244 3.330 3.330 3.147 3.61 3.14 3.29 3.104 3.221 3.104 3.104 3.104 3.92 3.147 3.302
Pollet, Gerald Heart of America Northwest	TSE-0028/001 TSE-0028/002 TSE-0028/003 TSE-0028/004 TSE-0028/005	3.365 3.339 3.371 3.195 3.286
Pope, Morgan & Constance	E-0027/001	3.345
Porter, Donald R	TPO-0001/001	3.147
Porter, Pat	EM-0060/001	3.132
Potts, Theresa	TSP-0010/001 TSP-0010/002 TSP-0010/003 TSP-0010/004 TSP-0010/005 TSP-0010/006	3.147 3.147 3.345 3.224 3.253 3.181
Potts, Victoria	F-0022/001 F-0022/002 F-0022/003 F-0022/004	3.324 3.147 3.334 3.61

Powers, Julian	TSP-0007/001 TSP-0007/002 TSP-0007/003 TSP-0007/004 TSP-0007/005 TSP-0007/006	3.224 3.188 3.8 3.42 3.8 3.309
Prescott, R L	P-0035/001	3.8
Pruitt, Paul F	P-0056/001	3.147
Radiance, Chandra	F-0006/001 F-0006/002	3.147 3.345
Raging Grannies Adams, Wanda	TSE-0007/001 TSE-0007/002 TSE-0007/003 TSE-0007/004 TSE-0007/005 TSE-0007/006 TSE-0007/007 TSE-0007/008 TSE-0007/009 TSE-0007/010	3.3 3.147 3.147 3.147 3.3 3.333 3.8 3.61 3.147 3.147
Raging Grannies Birn, Elaine	TSE-0006/001 TSE-0006/002 TSE-0006/003 TSE-0006/004 TSE-0006/005 TSE-0006/006 TSE-0006/007 TSE-0006/008 TSE-0006/009 TSE-0006/010	3.3 3.147 3.147 3.147 3.3 3.333 3.8 3.61 3.147 3.147
Raging Grannies McRoberts, Carol	TSE-0004/001 TSE-0004/002 TSE-0004/003 TSE-0004/004 TSE-0004/005 TSE-0004/006 TSE-0004/007 TSE-0004/008 TSE-0004/009 TSE-0004/010	3.3 3.147 3.147 3.147 3.3 3.333 3.8 3.61 3.147 3.147
Raging Grannies Thode, Katie	TSE-0005/001 TSE-0005/002 TSE-0005/003 TSE-0005/004 TSE-0005/005 TSE-0005/006 TSE-0005/007	3.3 3.147 3.147 3.147 3.3 3.333 3.8

Raging Grannies Thode, Katie	TSE-0005/008 TSE-0005/009 TSE-0005/010	3.61 3.147 3.147
Raging Grannies Thode, Kay	TSE-0003/001 TSE-0003/002 TSE-0003/003 TSE-0003/004 TSE-0003/005 TSE-0003/006 TSE-0003/007 TSE-0003/008 TSE-0003/009 TSE-0003/010	3.3 3.147 3.147 3.147 3.3 3.333 3.8 3.61 3.147 3.147
Rainville, Mike	E-0010/001 E-0010/002 E-0010/003	3.147 3.147 3.188
Rainville, Steven	EM-0014/001	3.132
Randall, Peggy	EM-0055/001	3.132
Rawdin, Revelyn	E-0026/001 E-0026/002 E-0026/003 E-0026/004 E-0026/005 E-0026/006 E-0026/007 E-0026/008 E-0026/009 E-0026/010	3.309 3.42 3.147 3.96 3.52 3.90 3.398 3.103 3.221 3.345
Redman, Denny C	P-0043/001	3.147
Redmond, Jeanette	EM-0019/001	3.132
Reed, Annabelle F	L-0030/001 L-0030/002 L-0030/003 L-0030/004 L-0030/005	3.119 3.345 3.86 3.61 3.117
Reed, Annabelle F	P-0090/001 P-0090/002	3.345 3.8
Reisert, Debbie	EM-0126/001	3.132
Reynolds, Cathy	EM-0163/001	3.132
Rhoades, David	EM-0106/001	3.132
Riggs, Doug Hanford Information Network	TPO-0006/001 TPO-0006/002 TPO-0006/003 TPO-0006/004 TPO-0006/005	3.281 3.29 3.17 3.309 3.147
Rigos, Thomas J	P-0001/001 P-0001/002	3.147 3.147

