THE U.S. DEPARTMENT OF ENERGY

Final Environmental
Impact Statement for the

Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375)

Volume 3: Appendix J, Comment Response Document (Sections J.1 through J.3.1)

January 2016

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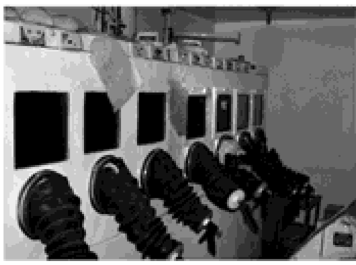

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NOTATION

(The following list of acronyms and abbreviations and units of measure is a duplication of the list in the main portion of the GTCC EIS and is provided here for the convenience of the reader.)

ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
AEA	Atomic Energy Act of 1954
AEC	U.S. Atomic Energy Commission
AIP	Agreement in Principle
AIRFA	American Indian Religious Freedom Act of 1978
ALARA	as low as reasonably achievable
AMC	activated metal canister
AMWTP	Advanced Mixed Waste Treatment Project
ANOI	Advanced Notice of Intent
AQRV	air-quality-related value
ARP	Actinide Removal Process
ATR	Advanced Test Reactor (INL)
bgs	below ground surface
BLM	Bureau of Land Management
BLS	Bureau of Labor Statistics
BNSF	Burlington Northern Santa Fe
BRC	Blue Ribbon Commission on America's Nuclear Future
BSL	Biosafety Level
BWR	boiling water reactor
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CAP88-PC	Clean Air Act Assessment Package 1988-Personal Computer (code)
CCDF	complementary cumulative distribution function
CEDE	committed effective dose equivalent
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFA	Central Facilities Area (INL)
CFR	*Code of Federal Regulations*
CGTO	Consolidated Group of Tribes and Organizations
CH	contact-handled
CRMD	Cultural Resource Management Office
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
CWA	Clean Water Act
CX	Categorical Exclusion

DCF	dose conversion factor
DCG	derived concentration guide
DOE	U.S. Department of Energy
DOE-EM	DOE-Office of Environmental Management
DOE-ID	DOE-Idaho Operations Office
DOE-NV	DOE-Nevada Operations Office
DOE-RL	DOE-Richland Operations Office
DOI	U.S. Department of the Interior
DOT	U.S. Department of Transportation
DRZ	disturbed rock zone
DTRA	Defense Threat Reduction Agency
DWPF	Defense Waste Processing Facility
EAC	Early Action Area
EDE	effective dose equivalent
EDNA	Environmental Designation for Noise Abatement
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
ERDF	Environmental Restoration Dispersal Facility
ESA	Endangered Species Act of 1973
ESRP	Eastern Snake River Plain (INL)
FFTF	Fast Flux Test Facility (Hanford)
FGR	Federal Guidance Report
FONSI	Finding of No Significant Impact
FR	*Federal Register*
FTE	full-time equivalent
FY	fiscal year
GAO	U.S. Government Accountability (formerly General Accounting) Office
GMS/OSRP	Office of Global Material Security/Off-Site Source Recovery Project
GSA	General Separations Area (SRS)
GTCC	greater-than-Class C
HAP	hazardous air pollutant
HC	Hazard Category
HEPA	high-efficiency particulate air
HEU	highly enriched uranium
HF	hydrogen fluoride
HFIR	High Flux Isotope Reactor (ORNL)
HMS	Hanford Meteorology Station
HOSS	hardened on-site storage
h-SAMC	half-shielded activated metal canister
HSW EIS	Final Hanford Site Solid (Radioactive and Hazardous) Waste Program Environmental Impact Statement

ICRP	International Commission on Radiological Protection
IDA	intentional destructive act
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
IDF	Integrated Disposal Facility
INL	Idaho National Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center (INL)
ISFSI	independent spent fuel storage installation
LANL	Los Alamos National Laboratory
LCF	latent cancer fatality
L_{dn}	day-night sound level
L_{eq}	equivalent-continuous sound level
LEU	low-enriched uranium
LLRW	low-level radioactive waste
LLRWPAA	Low-Level Radioactive Waste Policy Amendments Act of 1985
LMP	Land Management Plan (WIPP)
LWA	Land Withdrawal Act (WIPP)
LWB	Land Withdrawal Boundary (WIPP)
MCL	maximum contaminant level
MCU	modular caustic side solvent extraction unit
MDA	material disposal area (LANL)
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MOX	mixed oxides
MPSSZ	Middleton Place-Summerville Seismic Zone
MSL	mean sea level
NAAQS	National Ambient Air Quality Standard(s)
NAGPRA	Native American Graves Protection and Repatriation Act of 1990
NASA	National Aeronautics and Space Administration
NCRP	National Council on Radiation Protection and Measurements
NDA	NRC-licensed disposal area (West Valley Site)
NEPA	National Environmental Policy Act of 1969
NERP	National Environmental Research Park
NESHAP	National Emission Standard for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NI PEIS	Nuclear Isotope PEIS
NLVF	North Las Vegas Facility
NMAC	*New Mexico Administrative Code*
NMED	New Mexico Environment Department
NMFS	National Marine Fisheries Services
NNHP	Nevada Natural Heritage Program
NNSA	National Nuclear Security Administration (DOE)
NNSA/NSO	NNSA/Nevada Site Office

NNSS	Nevada National Security Site (formerly Nevada Test Site or NTS)
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRC	U.S. Nuclear Regulatory Commission
NRHP	*National Register of Historic Places*
NTS SA	Nevada Test Site Supplemental Analysis
NTTR	Nevada Test and Training Range
ORNL	Oak Ridge National Laboratory
ORR	Oak Ridge Reservation
PA	programmatic agreement
PCB	polychlorinated biphenyl
PCS	primary constituent standard
PEIS	programmatic environmental impact statement
P.L.	Public Law
PM	particulate matter
$PM_{2.5}$	particulate matter with an aerodynamic diameter of 2.5 μm or less
PM_{10}	particulate matter with an aerodynamic diameter of 10 μm or less
PPV	Peak Particle Velocity
PSD	Prevention of Significant Deterioration
PSHA	Probabilistic Seismic Hazards Assessment
PWR	pressurized water reactor
R&D	research and development
RCRA	Resource Conservation and Recovery Act
RDD	radiological dispersal device
RH	remote-handled
RH LLW EA	Remote-Handled Low-Level Waste Environmental Assessment (INL)
RLWTF-UP	Radioactive Liquid Waste Treatment Facility-Upgrade (LANL)
ROD	Record of Decision
ROI	region of influence
ROW	right-of-way
RPS	Radioisotopic Power Systems
RSL	Remote Sensing Laboratory
RWMC	Radioactive Waste Management Complex (INL)
RWMS	Radioactive Waste Management Site (NNSS)
SA	Supplemental Analysis
SAAQS	State Ambient Air Quality Standards
SALDS	State-Approved Land Disposal Site
SCDHEC	South Carolina Department of Health and Environmental Control
SCE&G	South Carolina Electric Gas
SDA	state-licensed disposal area (West Valley Site)

SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Office(r)
SNF	spent nuclear fuel
SR	State Route
SRS	Savannah River Site
SWB	standard waste box
SWEIS	Site-Wide Environmental Impact Statement
TA	Technical Area (LANL)
TC&WM EIS	Tank Closure and Waste Management EIS (Hanford)
TEDE	total effective dose equivalent
TEDF	Treated Effluent Disposal Facility
TEF	Tritium Extraction Facility
TLD	thermoluminescent dosimeter
TRU	transuranic
TRUPACT-II	Transuranic Package Transporter-II
TSCA	Toxic Substances Control Act
TSP	total suspended particulates
TTR	Tonapah Test Range
TVA	Tennessee Valley Authority
US	United States
USACE	U.S. Army Corps of Engineers
USC	*United States Code*
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compound
WAC	waste acceptance criteria or *Washington Administrative Code*
WHB	Waste Handling Building (WIPP)
WIPP	Waste Isolation Pilot Plant
WSRC	Westinghouse Savannah River Company
WTP	Waste Treatment Plant (Hanford)
WVDP	West Valley Demonstration Project

UNITS OF MEASURE

ac	acre(s)
ac-ft	acre-foot (feet)
°C	degree(s) Celsius
cfs	cubic foot (feet) per second
Ci	curie(s)
cm	centimeter(s)
cms	cubic meter(s) per second
d	day(s)
dB	decibel(s)
dBA	A-weighted decibel(s)
°F	degree(s) Fahrenheit
ft	foot (feet)
ft^2	square foot (feet)
ft^3	cubic foot (feet)
g	gram(s) or acceleration of gravity (9.8 m/s/s)
gal	gallon(s)
gpd	gallon(s) per day
gpm	gallon(s) per minute
h	hour(s)
ha	hectare(s)
hp	horsepower
in.	inch(es)
kg	kilogram(s)
km	kilometer(s)
km^2	square kilometer(s)
kph	kilometer(s) per hour
kV	kilovolt(s)
L	liter(s)
lb	pound(s)
m	meter(s)
m^2	square meter(s)
m^3	cubic meter(s)
MCi	megacurie(s)
mg	milligram(s)
mi	mile(s)
mi^2	square mile(s)
min	minute(s)
mL	milliliter(s)
mm	millimeter(s)
mph	mile(s) per hour
mR	milliroentgen(s)
mrem	millirem
mSv	millisievert(s)
MW	megawatt(s)
MWh	megawatt-hour(s)
nCi	nanocurie(s)
oz	ounce(s)
pCi	picocurie(s)
ppb	part(s) per billion
ppm	part(s) per million
R	roentgen(s)
rad	radiation absorbed dose
rem	roentgen equivalent man
s	second(s)
t	metric ton(s)
VdB	vibration velocity decibel(s)
yd	yard(s)
yd^2	square yard(s)
yd^3	cubic yard(s)
yr	year(s)
µg	microgram(s)
µm	micrometer(s)

APPENDIX J:

COMMENT RESPONSE DOCUMENT

This Comment Response Document (CRD) is organized into four main sections as follows. (1) Section J.1 describes the public comment process for the *Draft Greater-Than-Class C Low-Level Radioactive Waste Environmental Impact Statement* (Draft GTCC EIS), the procedure for managing and responding to the comments received for the Draft GTCC EIS, and a list of the dates and locations for the public hearings (see Table J-1). (2) Section J.2 summarizes the topics of general interest associated with the EIS as gleaned from the public comments received. (3) Section J.3 provides a compilation of all comment documents received and responses to the comments identified within each comment document. (4) Section J.4 lists the references for this appendix.