Rimbos, Peter & Naomi	E-0017/001	3.132
Rippee, Fred	TPO-0025/001	3.189
Roberg, Kathryn	EM-0199/001	3.132
Roberts, Barbara	P-0045/001 P-0045/002	3.147 3.42
Roberts, Melissa	EM-0042/001	3.132
Robisch, Paul	P-0060/001	3.147
Roche, Justin	EMM-0005/001	3.132
Rockwell, Mike	THR-0010/001 THR-0010/002 THR-0010/003 THR-0010/004 THR-0010/005 THR-0010/006	3.318 3.318 3.339 3.86 3.345 3.309
Rodgers, Jody	EM-0124/001	3.132
Rose, Candace	L-0015/001 L-0015/002	3.147 3.147
Rose, Valerie	TSE-0026/001 TSE-0026/002 TSE-0026/003 TSE-0026/004 TSE-0026/005	3.186 3.61 3.147 3.298 3.309
Roth, Peter	EM-0158/001	3.132
Roth, Sandra	TLG-0005/001	3.147
Rowe, Kristin	EM-0113/001	3.132
Rupel, William E	P-0133/001 P-0133/002	3.111 3.345
Rush, Richard	EM-0161/001	3.132
Russo, Robert	EM-0047/001	3.132
Russo, Robert	EM-0074/001	3.132
Sacks, Ivy	EM-0079/001	3.132
Sadoff, Victoria	EM-0072/001	3.132
Salamon, Linda	EM-0129/001	3.132
Salkin, Ron	EM-0192/001	3.132
Sands, Kris	EM-0099/001	3.132
Santeno, Ryan	LM-0006/001 LM-0006/002 LM-0006/003 LM-0006/004	3.147 3.261 3.8 3.117
Saunders, Lee	P-0040/001	3.6
Schilling, Fred	P-0022/001 P-0022/002	3.147 3.147
Schlapfer, Edwin	P-0148/001 P-0148/002	3.61 3.147

Schneider, Bunny	EM-0195/001	3.132
Schneider, Donna	EM-0148/001	3.132
Schneider, Greg	EM-0201/001	3.132
Schoettler, Joanne L	EM-0154/001	3.132
Schulstad, Tina Sierra Club, Cascade Chapter	F-0015/001 F-0015/002 F-0015/003 F-0015/004 F-0015/005 F-0015/006 F-0015/007 F-0015/008	3.147 3.345 3.382 3.378 3.58 3.376 3.147 3.147
Schulstad, Tina Sierra Club, Cascade Chapter	TSE-0014/001 TSE-0014/002 TSE-0014/003 TSE-0014/004 TSE-0014/005 TSE-0014/006 TSE-0014/007 TSE-0014/008	3.147 3.345 3.382 3.378 3.58 3.376 3.147 3.147
Schwartz, Keleigh	EM-0122/001	3.132
Scrivner, Kimberly	EM-0044/001	3.132
Sedgely, Jeanie	TSE-0030/001 TSE-0030/002 TSE-0030/003 TSE-0030/004 TSE-0030/005 TSE-0030/006	3.281 3.318 3.128 3.61 3.92 3.309
Sedgely, Jeanie Washington Physicians for Social Responsibility	LM-0019/001 LM-0019/002	3.147 3.181
Seffernick, Robert S	P-0117/001	3.281
Severns, Jack H	P-0104/001	3.8
Shadbolt, Sharon	EM-0084/001	3.132
Shaiman, Steve	E-0035/001 E-0035/002	3.68 3.147
Shamel, June	P-0039/001	3.147
Shelley, A M	LM-0013/001 LM-0013/002 LM-0013/003 LM-0013/004	3.147 3.261 3.8 3.117
Shindler, Robert L	P-0049/001	3.281
Shubert, Valerie	E-0041/001 E-0041/002 E-0041/003 E-0041/004	3.309 3.306 3.306 3.308

Shubert, Valerie	E-0041/005 E-0041/006 E-0041/007 E-0041/008 E-0041/009	3.256 3.99 3.216 3.231 3.231
Shubert, Valerie	L-0016/001 L-0016/002 L-0016/003 L-0016/004 L-0016/005 L-0016/006 L-0016/007 L-0016/008 L-0016/009 L-0016/010 L-0016/011 L-0016/012 L-0016/013 L-0016/014 L-0016/015 L-0016/016 L-0016/017 L-0016/018 L-0016/019	3.309 3.250 3.250 3.249 3.250 3.250 3.309 3.309 3.309 3.245 3.250 3.309 3.306 3.306 3.306 3.52 3.189 3.212 3.147
Shubert, Valerie	TSE-0008/001	3.221
Sierra Club, Cascade Chapter Schulstad, Tina	F-0015/001 F-0015/002 F-0015/003 F-0015/004 F-0015/005 F-0015/006 F-0015/007 F-0015/008	3.147 3.345 3.382 3.378 3.58 3.376 3.147 3.147
Sierra Club, Cascade Chapter Schulstad, Tina	TSE-0014/001 TSE-0014/002 TSE-0014/003 TSE-0014/004 TSE-0014/005 TSE-0014/006 TSE-0014/007 TSE-0014/008	3.147 3.345 3.382 3.378 3.58 3.376 3.147 3.147
Silk, Zachariah	EM-0137/001	3.132
Simmons, Katrina Wynkoop	P-0020/001 P-0020/002	3.8 3.345
Simmons, Pamela	EM-0167/001	3.132
Simmons, Yvonne	P-0151/001	3.369
Simpson, Lin	EM-0012/001	3.132

Sims, Lynn	TPO-0017/001 TPO-0017/002 TPO-0017/003 TPO-0017/004 TPO-0017/005 TPO-0017/006	3.309 3.147 3.17 3.92 3.333 3.147
Sims, Patricia	F-0011/001 F-0011/002 F-0011/003 F-0011/004 F-0011/005 F-0011/006	3.42 3.363 3.147 3.341 3.61 3.147
Sims, Patricia	P-0077/001	3.85
Sims, Patricia	TPO-0018/001 TPO-0018/002 TPO-0018/003	3.147 3.42 3.278
Singer, Patricia K	E-0038/001 E-0038/002	3.147 3.225
Singer, Patty	TSE-0033/001	3.147
Sirginson, Richard	P-0142/001 P-0142/002	3.338 3.1
Sleeger, Preston United States Department of the Interior	L-0061/001 L-0061/002 L-0061/003 L-0061/004 L-0061/005	3.219 3.219 3.257 3.259 3.47
Slota, Diane W	P-0013/001 P-0013/002 P-0013/003	3.147 3.99 3.366
Smith, Brandie	EM-0007/001	3.132
Smith, Clay	THR-0006/001 THR-0006/002	3.385 3.309
Smith, Clay	THR-0013/001	3.281
Smith, Gene A	L-0024/001	3.3
Smith, Kate	EM-0038/001	3.132
Smith, Mary Ellen	TSE-0034/001	3.92
Sneddon, Marcel	EM-0008/001	3.132
Snieder, Cathy	THR-0020/001 THR-0020/002	3.318 3.330
Snow, Saara	EM-0111/001	3.132
Sobotta, Patrick Nez Perce Environmental Restoration and Waste Management	L-0052/001 L-0052/002 L-0052/003 L-0052/004 L-0052/005 L-0052/006	3.147 3.293 3.270 3.17 3.399 3.99