J.1 PUBLIC COMMENT PROCESS

A Notice of Intent (NOI) to prepare the Draft GTCC EIS was published in the *Federal Register* on July 23, 2007 (72 FR 40135), and it began a 60-day public scoping period that ended on September 21, 2007. All scoping comments received were considered in the preparation of the EIS and are summarized in Section 1.5.1. A Notice of Availability (NOA) for the Draft GTCC EIS was published in the *Federal Register* on February 25, 2011 (76 FR 10574), and it began a 120-day public comment period that ended on June 27, 2011. All comments received on the Draft EIS were considered in the preparation of this EIS and are presented in Section J.3.

An important part of the National Environmental Policy Act (NEPA) process involves giving the public the opportunity to provide input and comments on a Draft EIS for consideration in the preparation of a Final EIS. DOE issued the Draft GTCC EIS for review and comment by other federal agencies, states, American Indian tribal governments, local governments, and the public. DOE distributed copies to those organizations and government officials who were known to have an interest in the EIS and to those organizations and individuals who requested a copy. Copies were also made available on the project website (http://www.gtcceis.anl.gov/), the DOE NEPA website (http://energy.gov/nepa/), and in regional DOE public document reading rooms and public libraries near the sites evaluated in the Draft EIS. Postcard mailers were sent to stakeholders that were on the project distribution list, and announcements indicating the availability of the Draft EIS and the dates and times of the public hearings were published in local newspapers.

Each of the public hearings started with an open house that lasted about 1 hour, and posters explaining the NEPA process for the Draft GTCC EIS and presenting the alternatives evaluated and the results of the EIS evaluation were displayed. Copies of the Summary document and fact sheets were also made available to the public. Subject matter experts were on hand to answer any questions the public may have had as they viewed the poster display.

TABLE J-1 Draft GTCC EIS Public Hearing Locations, Dates, and Estimated Attendance

Location	Date	Attendance
North Augusta, South Carolina	April 19, 2011	38
Carlsbad, New Mexico	April 26, 2011	56
Albuquerque, New Mexico	April 27, 2011	79
Santa Fe, New Mexico	April 28, 2011	76
Las Vegas, Nevada	May 9, 2011	40
Idaho Falls, Idaho	May 11, 2011	35
Pasco, Washington	May 17, 2011	30
Portland, Oregon	May 19, 2011	200
Washington, D.C.	May 25, 2011	22

After the open house, DOE gave an overview of the Draft GTCC EIS, and attendees were given an opportunity to provide oral and written comments. Each oral comment presentation, recorded by a court reporter as part of the hearing transcript, was considered as a comment document. Written comments submitted by individuals during the hearings were likewise considered to be comment documents. The transcripts for the nine hearings are posted on the project website.

DOE received a total of 1,204 comment documents, which accounted for approximately 4,000 individual comments. Of the 1,204 comment records received, 137 were from organizations or federal or state agencies; 518 were from private citizens; and 549 were campaign letters, emails, or web comments received from six organizations (i.e., Snake River Alliance, Friends of the Gorge, Concerned Citizens for Nuclear Safety, Nuclear Watch, CREDO (CitizenLetter), and the Brookfield Senior Living Facility). Written comments were received via letter, email, or through submission of a comment form provided at the public hearings or on the project website. Verbal comments are included in transcripts documenting each of the public hearings held on the Draft GTCC EIS (as listed in Table J-1).

Comment documents received were assigned a distinct identifier consisting of an alphabet prefix and a number. Comment documents that were received as letters were assigned a prefix of "L"; emails received an "E"; web comments got a "W"; and verbal comments at public meetings were given a "T." All comment documents received were reviewed, and individual comments identified from each comment document were given a distinct comment number. For example, if the comment letter that was assigned the number 1 had three comments identified, then the comments were given identifiers of L1-1, L1-2, and L1-3, respectively.

Comments were reviewed and responses prepared by policy experts, technical subject matter experts, and NEPA experts. Comments were evaluated to determine whether additional or corrected information was needed and whether additional or revised text would clarify the information being conveyed. Sections that were revised to provide additional information or clarification are indicated in the responses when needed.

J.2 TOPICS OF INTEREST

DOE has identified 10 topics of interest based on the comments most frequently received and/or comments that indicated a broad public concern. These topics are summarized in the list and discussed in the text that follows.

- J.2.1 Disposal of GTCC LLRW and GTCC-like wastes at a new near-surface land disposal facility at DOE sites evaluated (i.e., at the Hanford Site, the Idaho National Laboratory [INL] Site, Los Alamos National Laboratory [LANL], Savannah River Site [SRS], Nevada National Security Site [NNSS], and Waste Isolation Pilot Plant [WIPP] Vicinity);

- J.2.2 Disposal of GTCC LLRW and GTCC-like wastes in the WIPP repository;

- J.2.3 Consideration of other alternatives not evaluated in detail in the EIS, including use of hardened on-site storage (HOSS), the proposed Yucca Mountain Repository, a new geologic repository, other disposal methods (e.g., mined cavities), and alternative sources of energy;

- J.2.4 NEPA process and procedures;

- J.2.5 Tribal and cultural resources;

- J.2.6 Transportation analysis and impacts;

- J.2.7 Model assumptions for post-closure impacts on human health;

- J.2.8 Waste inventory;

- J.2.9 Cumulative impacts; and

- J.2.10 Statutory/regulatory and policy issues.

J.2.1 Disposal of GTCC LLRW and GTCC-Like Wastes at a New Near-Surface Land Disposal Facility at DOE Sites Evaluated (i.e., at the Hanford Site, INL Site, LANL, SRS, NNSS, and the WIPP Vicinity)

Topic Summary

A number of comments were received on these six locations that were evaluated in the EIS for the disposal of GTCC LLRW and GTCC-like wastes using the near-surface land disposal methods. Five of the six sites evaluated have ongoing environmental remediation programs (the exception is the WIPP Vicinity), and commenters – including American Indian tribes, other members of the public, and nongovernmental organizations – noted that emphasis should be placed on completing cleanup activities first rather than on increasing the amount of radioactive wastes disposed of at these sites.

Commenters strongly recommended that specific sites should be removed from consideration in developing a GTCC LLRW and GTCC-like waste near-surface land disposal facility. In addition, some commenters felt that disposal of commercially generated radioactive waste should not be conducted at government (DOE) facilities.

Commenters identified a number of site-specific environmental factors at DOE sites evaluated in the EIS – including geology and soils (e.g., seismic and volcanic activity, strata, contaminated soils and dust, erosion, soil properties) and hydrology (e.g., floodplains, surface runoff, depth to groundwater, groundwater flow) – that could render these sites as unacceptable locations for developing a land disposal facility for GTCC LLRW.

Commenters said that it is not clear what the basis is for the conceptual disposal facility designs and whether boreholes and trenches can be developed and implemented to the necessary depth at all sites as described in the EIS. Commenters suggested that the existing boreholes at NNSS should be considered for disposal of GTCC LLRW and GTCC-like wastes in the EIS. Also, the history of the use of these disposal methods at DOE sites should be addressed in greater detail.

Discussion

DOE is actively performing environmental restoration activities at the Hanford Site, the INL Site, LANL, NNSS, and SRS. The ongoing cleanup efforts at these sites will continue as planned. DOE does not anticipate that GTCC LLRW or GTCC-like waste disposal would affect ongoing cleanup activities at these sites.

The disposal methods and sites evaluated in the EIS encompass the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes, consistent with NEPA implementing regulations in the *Code of Federal Regulations* at 40 CFR, Parts 1500–1508. In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL Site, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository and has basic infrastructure to support the facility.

DOE also conducted a generic evaluation of commercial disposal facilities on nonfederal lands in the EIS in order to provide, to the extent practicable, information regarding the potential long-term performance of other (nonfederal) locations for siting a GTCC LLRW land disposal facility. DOE conducted a generic evaluation because it would not be reasonable to analyze in detail an essentially unlimited number of additional non-DOE or nonfederal sites where there is little or no anticipated potential for facility development.

DOE solicited technical capability statements from commercial vendors that might be interested in constructing and operating a GTCC LLRW and GTCC-like waste disposal facility in a request for information in the FedBizOpps on July 1, 2005. Although at the time, several commercial vendors expressed an interest, no vendor provided specific information on disposal locations and methods for analysis in the EIS. On June 20, 2014 Waste Control Specialists, LLC, (WCS), filed (and resubmitted on July 21, 2014) a Petition for Rulemaking with the Texas Commission on Environmental Quality (TCEQ) requesting the State of Texas to revise certain provisions of the Texas Administrative Code to remove prohibitions on disposal of GTCC LLRW, GTCC-like waste and TRU waste at its TCEQ licensed facilities. On January 30, 2015, TCEQ sent a letter to the NRC requesting guidance on the State of Texas's authority to license disposal of GTCC LLRW, GTCC-like waste and TRU waste. This matter is under review by NRC.

Final siting of a land disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as appropriate and be in accordance with applicable laws and regulations and would include local stakeholder involvement.

The site-specific environmental factors identified by commenters were evaluated in the EIS as appropriate. The results of the evaluation were taken into consideration in identifying the preferred alternative presented in the Final EIS.

The three land disposal facility conceptual designs (above-grade vault, enhanced near-surface trench, and intermediate-depth borehole) were selected as being representative of a range of land disposal configurations (varying degrees of waste consolidation and geometry) that could be employed for the disposal of the GTCC LLRW and GTCC-like waste inventory. As discussed in Section 1.4.2, each concept has been used to some degree in the United States or other countries. The same vault, borehole, and trench characteristics were considered for the disposal sites evaluated to provide a common basis to compare the performance of each site's natural hydrological, geological, and meteorological properties relative to contaminant fate and transport should any engineered barriers begin to fail.

The conceptual nature of these configurations takes into account the characteristics of all of the disposal sites for which they were considered, but their designs (e.g., width, depth, cover depth, reinforced containment) could be altered or enhanced, as necessary, to provide an optimal solution at a specific location. As an example, the cover depth could be adjusted to ensure that roots from vegetation would not compromise the top of the engineered barrier. In addition, the dimensions of the generic land disposal units (e.g., trench - width and depth, borehole – diameter and depth, vault – width, depth, and height) were selected based on similar existing facilities, existing equipment, and methods for construction and were optimized (waste volume disposed of was maximized for a given disposal unit volume; simple waste handling procedures were used to minimize exposure) for the types of waste packages considered. All designs could also accommodate different disposal packages (existing and proposed) with minor variations in their dimensions, but the EIS analyses would remain relevant for each option considered. Past operational experience with these types of disposal facilities at DOE sites has shown that when properly implemented, they can provide isolation of radioactive waste from the environment for extended time periods. Past experience with each option provided additional information to improve the design and performance of future land disposal facilities. Issues related to performance over time would be analyzed in a project-specific analysis to address technical and long-term cultural concerns (e.g., tribal issues).

J.2.2 Disposal of GTCC LLRW and GTCC-Like Wastes at WIPP

Topic Summary

Numerous comments were received objecting to the possible use of WIPP for disposal of GTCC LLRW and GTCC-like wastes based on legal and technical considerations. Many commenters noted that WIPP is only authorized to receive defense-generated TRU wastes, so WIPP cannot be considered as a reasonable alternative in the EIS at this time. Commenters discussed that by bringing GTCC LLRW and GTCC-like wastes to WIPP, DOE would be breaking its promise to the citizens of New Mexico to dispose of only defense-generated transuranic (TRU) waste.

Commenters also noted that disposal of GTCC LLRW and GTCC-like wastes at WIPP would exceed the legally specified TRU waste limitations. For example, the activity limit for remote-handled TRU waste disposed of at WIPP is 5.1 MCi. The disposal of the entire GTCC LLRW and GTCC-like waste inventory at WIPP would add more than 160 MCi, which is about 30 times more than the legal limit.

Other commenters stated that WIPP site characteristics are not suitable for disposal of GTCC LLRW and GTCC-like waste (e.g., there are karst formations that may affect the integrity of the site, and there is brine within the facility) and that WIPP is surrounded by natural resources (oil, gas, potash). There is also a concern that transportation of GTCC LLRW and GTCC-like wastes means that additional radioactive wastes would be shipped over New Mexico highways for several decades.

Commenters noted that the GTCC LLRW and GTCC-like waste inventory contains mixed radioactive and hazardous waste, including waste regulated under the Resource Conservation and Recovery Act (RCRA). There is a concern that the GTCC EIS should discuss the specific hazardous chemicals and their amounts and concentrations in GTCC LLRW and GTCC-like wastes. Commenters suggested the measures that are needed to prohibit substantial releases of hazardous chemicals at WIPP must be described and analyzed, and the monitoring of VOCs in GTCC disposal facilities must be described.

There were also commenters who suggested that as the only operating geologic repository for radioactive waste in the United States, WIPP is the best choice for disposal of GTCC LLRW and GTCC-like wastes, as supported by its site characteristics and proven safety record for waste disposal to date.

Discussion

DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP Land Withdrawal Act (LWA) as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the *Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant*, the WIPP compliance certification with the U.S. Environmental Protection Agency (EPA), and the WIPP Hazardous Waste Facility Permit. In addition, follow-on NEPA project-specific review, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal would have to be conducted.

However, NEPA does not limit an EIS to proposing and evaluating alternatives that are currently authorized. Furthermore, the *Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant* recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: "The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., P.L. 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions."

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and in the *Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant*. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts on all resource areas evaluated, including human health and transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository.

The WIPP has been certified by the EPA as an acceptable facility for the disposal of defense-generated TRU waste. The physical and chemical characteristics of the GTCC LLRW and GTCC-like wastes proposed for disposal in the WIPP repository are comparable to the TRU wastes currently being disposed of in the repository.

Dissolution has occurred outside the WIPP Land Withdrawal Boundary, as shown by karst features in the Nash Draw area. The EPA has noted that it is possible that dissolution occurred at the WIPP site sometime in the distant past (i.e., millions of years ago for strata-bound features) but was associated with a geologic setting other than that currently present at WIPP. However, dissolution in the underlying geology is not an ongoing process at the WIPP site. The EPA, as part of its compliance certification process, concurred with the modeling performed by DOE (which assumed that there was no karst within the WIPP site boundary) and indicated that this was consistent with existing borehole data and other geologic information.

WIPP is located in a salt formation, and moisture (brine) is naturally present. The brine makes up about 1% of the rock volume. The brine comes in two forms: interstitial and included. Interstitial brine is trapped between crystal facies (between fracture boundaries at the microscopic scale). Included brine is inside small cavities called inclusions trapped within the crystals themselves. Samples of brine collected from locations just inches apart from one another show different chemical and isotopic compositions, indicating that the brine did not move more than a few inches from where it was trapped when an ancient tidal flat dried up 250 million years ago. This indicates the extremely slow movement of water in this salt formation. In addition, the current design for operating WIPP involves sealing the shafts to ensure that no fresh water can enter and affect the disposed-of wastes.

WIPP is surrounded by various natural resources – including potash, oil, and natural gas – as identified in Section 4.2.2.2 of this EIS. Resource considerations were included in the site selection process for WIPP and are documented in the *Final Environmental Impact Statement, Waste Isolation Pilot Plant,* Section 7.3.7). Disposal of GTCC LLRW and GTCC-like wastes at WIPP would not invalidate the WIPP site selection decision.

Based on the GTCC EIS evaluation and WIPP's past exemplary operating record, DOE believes that the WIPP repository would be a safe location for the disposal of GTCC LLRW and GTCC-like wastes, some of which include long-lived radionuclides. There have been no worker fatalities due to radiation exposure from waste disposal activities at WIPP. There was one fatality that occurred during WIPP construction in 1982. It was a single construction-related fatality in which a miner fell during the first exploratory shaft construction.

It should be noted that waste disposal operations at WIPP were suspended on February 5, 2014, following a fire involving an underground vehicle. Nine days later, on February 14, 2014, a radiological event occurred underground at WIPP, contaminating a portion of the mine primarily along the ventilation path from the location of the incident and releasing a small amount of contamination into the environment.

DOE will resume disposal operations at WIPP when it is safe to do so. The schedule for restart of limited operations is currently under review. DOE is continuing to characterize and certify TRU waste at the Idaho National Laboratory, Oak Ridge National Laboratory, Savannah River Site, and Argonne National Laboratory for eventual shipment to WIPP. TRU waste continues to be generated at the Hanford site and Lawrence Livermore National Laboratory. DOE is carefully evaluating and analyzing the impacts on storage requirements and commitments with state regulators at the generator sites. These efforts will inform decisions related to the availability of storage for certified TRU waste until waste shipments to WIPP can resume. Detailed information on the status of recovery activities at WIPP can be found at http://www.wipp.energy.gov/wipprecovery/recovery.html.