Sobotta, Patrick Nez Perce Environmental Restoration and Waste Management	L-0052/007 L-0052/008 L-0052/009 L-0052/010 L-0052/011 L-0052/012 L-0052/013 L-0052/014 L-0052/015	3.210 3.99 3.186 3.206 3.345 3.334 3.88 3.375 3.375
Sonne, Diana	EM-0095/001	3.132
Sopiwnik, Nia	EM-0194/001	3.132
Sosnove, Nancy	P-0028/001 P-0028/002 P-0028/003	3.147 3.3 3.345
Spangler, Julia	EM-0179/001	3.132
Speck, Camille	EM-0175/001	3.132
Spencer, Dane	L-0020/001 L-0020/002 L-0020/003 L-0020/004 L-0020/005	3.354 3.147 3.147 3.147 3.387
Spencer, Dane (Comments read into the Seattle public meeting transcript by Martin Fleck)	TSE-0021/001 TSE-0021/002 TSE-0021/003 TSE-0021/004 TSE-0021/005	3.354 3.147 3.147 3.147 3.387
Spirit, Bright People for Environmental Action and Children's Health	F-0002/001 F-0002/002 F-0002/003 F-0002/004 F-0002/005	3.203 3.345 3.61 3.92 3.387
Spirit, Bright People for Environmental Action and Children's Health	TSP-0003/001 TSP-0003/002 TSP-0003/003 TSP-0003/004 TSP-0003/005	3.203 3.345 3.42 3.61 3.387
Srull, Colleen W	P-0109/001 P-0109/002 P-0109/003 P-0109/004	3.147 3.61 3.3 3.345
Srull, Colleen Whitten	E-0009/001 E-0009/002	3.147 3.42
St. Hilaire, George	P-0116/001 P-0116/002	3.37 3.147
St. John, Heather	TSE-0010/001 TSE-0010/002 TSE-0010/003	3.280 3.332 3.17

St. John, Heather	TSE-0010/004 TSE-0010/005 TSE-0010/006 TSE-0010/007 TSE-0010/008	3.188 3.382 3.61 3.92 3.92
Stadick, Ronald	P-0023/001 P-0023/002 P-0023/003	3.116 3.366 3.61
Stambaugh, Ruth	EM-0176/001	3.132
Stanley, Becky	TSE-0015/001 TSE-0015/002 TSE-0015/003 TSE-0015/004 TSE-0015/005 TSE-0015/006 TSE-0015/007	3.3 3.147 3.245 3.12 3.61 3.147 3.147
Stanley, Becky S	L-0021/001 L-0021/002 L-0021/003 L-0021/004 L-0021/005 L-0021/006 L-0021/007	3.3 3.147 3.245 3.12 3.61 3.147 3.147
Stansfield, Jack	EM-0076/001	3.132
Starr, George and Irene	P-0150/001	3.147
Stearns, Tim	TPO-0026/001 TPO-0026/002 TPO-0026/003 TPO-0026/004 TPO-0026/005	3.42 3.203 3.86 3.363 3.285
Stephens, Lori	EM-0182/001	3.132
Sterr, William M	P-0052/001	3.147
Stevenson, Brett	LM-0010/001 LM-0010/002 LM-0010/003 LM-0010/004	3.147 3.261 3.8 3.117
Stoll, Christine	EM-0160/001	3.132
Stoner, Linda & Peter	P-0034/001	3.42
Stoops, Tom Oregon Office of Energy	THR-0004/001 THR-0004/002 THR-0004/003 THR-0004/004 THR-0004/005 THR-0004/006 THR-0004/007	3.309 3.281 3.17 3.17 3.407 3.263 3.309
Strawder-Bubala, Jill	EMM-0002/001	3.132

Streets, Randall E	F-0005/001 F-0005/002 F-0005/003	3.147 3.147 3.345
Stucki, Curtis W	EMM-0001/001	3.147
Sutherland, Marguerite	P-0138/001	3.147
Swann, Evelyn	P-0134/001	3.147
Szanyi, Gail M	EM-0020/001	3.132
Takaro, Tim	TSE-0031/001 TSE-0031/002 TSE-0031/003 TSE-0031/004 TSE-0031/005 TSE-0031/006 TSE-0031/007 TSE-0031/008 TSE-0031/009 TSE-0031/010 TSE-0031/011 TSE-0031/012 TSE-0031/013 TSE-0031/014	3.388 3.17 3.388 3.197 3.385 3.17 3.17 3.388 3.388 3.280 3.259 3.332 3.17 3.404
Takaro, Tim	TSE-0039/001	3.122
Taylor, Aileen	EM-0025/001	3.132
The Mountaineers Eades, Glenn	L-0034/001 L-0034/002 L-0034/003 L-0034/004 L-0034/005 L-0034/006 L-0034/007	3.178 3.298 3.358 3.69 3.275 3.147 3.42
Thode, Katie Raging Grannies	TSE-0005/001 TSE-0005/002 TSE-0005/003 TSE-0005/004 TSE-0005/005 TSE-0005/006 TSE-0005/007 TSE-0005/008 TSE-0005/009 TSE-0005/010	3.3 3.147 3.147 3.147 3.3 3.333 3.8 3.61 3.147 3.147
Thode, Kay Raging Grannies	TSE-0003/001 TSE-0003/002 TSE-0003/003 TSE-0003/004 TSE-0003/005 TSE-0003/006 TSE-0003/007	3.3 3.147 3.147 3.147 3.3 3.333 3.8