The State of New Mexico has indicated a willingness to accept GTCC LLRW and GTCC-like wastes for disposal at WIPP. Twenty-eight New Mexico State Senators signed a proclamation made in the 50th Legislature, First Session, 2011, stating: "Be it resolved that we, the undersigned, support the opportunity for other potential missions in southeast New Mexico to adequately address the disposal of defense high-level waste, commercial high-level waste, greater-than-Class C LLRW and surplus plutonium waste, as well as the interim storage of spent nuclear fuel." In response to the Draft GTCC EIS, David Martin, Secretary of the New Mexico Environment Department, sent a letter to DOE on June 27, 2011, stating that "the Department encourages DOE to support the WIPP or WIPP Vicinity proposed locations as the preferred alternatives addressed in the Draft EIS. The geologic repository is the favored alternative being more effective for the enduring time frames for this waste type." In addition, the Governor of New Mexico, in a letter to DOE Secretary Steven Chu on September 1, 2011, stated that the State of New Mexico encourages DOE to support the proposed location of WIPP as the preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes.

The mixed radioactive and hazardous waste in the GTCC LLRW and GTCC-like waste inventory is estimated to be about 170 m^3 (6,000 ft^3) of the GTCC LLRW and GTCC-like waste inventory. Available information about the mixed waste in the GTCC LLRW and GTCC-like waste inventory indicates that most of it is characteristic hazardous waste as regulated under RCRA; therefore, it is assumed that the generators will treat the waste to render it nonhazardous under federal and state laws and requirements. WIPP, however, can accept defense-generated TRU mixed waste as provided in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201). Irrespective of generator treatment of the waste, WIPP has specific waste acceptance criteria that must be met prior to disposal.

Organic waste streams received at WIPP that came from past plutonium production operations in which process residues included organic solvents and were solidified primarily by grouting did contain significant concentrations of volatile organic compounds (VOCs) that are toxic above certain concentrations. Because radioactive waste containers must be vented to preclude flammable hydrogen gas buildup, this venting also served as a release pathway for VOCs. This issue is not expected to arise with regard to GTCC LLRW and GTCC-like wastes since the generators would treat any mixed radioactive and hazardous waste to render it nonhazardous before submitting waste for disposal at WIPP.

J.2.3 Consideration of Other Alternatives Not Evaluated in Detail in the EIS Including Use of HOSS, the Proposed Yucca Mountain Repository, a New Geologic Repository, and Other Disposal Methods (e.g., Mined Cavities) and Alternatives (e.g., Treatment of Waste and Alternative Sources of Energy)

Topic Summary

Commenters suggested that the EIS should be revised and reissued to include HOSS as a reasonable alternative for managing all or a portion (principally, activated metals from decommissioning commercial nuclear power reactors) of the GTCC LLRW and GTCC-like waste inventory. The comments suggested that storage in HOSS facilities is a safe way to store waste until a permanent, scientifically sound, and publicly acceptable solution is found. HOSS would allow long-term storage of GTCC LLRW and GTCC-like wastes so that they can be monitored and retrieved when a better solution is found. Some commenters indicated the EIS should consider the use of HOSS for the entire GTCC LLRW and GTCC-like waste inventory, while others suggested that it be considered for the activated metals associated with decommissioning commercial nuclear power reactors. Commenters stated that since on-site storage is the current management practice for all GTCC LLRW and GTCC-like wastes, HOSS would seem to be the best candidate as the preferred alternative. Note: These concerns were initially raised in public comments on the NOI that was issued on July 23, 2007. In DOE's response in the Draft GTCC EIS, HOSS was considered to be outside the scope of the EIS. However, a number of comments indicated that this was not acceptable and that the EIS needed to be revised to include HOSS as a reasonable alternative. In addition, several commenters indicated that DOE should create regulatory definitions and frameworks for use of HOSS at commercial nuclear facilities as part of this EIS. It was noted that while some GTCC LLRW and GTCC-like wastes are currently being stored in HOSS facilities, other GTCC LLRW and GTCC-like wastes are stored in ways that could create environmental and public health risks. Commenters suggested that once a framework is established, there should be periodic reviews of the HOSS facilities, and that defining and regulating HOSS would improve public safety and be more protective of human health and the environment than any of the alternatives addressed in the EIS.

A number of commenters indicated that the best approach for disposal of GTCC LLRW and GTCC-like wastes would be to dispose of the entire inventory in a new geologic repository. Commenters noted that many of these wastes have very long half-lives and that during disposal in near-surface land disposal facilities, contaminants could leach to groundwater or surface waters. Under Nuclear Regulatory Commission (NRC) regulations in 10 CFR Part 61, GTCC LLRW must be disposed of in a geologic repository unless an alternative proposal for disposal is approved by the NRC. It was then suggested that DOE should implement this method for the GTCC LLRW and GTCC-like wastes included in this EIS. The only geologic repository considered in the EIS is WIPP, and commenters proposed that the analyses should be redone considering the Yucca Mountain repository or, if the Yucca Mountain repository is not a workable option, should address disposal in a generic repository developed to dispose of spent nuclear fuel and high-level radioactive waste.

Commenters also noted that disposal in a geologic repository is NRC's required disposal method for these wastes, and geologic disposal will provide the additional level of safety, security, and reliability to deter and eliminate any terrorist access to these materials. In addition, commenters noted that the EIS clearly shows the geological repository has low environmental and human health impacts, making it a better disposal method than the other alternatives.

Commenters said that the EIS should have evaluated an alternative in which the GTCC LLRW and GTCC-like wastes would be placed in interim storage and await the development of a geologic repository as required under the Nuclear Waste Policy Act of 1982 for disposal of spent nuclear fuel and high-level radioactive waste. This second repository could be in a different geologic medium, such as granite. The GTCC LLRW and GTCC-like wastes could then be disposed of in this second repository along with these higher-activity radioactive wastes.

Commenters said that the federal government should stop further generation of radioactive waste. Commenters suggested that safe disposal methods for managing these wastes are not available, and programs that continue to generate this waste are adding to a problem that has not yet been solved. Commenters also said that no additional nuclear power plants should be constructed, and the existing plants should be shut down, since nuclear power has not been shown to be safe, as indicated by the problems at Fukushima, Chernobyl, and Three Mile Island. Commenters recommended that the federal government should further promote the use of alternative energy sources and methods such as conservation, solar power, and wind energy instead of promoting the continued use of nuclear power.

Commenters said that the EIS should have addressed disposal of GTCC LLRW and GTCC-like wastes in the Yucca Mountain repository and at commercial LLRW disposal sites, including those in existing LLRW Compacts (rather than at DOE sites). Commenters indicated that since use of the Yucca Mountain repository was considered in the EIS scoping process, it should have been carried to completion in the EIS.

Other potential alternatives for disposal, as well as various treatment options (such as transmutation, vitrification, or creation of a Manhattan-type project to develop new treatment options) and more innovative disposal techniques (such as a mined cavity, use of existing mine holes/shafts, long-term storage, or retrievable “disposal”), were recommended to be considered in the EIS, given the very long half-lives of some of the radionuclides.

A number of comments were made indicating that the generation of nuclear waste be stopped. In addition, it was suggested that the EIS should have evaluated alternatives in which no future GTCC LLRW and GTCC-like wastes are produced and alternatives resulting in a lower amount of waste being produced. They would include alternatives that assume no additional nuclear power plants are constructed and a termination in the production of nuclear weapons. Commenters also noted that the federal government should promote the use of alternative energies that do not result in the production of radioactive and other hazardous wastes.

Discussion

The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a Record of Decision (ROD) for a permanent disposal facility for this waste, not for long-term storage options. The action alternatives evaluated in the GTCC EIS also did not include interim storage of GTCC LLRW and GTCC-like wastes until a geologic repository for spent nuclear fuel and high-level radioactive waste becomes available because such interim storage is outside the scope of the GTCC EIS. The purpose of the GTCC EIS is to evaluate the range of reasonable alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes.

DOE does not have authority to regulate the storage of radioactive wastes at commercial facilities, including nuclear power plants. Under the Atomic Energy Act of 1954 as amended

(AEA) (42 USC § 2011 in the *United States Code*), the NRC is responsible for regulating storage of such wastes. Radioactive waste storage requirements can be found in 10 CFR Part 30 (Rule of General Applicability to Domestic Licensing of Byproduct Material), 10 CFR Part 70 (Domestic Licensing of Special Nuclear Material), and 10 CFR Part 72 (Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste). In addition, the NRC has provided guidance for the storage of LLRW in SECY-94-198, *Review of Existing Guidance Concerning the Extended Storage of Low-Level Radioactive Waste,* which was issued on August 1, 1994.

DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement, as does DOE's *Supplemental EIS for the Geologic Disposal of Spent Nuclear Fuel and High Level Waste at Yucca Mountain, Nye County, Nevada* (DOE-EIS-0750-51). However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur before wastes could migrate into the human environment.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), this regulation also indicates that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

The Secretary of Energy determined that a permanent repository for high-level waste and spent nuclear fuel at Yucca Mountain, Nevada, is not a workable option and will not be developed. Therefore, DOE concluded that co-disposal at a Yucca Mountain repository is not a reasonable alternative and has eliminated it from evaluation in this EIS, as described in Section 2.6 of the EIS.

DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository.

The Blue Ribbon Commission (BRC) on America's Nuclear Future, in its final report to DOE on January 26, 2012, provided recommendations, which included the development of one or more permanent deep geologic facilities for the safe disposal of spent nuclear fuel and high-level radioactive waste and the development of one or more consolidated interim storage facilities as part of an integrated, comprehensive plan for managing the back end of the nuclear fuel cycle. In its *Strategy for the Management and Disposal of Spent Nuclear Fuel and High Level Radioactive Waste* (DOE 2013), developed in response to the BRC Report, the Administration agreed "that the development of geologic disposal capacity is currently the most cost-effective way of permanently disposing of used nuclear fuel and high-level radioactive waste while minimizing the burden on future generations" and proposed to "engage in a consent-based siting process and begin to conduct preliminary site investigations for a geologic repository." The Administration's goal is to have a repository constructed and its operations started by 2048. The Administration will work with Congress using the strategy as an actionable framework for building a national program for the management and disposal of the nation's used nuclear fuel and high-level radioactive waste (DOE 2013).

As stated previously, DOE recognizes that disposal of GTCC LLRW and GTCC-like wastes in the WIPP geologic repository would require modification to existing law. In addition, it may be necessary to revise the *Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant*, the WIPP compliance certification with the EPA, and the WIPP Hazardous Waste Facility Permit.

Eliminating the further generation of radioactive waste, ensuring the safety of nuclear power plants, and promoting alternative energy sources are outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes.

Treatment of the wastes prior to disposal was considered to be outside the scope of the EIS. Such treatment would be done prior to receipt of the GTCC LLRW and GTCC-like wastes at the disposal facility.

J.2.4 NEPA Process and Procedures

Topic Summary

The Draft EIS did not identify a preferred alternative, and several commenters indicated that this was not appropriate given the significance of the action addressed in the Draft EIS. Because of this, members of the public did not have the opportunity to comment on the preferred alternative and have their input reflected in the development of the Final EIS.

Commenters suggested that the current EIS process is premature and does not comply with NEPA and that it would have been more appropriate to prepare a programmatic EIS (PEIS) at this time. Commenters stated that there is time to wait and see what the BRC has to say. Several commenters also said that the purpose and need for this EIS are not clearly stated, that the analyses presented in this EIS could be better accommodated in a PEIS, and that such a PEIS should address a range of programmatic concerns, including the disposal of commercially generated GTCC LLRW at DOE sites, options for consolidating and storing GTCC LLRW and GTCC-like wastes for an extended time period at generating sites, treatment options for these wastes, and disposal of GTCC LLRW in a high-level radioactive waste repository (refer to Topic J.2.3). Some commenters suggested that the preparation of a PEIS should be incorporated into a larger DOE-wide analysis of radioactive waste (a cohesive waste management strategy), such as the Waste Management PEIS (WM PEIS).

Many commenters suggested that DOE do a better job of getting the word out about the EIS and the public hearings. Some said that newspaper publications alone are not sufficient and that spreading the word through high school or local radio stations and conducting public outreach at the community level would improve the dissemination of information. Other commenters expressed appreciation for being provided the opportunity to participate at the hearings.

Discussion

A preferred alternative is not necessarily required to be included in a Draft EIS. The Council on Environmental Quality regulations in 40 CFR 1502.14(e) specify that the section on alternatives in an EIS shall identify the agency's preferred alternative or alternatives, if one or more exists, in the Draft EIS and identify such alternative(s) in the Final EIS unless another law prohibits the expression of such a preference. If no preferred alternative has been identified at the Draft EIS stage, a preferred alternative need not be included. By the time the Final EIS is filed, 40 CFR 1502.14(e) presumes the existence of a preferred alternative and requires its identification in the Final EIS.

DOE did not have a preferred alternative at the time of the issuance of the Draft EIS because of the complex nature of the proposed action and the potential implications for disposal of GTCC LLRW and GTCC-like wastes. However, the Draft EIS presented factors to be considered in development of a preferred alternative (Section S.6 and Section 2.9) and solicited comments on these factors and other factors, if any (aside from those discussed in the Draft EIS), that DOE should consider. As required by 40 CFR 1502.14(e), the Final EIS contains a preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes (see Section 2.10). In developing the preferred alternative, DOE took into consideration public comments on the Draft EIS, public EIS scoping comments, and other factors identified in Sections S.6 and 2.9 of the EIS.

The publication by the EPA of a NOA of the Final EIS in the *Federal Register* initiates a 30-day public review or "waiting" period. While the review period is not a formal public comment period, the public can comment on the Final EIS, including the preferred alternative, prior to final agency action. Comments received will be addressed by DOE in the ROD. As required by the Energy Policy Act of 2005 (P.L. 109-58), DOE must submit a Report to Congress that includes the alternatives considered in the EIS and await Congressional action before making a final decision regarding which alternative(s) to implement. The Report to

Congress will be made available to the public on the GTCC EIS website (http://www.gtcceis.anl.gov/).

This EIS was prepared to inform decision-making for the disposal of GTCC LLRW and GTCC-like waste. Sufficient information is provided or referenced to support the current decision-making process to identify (an) appropriate site(s) and method(s) to dispose of the amount of GTCC LLRW and GTCC-like waste identified in the EIS.

DOE believes that this EIS process is not premature and is in compliance with NEPA. On the basis of an assumed starting date of 2019 for disposal operations, more than half (about 6,700 m^3 [240,000 ft^3] of the total GTCC LLRW and GTCC-like waste inventory of 12,000 m^3 [420,000 ft^3]) is projected to be available for disposal between 2019 and 2030. An additional 2,000 m^3 (71,000 ft^3) would become available for disposal between 2031 and 2035. This information is presented in Figure 3.4.2-1. DOE believes this EIS is timely, especially given the length of time necessary to develop a GTCC LLRW disposal facility.

DOE developed this EIS to support a decision on selecting a disposal facility or facilities for GTCC LLRW and GTCC-like waste, to address legislative requirements, to address national security concerns (especially for sealed sources), and to protect public health and safety. The purpose and need for action, as discussed above, is stated in the EIS (Section 1.1). The scope of the EIS is focused on addressing the need for developing a disposal capability for the identified inventory of GTCC LLRW and GTCC-like wastes. DOE plans a tiered decision-making process, in which DOE would conduct further project-specific NEPA reviews before implementing an alternative ultimately selected on the basis of this EIS.

DOE explained in its *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste* (WM PEIS; DOE/EIS-0200-F; DOE 1997) that additional analyses would be prepared to implement DOE's programmatic decisions. The GTCC EIS analyzes the potential environmental impacts associated with the disposal of GTCC LLRW and GTCC-like (DOE) wastes. Since the WM PEIS relates only to DOE waste, the inclusion of commercial waste in the WM PEIS is premature until the GTCC EIS is finalized and a ROD is issued. Depending on the outcome of this ROD, DOE will evaluate whether additional programmatic or site-specific NEPA reviews or updates to previous decisions are needed, as appropriate. Any additional NEPA reviews or considerations will be conducted with full opportunity for public input, consistent with Council on Environmental Quality and DOE NEPA requirements.

DOE's goal with regard to its public participation process is to be able to disseminate the information to the public so that input from the interested public can be obtained to inform the Final EIS. To this end, nine public hearings at venues accessible to the interested public for the various sites evaluated in the EIS were conducted. Notices were placed in various local newspapers, on the EIS website and the DOE website; mailers were sent out to more than 2,000 individuals; and emails were sent to site mailing lists to announce the public hearings before and during the scheduled hearings.

J.2.5 Tribal and Cultural Resources Concerns

Topic Summary

Commenters said that the EIS should consider American Indian tribal concerns. Commenters said that American Indian tribes should have been consulted earlier in the NEPA process for this project. In addition, DOE should have considered government-to-government consultations to obtain input from potentially affected American Indian tribes. Commenters indicated that the EIS includes text developed by a number of American Indian tribes, but this text is not reflected in the subsequent analyses.

Commenters, especially those from the Santa Clara Pueblo, the Pueblo de San Ildefonso, and the Confederated Tribes and Bands of the Yakama Nation, raised several concerns that DOE proposals rely on institutional controls. Commenters indicated that these controls are much too short for the time period of relevance to the tribes and that plant roots will eventually penetrate the GTCC LLRW and GTCC-like waste disposal facility. Commenters also said that no information is provided in the EIS on the existence of minerals that may have cultural significance and use.

Discussion

DOE appreciates the input provided by the Santa Clara Pueblo, the Pueblo de San Ildefonso, and the Confederated Tribes and Bands of the Yakama Nation on the EIS, both in the tribal narratives and in comments on the Draft EIS. This input was considered by DOE in identifying a preferred alternative.

DOE is required to consult with American Indian tribes on a government-to-government basis, as described in DOE Order 144.1. A number of the comments addressed the timing and extent of the consultations that have occurred to date. In addition, many tribes did not feel that their concerns were adequately addressed in the EIS and that the analyses did not fully integrate the information provided by various tribes as reflected in the tribal narratives.

DOE initiated government-to-government consultations with potentially affected American Indian tribes in a timely manner consistent with DOE Order 144.1 and DOE's NEPA implementing guidelines. These consultations were done at a time that DOE had compiled and developed adequate information for the Draft EIS (including identification of the GTCC LLRW and GTCC-like waste inventory) to allow for an informed consultation with potentially affected American Indian tribes. This engagement began in 2007 at the October State and Tribal Government Working Group meeting in Snowbird, Utah, with the 14 participating American Indian tribes that have cultural or historical ties to the DOE sites analyzed in the EIS. As a follow-up to that meeting, DOE, in 2008, sent out letters to tribal government officials communicating DOE's interest in consulting with tribal nations on the GTCC EIS. These interactions are summarized in Section 1.8 of the EIS, and they included several meetings, workshops, and the development of tribal narratives that were included in the EIS. These consultations resulted in some of the tribes providing narrative text for inclusion in the EIS.