Thode, Kay Raging Grannies	TSE-0003/008 TSE-0003/009 TSE-0003/010	3.61 3.147 3.147
Thomson, Joan	F-0019/001 F-0019/002 F-0019/003 F-0019/004 F-0019/005	3.309 3.345 3.17 3.90 3.24
THOR Treatment Technologies Bacala, Pat	E-0031/001	3.379
THOR Treatment Technologies Bacala, Pat	L-0031/001	3.379
Thornbrugh, David	P-0065/001	3.382
Thorson, Elaine	P-0165/001	3.117
Timberlake, Pat	TPO-0010/001 TPO-0010/002 TPO-0010/003	3.42 3.215 3.186
Timony, Maureen	P-0003/001	3.147
Tipperman, Mark	TLG-0004/001 TLG-0004/002 TLG-0004/003	3.309 3.147 3.302
Torngren, Susan	E-0052/001 E-0052/002	3.147 3.147
Towers, Brad & Terry Ann	LM-0004/001	3.132
Towers, Terry	EM-0087/001	3.132
Tracy, Nancy Lou	L-0043/001 L-0043/002 L-0043/003 L-0043/004 L-0043/005 L-0043/006	3.147 3.147 3.113 3.3 3.3 3.147
Trainer, Patricia S	P-0055/001 P-0055/002 P-0055/003	3.147 3.3 3.345
Trojan, Liz	P-0156/001	3.147
Trombold, Jim – see Jim McDermott		
Trombold, Jim	TSE-0013/001 TSE-0013/002 TSE-0013/003 TSE-0013/004 TSE-0013/005 TSE-0013/006	3.61 3.147 3.86 3.147 3.147 3.309
Trombold, Jim	TSE-0035/001	3.114
Turgeon, Jeanne Yvonne	P-0114/001 P-0114/002	3.147 3.3

Turnoy, David	P-0078/001 P-0078/002 P-0078/003	3.306 3.147 3.345
U.S. House of Representatives Inslee, Jay	L-0018/001 L-0018/002 L-0018/003 L-0018/004 L-0018/005	3.281 3.147 3.61 3.333 3.61
U.S. House of Representatives Inslee, Jay (Comments read into the Seattle public meeting transcript by Kennie Endelman)	TSE-0001/001 TSE-0001/002 TSE-0001/003 TSE-0001/004 TSE-0001/005	3.281 3.147 3.61 3.333 3.61
U.S. House of Representatives McDermott, Jim	L-0019/001 L-0019/002 L-0019/003 L-0019/004 L-0019/005 L-0019/006 L-0019/007 L-0019/008 L-0019/009 L-0019/010	3.147 3.345 3.61 3.29 3.92 3.188 3.393 3.147 3.147 3.147
U.S. House of Representatives McDermott, Jim (Comments read into the Seattle public meeting transcript by Jim Trombold)	TSE-0002/001 TSE-0002/002 TSE-0002/003 TSE-0002/004 TSE-0002/005 TSE-0002/006 TSE-0002/007 TSE-0002/008 TSE-0002/009 TSE-0002/010	3.147 3.345 3.61 3.29 3.92 3.188 3.393 3.147 3.147 3.147
U.S. House of Representatives Wu, David	F-0010/001 F-0010/002 F-0010/003	3.147 3.376 3.309
U.S. House of Representatives Wu, David (Comments read into the Portland public meeting transcript by Paige Knight)	TPO-0019/001 TPO-0019/002 TPO-0019/003 TPO-0019/004	3.147 3.61 3.382 3.309
United States Department of the Interior Sleeger, Preston	L-0061/001 L-0061/002 L-0061/003 L-0061/004 L-0061/005	3.219 3.219 3.257 3.259 3.47