Tribal narratives identified several tribal issues related to NNSS, the Hanford Site, the INL Site, and LANL. However, DOE site offices at SRS and in Carlsbad, New Mexico, confirmed that there are no affiliated tribes identified for the purpose of developing tribal narratives associated with SRS and WIPP/WIPP Vicinity.

Text prepared by potentially affected American Indian tribes is included in this EIS. DOE considered this text for the Hanford Site, the INL Site, LANL, and NNSS; however, DOE also needed to ensure consistency in the EIS analyses among the various sites, so that an even comparison could be made between alternatives as required by NEPA. Because of this, it was not possible to fully utilize all of the information provided by the tribal governments in order to perform specific analyses associated with exposure events unique to a given American Indian tribe (such as greater intakes of fish, game, and plants; the use of sweat lodges; and the use of natural pigment paints for traditional ceremonies). Once a decision is made on a specific site location and method, appropriate project-specific NEPA review would be conducted, including analysis of exposure events unique to the impacted local American Indian tribes. However, the information provided in these narratives was considered in the identification of the preferred alternative presented in this EIS. The information provided in the narratives for the Hanford Site, the INL Site, LANL, and NNSS was very useful, and DOE appreciates the time and effort expended by the various tribes in supporting this EIS process.

In the EIS, it was assumed that institutional controls of the land disposal units would be maintained for 100 years and that corrective measures could be implemented during this time period to ensure that the engineered barriers lasted for at least 500 years. This assumption is consistent with the institutional control time frame given in both NRC and DOE requirements and was determined to be a reasonable approach for assessing the long-term performance of the disposal units in the EIS.

In evaluating the performance of the proposed land disposal facilities, a number of engineering measures were assumed in the conceptual facility designs to minimize infiltration of water into the wastes and thereby minimize contaminant migration from the disposal units. These measures would also limit exposure pathways, such as the ingestion of plants having very long roots. It was assumed in this EIS that these measures would remain intact for 500 years after the disposal facility closed. Any defects identified in the disposal facilities were assumed to be corrected during the 100-year institutional control period, so that the 500-year time period would be met.

While this time period of 500 years may not be long enough to be of relevance to various American Indian tribes, it was determined to be a reasonable basis to use for comparing the merits of various land-disposal concepts and sites in the EIS and to allow for the selection of a preferred alternative.

J.2.6 Transportation Analysis and Impacts

Topic Summary

Commenters suggested that radioactive waste that has been generated off-site should not be transported to the sites evaluated for disposal. Use of these sites would require transportation of these highly radioactive wastes over public highways, which would involve transportation risks and potential accidents that could expose the general public to highly radioactive materials.

Commenters indicated that the EIS does not identify specific routes or the proportion of wastes that would likely travel those routes. Commenters also said that the public is not able to meaningfully weigh the relative transportation risks among the disposal locations evaluated in the EIS.

Commenters said that the transportation analysis should consider larger-volume packages, such as TRUPACT-III packages for contact-handled TRU waste that are now available for transportation of the GTCC LLRW and GTCC-like wastes and also the spent nuclear fuel (SNF) casks certified for GTCC activated metals that are currently being used for storage of activated metals at some nuclear power plant sites. Commenters suggested that the use of these two larger packages would reduce impacts from packaging wastes, by allowing larger waste forms and thereby minimizing the amount of effort needed to reduce their size, and also reduce impacts from transportation, by reducing the number of shipments.

Commenters indicated that the supporting information for the facility and transportation accident analyses was not available and expressed a general concern about exposure to radiation from transportation shipments and from potential accidents as well as about the basis used for the impact calculations. Commenters noted that the radiological human health impacts presented in the EIS are based on the concept of the "reference man" and thereby do not consider impacts on sensitive populations, such as children and pregnant women. On the other hand, commenters also said that the same impacts are also based on the concept of the no-threshold dose response, which could overestimate the impacts.

Discussion

DOE is responsible under the Low-Level Radioactive Waste Policy Amendments Act or LLRWPAA (P.L. 99-240) for the disposal of GTCC LLRW. The purpose of the EIS is to evaluate alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. Continued storage of GTCC LLRW at the generating facilities was evaluated as part of the No Action alternative. Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites as stated in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a centralized disposal facility or facilities would result in lower overall human health risks compared to managing the wastes at multiple locations, such as in the No Action Alternative, and can be conducted in a safe manner based on compliance with federal and state comprehensive regulatory requirements.

The primary radiological transportation risk to the public for any alternative is from the low level of radiation emanating from the transport vehicle. The EIS shows that such risks are small. As discussed in Section 5.3.9.1, the collective population risk is a measure of the total risk posed to society as a whole. A comparison of the collective population risk allows for a meaningful evaluation of the relative risks between disposal locations, as provided in Tables 2.7-5 and 2.7-6. The magnitude of the collective population risk is primarily determined by the number of routes, the length of each route, the number of shipments along each route, the external dose rate of each shipment, and the population density along a given route. The primary differences among alternatives from the standpoint of transportation are the lengths of the routes as determined by the location of the disposal sites (destination of the shipments). Thus, higher collective population risks are associated with alternatives that require transportation over longer distances. All alternatives involve routes that have similar characteristics, with no significant differences for comparison among alternatives; all require transportation through a range of rural and urban areas. In addition, the routes used in the analysis are considered representative routes (as discussed in Appendix C, Section C.9.4.1.1, because the actual routes used would be determined in the future). For each disposal site, the routes most affected would be the interstate highways that are closest to the site.

The transportation analysis as presented in the EIS is conservative in that consideration of the TRUPACT III and the SNF casks could result in potentially reduced impacts. However, while these packages are viable options for transport of the GTCC LLRW and GTCC-like wastes, consideration of their use as an option in the EIS did not influence the identification of the preferred alternative. Use of the spent fuel cask designs would require rail transport, and any of the conceptual land disposal designs could be modified to accommodate the larger packages. Rail transport at WIPP would require further review since it is not available currently.

As stated in Section C.9.4.1.1 of the EIS on route selection, many of the GTCC LLRW and GTCC-like wastes considered in the EIS would meet the definition of an HRCQ (49 CFR 173.403). However, as noted in the discussion, states and Native American tribes have the opportunity to designate “preferred routes” to replace or supplement the interstate highway system. For those wastes not specifically designated as HRCQ, the selection of a route is left to the carrier, but in the case of GTCC LLRW and GTCC-like wastes, additional consultation with transportation stakeholders would occur.

Disposition of the GTCC LLRW and GTCC-like wastes will be handled in a manner that is protective of human health and the environment and in compliance with applicable requirements and regulations. Doses to workers and the public will be minimized to the extent practical. The methodology used to estimate the radiological human health impacts in the EIS is based on standard practices that are subject to revision as our understanding of the effects of radiation on humans evolves. The same methodology is used in the evaluation of all alternatives; thus, any modification of this methodology would not affect the comparisons among alternatives and the identification of the preferred alternative and is unlikely to alter the finding that the absolute risks would be small.

Details of the facility accident analysis can be found in Sections 5.3.4.2.1 and C.4.2. All information necessary to duplicate the transportation accident consequence assessment was available in Section 5.3.9.3 of the Draft EIS, with the exception of the source terms used for the contact-handled and remote-handled Other Waste. These latter source terms have been added to Section 5.3.9.3 of the Final EIS. The accident risk analysis (see Section C.9.3.1) is separate from the accident consequence analysis (see Section C.9.3.3). All relevant data for the accident risk analysis, with the exception of the shipment source terms and route information, are provided in Section C.9.3. Approximately 1,200 routes were considered in this analysis, so it was not considered practical to include this information in the EIS. Such information is readily available by using the TRAGIS routing model, as referenced in Appendix C. Shipment-specific source terms were determined by dividing the origin source inventory by the number of shipments from that site. Site inventories were published in Sandia (2007, 2008), as referenced in Appendix B, which also contains the per-shipment packaging assumptions for each waste type. The shipment-specific source terms were omitted from the EIS for brevity and because of the low estimated impacts.

J.2.7 Model Assumptions for Post-Closure Human Health Impacts

Topic Summary

Commenters indicated a number of issues associated with the long-term modeling in the EIS as follows. The conceptual designs provided in the EIS for the three land disposal methods (above-grade vault, enhanced near-surface trench, and intermediate-depth borehole) are too generic to allow for the level of detailed analysis necessary to determine the adequacy of the disposal concepts. Many unsupported assumptions are made in these analyses, which lead to very uncertain results and do not necessarily reflect reality. Uniform environmental conditions (e.g., average meteorological conditions from the past several years) at the various DOE and generic regional sites are assumed for more than 10,000 years. The EIS assumed that the engineered disposal facilities would remain intact for 500 years after the disposal facility was closed and that the grouted wastes would not degrade during this time period. It was assumed that after 500 years, the infiltration rate would be reduced by 80% for the next 9,500 years. Such assumptions are not conservative and were used for all sites evaluated in the EIS.

Discussion

The EIS analyses are based on conceptual engineering information and necessitated the use of a number of simplifying assumptions. This approach is consistent with NEPA, which requires such analyses to be made early in the decision-making process. The various land disposal conceptual designs were assumed to be constructed and operated in a comparable manner at each of the various sites. Information on the conceptual engineering designs for the three proposed land disposal methods is provided in Section D.3 of Appendix D in the EIS. By using the same conceptual designs at all of the sites evaluated in the GTCC EIS, except for cases where a design did not apply (e.g., an intermediate-depth borehole at a site with shallow groundwater), the potential impacts (e.g., radionuclides reaching the groundwater) at the different environmental settings could be readily compared.

In performing these evaluations, a number of engineering measures were included in the conceptual facility designs to minimize the likelihood of contaminant migration from the disposal units. No facility design can guarantee that radionuclide migration from the facility would not occur over and beyond a 10,000-year time period. It was assumed that these measures would perform similarly for all conceptual designs, remaining intact for 500 years after the disposal facility closed. After 500 years, the barriers would gradually fail. To account for these engineered features in the modeling calculations, it was assumed that the water infiltration to the top of the waste disposal area would be zero for the first 500 years and then 20% of the natural rate for the area for the remainder of the time period (through 10,000 years). A water infiltration rate of 20% of the natural rate for the area was only used for the disposal area; the natural background infiltration rate was used at the perimeter of the waste disposal units. Again, this approach enables a comparative evaluation of the influence that site-specific environmental factors would have on the potential migration of radionuclides from the disposal facilities and the potential impacts on human health. It should be emphasized that project- and site-specific engineering factors would be incorporated into the actual facility designs of the site or sites selected in a ROD to dispose of GTCC LLRW and GTCC-like wastes.

DOE recognizes that modeling potential releases of radionuclides from the conceptual disposal sites far into the future approximates what might actually occur and is therefore subject to technical uncertainty. This is discussed in Appendix E. Sufficient detail was included in these designs for use in the EIS analyses, consistent with the current stage of this process. Some of the input values may change in the future and could result in higher impacts (such as from increased precipitation at some sites due to climate change), while others could result in lower impacts (due to decreased precipitation).

Estimated radiation doses and LCFs were calculated for each site and disposal concept for 10,000 years, and if the peak impact did not occur during this time frame, the analysis was extended to 100,000 years. DOE believes that the assumptions made to support the long-term modeling calculations for the groundwater pathway are reasonable and enable a comparative evaluation of the impacts between alternatives. The results of the evaluation presented in the EIS are sufficient to inform the selection of sites and methods for disposal. Follow-on project-specific and site-specific NEPA reviews would be conducted as needed.

J.2.8 Waste Inventory

Topic Summary

Commenters said that the GTCC LLRW and GTCC-like waste inventory addressed in the EIS is much too limited. Commenters suggested that all GTCC LLRW and GTCC-like wastes that could be generated in the future should be addressed to more correctly comply with NEPA, including those wastes from future nuclear power plants and all relevant wastes at the West Valley Site.

Discussion

The GTCC LLRW and GTCC-like waste inventory evaluated in the Draft EIS included all GTCC LLRW and GTCC-like wastes in storage as of 2008, plus GTCC LLRW and GTCC-like wastes including buried wastes at the West Valley site, as well as wastes that could reasonably be expected to be generated in the near future. For the purposes of this analysis, waste disposal is assumed to occur from 2019 through 2083. The Final EIS has carried those analyses forward, and the GTCC LLRW and GTCC-like waste inventory is summarized in Appendix B of the Final EIS and described in more detail in the *Supplement to Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste Inventory Report* (ANL/EVS/R-10/1; Argonne National Laboratory 2010). This report is referred to herein as the Supplement. It is available to the public on the GTCC EIS website at http://www.gtcceis.anl.gov/.

The GTCC LLRW and GTCC-like waste inventory includes stored and projected wastes from the 104 nuclear power plants currently in operation as well as from the 18 commercial reactors that have already been shut down. It also includes projected GTCC LLRW from another planned 33 new reactors that have not yet been constructed. It is not reasonable to extend data beyond existing information on the commercial nuclear power industry to develop estimates of GTCC LLRW that could result from future decommissioning of these reactors, some of which may never be built. In addition, it is possible that new reactor technology could change the projected volumes of GTCC LLRW.

All potential GTCC LLRW and GTCC-like wastes at the West Valley Site were analyzed in the Draft EIS and are retained in the waste inventory analyzed in the Final EIS. These include wastes from complete dismantlement of facilities at the site and from exhumation of the two radioactive waste disposal areas. This information is described in the Supplement. Characterization information for the GTCC LLRW and GTCC-like wastes currently in storage at the West Valley Site is sufficient for the analysis conducted for the GTCC EIS. The actual inventory of GTCC LLRW for the West Valley Site that may be generated in the future could increase or decrease from the amount assumed in the GTCC EIS, based on the decisions made regarding the disposition of portions of the site, updated characterization information, and compliance with applicable regulatory requirements.

In addition, all potential GTCC LLRW and GTCC-like wastes at the Babcock and Wilcox facility in Lynchburg, Virginia, are included in the waste inventory. The GTCC LLRW includes stored and projected waste from existing commercial operations at the facility, including debris from cleaning out hot cells. The GTCC LLRW inventory also includes potential waste from the proposed production of Mo-99. These commercial wastes are included in the GTCC LLRW Other Waste category, as summarized in Appendix B of the EIS. The GTCC-like waste includes non-defense TRU waste (e.g., hot cell debris) attributed to DOE-sponsored activities at the Babcock and Wilcox facility. This DOE-owned waste is included in the GTCC-like Other Waste category, as indicated in Appendix B of the EIS.

DOE considers the GTCC LLRW and GTCC-like waste inventory estimates used in the EIS to be conservative but realistic. Although additional wastes may be generated after the time period used to develop these estimates, treatment approaches may be developed to reduce waste volumes. This inventory is appropriate for use in the EIS and for the development of a preferred alternative for disposal of GTCC LLRW and GTCC-like wastes.

J.2.9 Cumulative Impacts

Topic

Several commenters noted that the EIS does not appropriately address cumulative impacts at the Hanford Site, in that it does not include the environmental impacts from proposals to use this site for disposal of other radioactive wastes and also the impacts from proposals to leave tank residues and radioactive contamination in soil at the site. Commenters noted that many of the GTCC LLRW and GTCC-like wastes contain long-lived and generally mobile contaminants, including Tc-99 and I-129, which are already present in groundwater at the Hanford Site and will eventually reach the Columbia River. Commenters suggested that the environmental impacts of all potential sources of radioactive contamination at the site, in addition to the impacts associated with transportation of the GTCC LLRW and GTCC-like wastes to the Hanford Site, need to be addressed in the cumulative impacts analyses presented in this EIS.

Discussion

DOE has analyzed cumulative impacts at the Hanford Site in this GTCC EIS. The analysis, based on the cumulative impact analysis in DOE's December 2012 Final Tank Closure and Waste Management (TC&WM) EIS (DOE 2012), which addresses the disposal of all future waste at Hanford, indicates that the disposal of GTCC LLRW and GTCC-like wastes containing Tc-99 and I-129 at the Hanford Site could result in unacceptable environmental impacts and indicates that this site is not the optimal location to dispose of GTCC LLRW and GTCC-like wastes. The analysis in the GTCC EIS indicates that the radiation dose to a nearby hypothetical future resident farmer could be as high as 49 mrem/yr within the first 10,000 years, and most of this dose would be due to Tc-99 and I-129 in groundwater (see Table 6.2.4-2 and Figure 6.2.4-1 in this EIS).

J.2.10 Statutory/Regulatory and Policy Issues

Topic Summary

Commenters indicated that any facility used for the disposal of GTCC LLRW and GTCC-like wastes will have to be licensed by the NRC as provided in Section 3(b)(1)(D) of the

LLRWPAA (P.L. 99-240), and, as such, disposal criteria would need to be established. Commenters suggested that the NRC should have been a more active participant in this process to ensure that the proposed alternatives could actually be implemented.

Commenters questioned how it is possible to address both GTCC LLRW and GTCC-like wastes in a single EIS when they are subject to different regulatory processes and standards. Commenters also questioned if a new rulemaking would be necessary to develop disposal standards for GTCC-like wastes.

Commenters suggested that since GTCC LLRW is commercially generated radioactive waste, it should be disposed of at a commercial site and not at one or more DOE sites. Commenters also questioned how the requirement for NRC licensing of a GTCC LLRW disposal facility would be done if this facility was located at a DOE site, especially if such a facility was used for commercial GTCC LLRW and GTCC-like wastes.

Commenters questioned the legality of transporting radioactive waste and how regulation of GTCC LLRW and GTCC-like waste shipments will be conducted.

Discussion

DOE determined that the most efficient approach was to address both GTCC LLRW and GTCC-like waste, which have many similar physical and radioactive characteristics, in a single NEPA process. DOE's intent is to facilitate the overall process for addressing the disposal needs of both waste types.

The LLWRPAA specifies that GTCC LLRW designated a federal responsibility under section 3(b)(1)(D) that results from activities licensed by the NRC is to be disposed of in an NRC-licensed facility that has been determined to be adequate to protect public health and safety. However, unless specifically provided by law, the NRC does not have authority to license and regulate facilities operated by or on behalf of DOE. Further, the LLRWPAA does not limit DOE to using only non-DOE facilities or sites for GTCC LLRW disposal. Accordingly, if DOE selects a facility operated by or on behalf of DOE for disposal of GTCC LLRW for which it is responsible under section 3(b)(1)(D), clarification from Congress would be needed to determine NRC's role in licensing such a facility and related issues. In addition clarification from Congress may be needed on NRC's role if DOE selects a commercial GTCC LLRW disposal facility licensed by an Agreement State rather than by NRC.