United States Senate Wyden, Ron (Comments read into the La Grande public meeting transcript by Wayne Kinney)	TLG-0009/001 TLG-0009/002 TLG-0009/003 TLG-0009/004 TLG-0009/005 TLG-0009/006 TLG-0009/007 TLG-0009/008 TLG-0009/009	3.337 3.3 3.345 3.333 3.320 3.338 3.309 3.42 3.333
Van Fleet, Janet	L-0051/001 L-0051/002 L-0051/003 L-0051/004	3.147 3.61 3.86 3.61
Van Wyle, J	L-0037/001 L-0037/002 L-0037/003	3.253 3.147 3.61
Vanderkloot, Autumn S	F-0007/001	3.126
Vienneau, Nick	P-0144/001	3.147
Vigue, Lauri Washington Department of Fish and Wildlife	L-0050/001 L-0050/002 L-0050/003 L-0050/004 L-0050/005 L-0050/006 L-0050/007 L-0050/008 L-0050/009 L-0050/010 L-0050/011 L-0050/012 L-0050/013 L-0050/014 L-0050/015 L-0050/016 L-0050/017 L-0050/018	3.53 3.53 3.250 3.293 3.248 3.248 3.46 3.52 3.55 3.50 3.248 3.50 3.50 3.49 3.55 3.50 3.50 3.53
VonWalter, Mark	P-0008/001 P-0008/002 P-0008/003 P-0008/004 P-0008/005 P-0008/006 P-0008/007	3.147 3.3 3.109 3.147 3.345 3.17 3.147
Wade, Jeanine	TSP-0004/001	3.181
Wade, Jeanine	TSP-0018/001	3.281
Wadley, Judi	EM-0138/001	3.132

Wager, Florence	P-0110/001 P-0110/002 P-0110/003	3.3 3.147 3.345
Waggener, Thomas R	E-0032/001	3.147
Wagner, Kendra	EM-0157/001	3.132
Waldref, Amber	THR-0002/001 THR-0002/002 THR-0002/003 THR-0002/004 THR-0002/005 THR-0002/006 THR-0002/007 THR-0002/008 THR-0002/009 THR-0002/010 THR-0002/011	3.29 3.61 3.61 3.399 3.385 3.104 3.92 3.42 3.95 3.345 3.309
Waldref, Amber	TSP-0016/001 TSP-0016/002	3.341 3.71
Walker, Victoria	EM-0166/001	3.132
Wall, Chris	EM-0035/001	3.132
Walworth, Frieda S	P-0128/001 P-0128/002	3.147 3.147
Ward, Rayner	P-0044/001 P-0044/002	3.366 3.147
Warner, Aliana	F-0027/001 F-0027/002 F-0027/003	3.147 3.61 3.309
Washington Department of Ecology Fitzsimmons, Tom	L-0044/001 L-0044/002 L-0044/003 L-0044/004 L-0044/005 L-0044/006 L-0044/007 L-0044/008 L-0044/009 L-0044/010 L-0044/011 L-0044/012 L-0044/013 L-0044/014 L-0044/015 L-0044/016 L-0044/017 L-0044/018 L-0044/019 L-0044/020	3.323 3.92 3.92 3.395 3.199 3.323 3.327 3.92 3.104 3.221 3.97 3.184 3.280 3.232 3.97 3.99 3.221 3.197 3.249 3.256

Washington Department of Ecology Fitzsimmons, Tom	L-0044/021 L-0044/022 L-0044/023 L-0044/024 L-0044/025 L-0044/026 L-0044/027 L-0044/028 L-0044/029 L-0044/030 L-0044/031 L-0044/032 L-0044/033 L-0044/034 L-0044/035 L-0044/036 L-0044/037 L-0044/038 L-0044/039 L-0044/040 L-0044/041 L-0044/042 L-0044/043 L-0044/044 L-0044/045 L-0044/046 L-0044/047 L-0044/048 L-0044/049 L-0044/050 L-0044/051 L-0044/052 L-0044/053 L-0044/054 L-0044/055 L-0044/056 L-0044/057 L-0044/058 L-0044/059 L-0044/060 L-0044/061 L-0044/063 L-0044/064 L-0044/065 L-0044/066 L-0044/067 L-0044/068 L-0044/069	3.345 3.402 3.50 3.8 3.322 3.247 3.206 3.275 3.216 3.52 3.48 3.221 3.234 3.226 3.226 3.227 3.216 3.216 3.225 3.251 3.251 3.243 3.256 3.370 3.298 3.32 3.331 3.324 3.327 3.251 3.324 3.16 3.327 3.16 3.327 3.16 3.327 3.92 3.107 3.57 3.302 3.211 3.104 3.324 3.324 3.248 3.329 3.248

Washington Department of Ecology Fitzsimmons, Tom	L-0044/070	3.248
	L-0044/071	3.329
	L-0044/072	3.324
	L-0044/073	3.258
	L-0044/074	3.16
	L-0044/075	3.254
	L-0044/076	3.254
	L-0044/077	3.374
	L-0044/078	3.254
	L-0044/079	3.250
	L-0044/080	3.29
	L-0044/081	3.249
	L-0044/082	3.17
	L-0044/083	3.402
	L-0044/084	3.251
	L-0044/085	3.392
	L-0044/086	3.29
	L-0044/087	3.15
	L-0044/088	3.250
	L-0044/089	3.293
	L-0044/090	3.281
	L-0044/091	3.281
	L-0044/092	3.248
	L-0044/093	3.60
	L-0044/094	3.324
	L-0044/095	3.67
	L-0044/096	3.281
	L-0044/097	3.403
	L-0044/098	3.381
	L-0044/099	3.248
	L-0044/100	3.337
	L-0044/101	3.252
	L-0044/102	3.89
	L-0044/103	3.345
	L-0044/104	3.361
	L-0044/105	3.365
	L-0044/106	3.365
	L-0044/107	3.345
	L-0044/108	3.360
	L-0044/109	3.248
	L-0044/110	3.309
	L-0044/111	3.292
	L-0044/112	3.391
	L-0044/113	3.267
	L-0044/114	3.22
	L-0044/115	3.292
	L-0044/116	3.79
	L-0044/117	3.36

Washington Department of Ecology Fitzsimmons, Tom	L-0044/118 L-0044/119 L-0044/120 L-0044/121 L-0044/122 L-0044/123 L-0044/124 L-0044/125 L-0044/126 L-0044/127 L-0044/128 L-0044/129 L-0044/130 L-0044/131 L-0044/132 L-0044/133 L-0044/134 L-0044/135 L-0044/136 L-0044/137 L-0044/138 L-0044/139 L-0044/140 L-0044/141 L-0044/142 L-0044/143 L-0044/144	3.302 3.264 3.228 3.97 3.227 3.227 3.227 3.52 3.197 3.384 3.376 3.69 3.339 3.365 3.298 3.327 3.244 3.298 3.292 3.231 3.24 3.29 3.254 3.394 3.147 3.122 3.126
Washington Department of Fish and Wildlife Vigue, Lauri	L-0050/001 L-0050/002 L-0050/003 L-0050/004 L-0050/005 L-0050/006 L-0050/007 L-0050/008 L-0050/009 L-0050/010 L-0050/011 L-0050/012 L-0050/013 L-0050/014 L-0050/015 L-0050/016 L-0050/017 L-0050/018	3.53 3.53 3.250 3.293 3.248 3.248 3.46 3.52 3.55 3.50 3.248 3.50 3.50 3.49 3.55 3.50 3.50 3.53
Washington Physicians for Social Responsibility	L-0017/001 L-0017/002 L-0017/003	3.147 3.147 3.332

Washington Physicians for Social Responsibility	L-0017/004 L-0017/005 L-0017/006 L-0017/007 L-0017/008 L-0017/009	3.37 3.61 3.302 3.395 3.309 3.309
Washington Physicians for Social Responsibility Fleck, Martin D	L-0040/001 L-0040/002	3.147 3.181
Washington Physicians for Social Responsibility Sedgely, Jeanie	LM-0019/001 LM-0019/002	3.147 3.181
Waters, Alysha	EM-0112/001	3.132
Watson, Brian E	P-0112/001 P-0112/002 P-0112/003	3.147 3.281 3.121
Watterson, Corrie	EM-0178/001	3.132
Watts, Carol	LM-0003/001	3.132
Weaver, Jill	EM-0053/001	3.132
Webster, Craig	EMM-0008/001	3.132
Weems, Charles E	TSE-0011/001 TSE-0011/002 TSE-0011/003 TSE-0011/004 TSE-0011/005 TSE-0011/006 TSE-0011/007 TSE-0011/008 TSE-0011/009	3.108 3.309 3.117 3.6 3.17 3.29 3.147 3.399 3.279
Welhasch, Taisa	TSE-0009/001 TSE-0009/002 TSE-0009/003 TSE-0009/004	3.281 3.61 3.17 3.92
Westman, Marjorie	P-0098/001 P-0098/002	3.42 3.253
White, Janet	P-0005/001	3.281
Wikstrom, Eric	L-0025/001	3.147
Wilcox, Robb	EM-0213/001	3.132
Williams, Jennifer	EM-0155/001	3.132
Williamson, Brent	P-0100/001	3.147
Williamson, Frances	EM-0140/001	3.132
Wilson, Debra	EM-0088/001	3.132
Wilson, Stuart	EM-0121/001	3.132
Witter, Jeff	P-0095/001 P-0095/002	3.186 3.345

Wolever, Nell	P-0009/001	3.6
Woods, Bill & Carole	E-0014/001 E-0014/002 E-0014/003 E-0014/004 E-0014/005	3.61 3.57 3.355 3.61 3.306
Woodward, Barb	E-0024/001 E-0024/002 E-0024/003	3.147 3.147 3.147
Worthington, Marjorie	L-0004/001	3.42
Wu, David U.S. House of Representatives	F-0010/001 F-0010/002 F-0010/003	3.147 3.376 3.309
Wu, David U.S. House of Representatives (Comments read into the Portland public meeting transcript by Paige Knight)	TPO-0019/001 TPO-0019/002 TPO-0019/003 TPO-0019/004	3.147 3.61 3.382 3.309
Wyden, Ron United States Senate (Comments read into the La Grande public meeting transcript by Wayne Kinney)	TLG-0009/001 TLG-0009/002 TLG-0009/003 TLG-0009/004 TLG-0009/005 TLG-0009/006 TLG-0009/007 TLG-0009/008 TLG-0009/009	3.337 3.3 3.345 3.333 3.320 3.338 3.309 3.42 3.333
Zangar, Catherine	THR-0009/001 THR-0009/002 THR-0009/003 THR-0009/004 THR-0009/005 THR-0009/006 THR-0009/007 THR-0009/008 THR-0009/009 THR-0009/010	3.309 3.281 3.147 3.8 3.92 3.341 3.339 3.147 3.337 3.309
Zatrine, Barbara	EM-0211/001	3.132
Zepeda, Barbara	TSE-0032/001	3.147
Zernis, Art	EM-0006/001	3.132
Zheutlin, Cathy	E-0025/001	3.128
Zink, David	P-0027/001 P-0027/002	3.147 3.8
Zirinsky, Kenneth	EM-0070/001	3.132
Zotter, Mary Susan	F-0030/001 F-0030/002 F-0030/003 F-0030/004	3.389 3.61 3.215 3.17

Zotter, Mary Susan	F-0030/005 F-0030/006	3.365 3.147
Zotter, Michael	F-0029/001 F-0029/002 F-0029/003 F-0029/004 F-0029/005 F-0029/006 F-0029/007 F-0029/008 F-0029/009 F-0029/010	3.281 3.61 3.17 3.309 3.147 3.3 3.147 3.339 3.345 3.147
Zucker, Frank	TSE-0023/001 TSE-0023/002 TSE-0023/003	3.92 3.339 3.309

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