The NRC served as a commenting agency on the GTCC EIS and therefore did not actively participate in the preparation of the GTCC EIS. Issues associated with potential regulatory changes or NRC licensing would be addressed as necessary to enable implementation.

The U.S. Department of Transportation (DOT) and the NRC have primary responsibility for federal regulations governing commercial radioactive materials transportation. Non-DOE shipments of GTCC LLRW from commercial sites would be transported by commercial carriers and would be regulated by DOT and the NRC. In addition, DOE shipments by commercial carriers of GTCC LLRW from commercial sites or of GTCC-like waste from DOE sites would be regulated by DOT and NRC.

DOE has broad authority under the AEA to regulate all aspects of activities involving radioactive materials that are undertaken by DOE or undertaken on its behalf, including the transportation of radioactive wastes. However, in most cases that do not involve national security, DOE does not exercise its authority to regulate DOE shipments and instead utilizes commercial carriers that undertake shipments of DOE materials under the same terms and conditions as those used for commercial shipments. These shipments are subject to regulation by DOT and the NRC. As a matter of policy, however, even in the limited circumstances where DOE exercises its AEA authority for shipments, DOE requirements mandate that all DOE shipments be undertaken in accordance with the requirements and standards that apply to comparable commercial shipments, unless there is a determination that national security or another critical interest requires different action.

J.3 COMMENTS AND RESPONSES

All comment documents received by DOE on the Draft EIS are provided in this section. Each comment document received was assigned a comment document identifier. Verbal comments given at the public hearings were documented via transcripts prepared for each hearing. Excerpts from the transcripts containing the verbal comments provided by each commenter at the hearings are also presented in this section. The transcripts can be found in their entirety on the project website at http://www.gtcceis.anl.gov/.

Comment documents received were organized into eight categories as listed in Table J-3. Sections J.3.1 through J.3.8 contain all the comment documents for each of the eight categories. At the beginning of each section in Sections J.3.1 through J.3.8, a corresponding table listing all of the organizations or individuals from whom comment documents were received is included for reference. In these sections, a side-by-side format is used, in which the comments identified from each comment document are shown on the left side of the pages and the corresponding DOE responses are shown on the right side of the pages.

TABLE J-3 Categories and Numbers of Comment Documents and Where They Appear

Section	Comment Category	No. of Comment Documents	No. of Pages
J.3.1	Organizations	137	810
J.3.2	Individual members of the general public	518	911
J.3.3	CREDO Campaign[a]	61	61
J.3.4	Concerned Citizens for Nuclear Safety Campaign	51	57
J.3.5	Snake River Alliance Campaign	122	62
J.3.6	Nuclear Watch Campaign	54	117
J.3.7	Friends of the Gorge Campaign	198	384
J.3.8	Brookdale Senior Living Petition	1/63[b]	5

[a] CREDO Action Campaign supplies a platform (website) for posting petitions and getting them signed.

[b] The Brookdale Petition was one letter with signatures from 63 people.

J.3.1 Organizations That Submitted Comments in Writing via Letter, Email, or Web Portal or Verbally at One of the Public Meetings

Table J.3-1 tabulates all organizations that submitted comments, along with the comment document identifiers assigned to each. Comments identified within each comment document are shown in brackets on the left side of the page(s), with the corresponding response shown on the right side of the same page(s). The comment documents and responses are presented here in Section J.3.1 on pages J-31 through J-840, as indicated in the table. Organizations are in alphabetical order. It may be helpful for readers to review Section J.2 for an overview of the 10 Topics of Interest of this CRD.

TABLE J.3-1 Organizations That Submitted Comments in Writing via Letter, Email, or Web Portal or Verbally at One of the Public Meetings for GTCC

Organization	Comment Document ID No.	Starting Pg. No.
Alliance for Democracy	T131	J-31
Alliance for Nuclear Accountability	T82	J-35
Alliance for Nuclear Accountability	W428	J-41
Alliance for Nuclear Accountability	W544	J-45
Babcock & Wilcox Technical Services Group	L309	J-49
Big Pine Paiute Tribe of the Owens Valley	W548	J-52
Blue Ridge Environmental Defense League	T2	J-58
CARC, Inc.	T37	J-61
Carlsbad Chamber of Commerce	T36	J-66
Carlsbad City Council	T29	J-68
Carlsbad Department of Development	T129	J-72
Cherry Country	W565	J-76
Citizen Action New Mexico	T73	J-77
Citizens for Alternatives to Radioactive Dumping	T69	J-81
Citizens for Alternatives to Radioactive Dumping	T33	J-85
Citizens for Alternatives to Radioactive Dumping	L59	J-88
City of Mosier, City Councilor	W346	J-90
City of Portland, Oregon	L283	J-91
Clark County	T39	J-94
Clark County Nuclear Waste Division	W541	J-101
Coalition 21	L274	J-107
Code Pink Portland	T135	J-108
Colorado State Patrol	W339	J-111
Columbia Ecovillage	W487	J-112
Columbia Riverkeeper	T15	J-113
Columbia Riverkeeper	W539	J-116
Columbia Riverkeeper	T119	J-128
Concerned Citizens for Nuclear Safety	T98	J-131
Concerned Citizens of Wagon Mound and Mora County	E96	J-138
Conejos County Clean Water, Inc.	E1	J-140
Conference of Radiation Control Program Directors, Inc.	L303	J-149
Conservation Voters of South Carolina	T8	J-152

TABLE J.3-1 (Cont.)

Organization	Comment Document ID No.	Starting Pg. No.
Council of State Governments	W540	J-156
Decommissioning Plant Coalition	W524	J-161
Department of the Air Force	L307	J-165
Eddy County Commissioner	T22	J-166
Energy*Solutions*	L78	J-169
Evergreen State College	W217	J-173
Haddad Drugan LLC	W392	J-174
Hanford Advisory Board	L280	J-175
HEAL Utah	E61	J-179
Heart of America Northwest	T132	J-183
Heart of America Northwest	W554	J-188
Heart of America Northwest	T14	J-189
Heart of America Northwest	W552	J-198
Higher Ground Farm	W354	J-265
HOME	T45	J-267
Honor our Pueblo Existence (HOPE)	T87	J-272
INL Site Environmental Management	L3	J-275
International Source Suppliers and Producers Association (ISSPA)	L100	J-277
ISSUE	T115	J-278
League of Women Voters, South Carolina	T1	J-280
Legions of Living Light	L294	J-284
Loretto Community	E76	J-286
Loretto Community	T100	J-290
Mayor’s Office, City of Carlsbad, New Mexico	T28	J-293
Mayor’s Office, City of Carlsbad, New Mexico	T35	J-295
Native Community Action Council	T47	J-299
Natural Resources Defense Council (NRDC)	W556	J-306
Nevada Desert Experience	T40	J-367
Nevada Nuclear Waste Task Force	T41	J-373
Nevada Site Specific Advisory Board	L96	J-376
New Mexico Environment Department	L295	J-387
New Mexico State University, Carlsbad	T31	J-389
New York State Energy Research and Development Authority	L301	J-391
Nez Perce Tribal Executive Committee	L1	J-395
Northern New Mexico Citizens’ Advisory Board	L284	J-401
Nuclear Watch New Mexico	E102	J-404
Nuclear Watch New Mexico	T85	J-412
Nuclear Watch South	T7	J-417
Nye County Nuclear Waste Repository Project Office (NWRPO)	E32	J-421
Nye County Nuclear Waste Repository Project Office (NWRPO)	E33	J-432
Nye County Nuclear Waste Repository Project Office (NWRPO)	T46	J-437
Oak Ridge Reservation Local Oversight Committee	L289	J-441
Oregon Conservancy Foundation	T120	J-443
Oregon Department of Energy	E70	J-446
Oregon Department of Energy	E72	J-449
Oregon Hanford Cleanup Board	E71	J-455

TABLE J.3-1 (Cont.)

Organization	Comment Document ID No.	Starting Pg. No.
Oregon Legislative Assembly	L299	J-458
Oregon Physicians for Social Responsibility	E46	J-460
Oregon Progressive Party	T133	J-461
Oregon State Legislature	W69	J-464
Oregon Wild	W7	J-468
Physicians for Social Responsibility - KC	W563	J-469
Plazm Media	W17	J-471
Portland City Council	T127	J-472
Progressive Leadership Alliance of Nevada	T50	J-475
Public Safety Resources Agency	W3	J-478
Pueblo de San Ildefonso DECP	L279	J-498
Pueblo of Acoma	W15	J-501
R Graham Graphics	W108	J-505
Rosemere Neighborhood Association	T134	J-507
Santa Clara Pueblo	L95	J-510
Santa Clara Pueblo	T86	J-522
Santa Clara Pueblo	T93	J-526
SHINE Medical Technologies	W532	J-530
Snake River Alliance	E4	J-533
Snake River Alliance	T20	J-537
South Carolina Department of Health and Environmental Control	W2	J-542
Southwest Research and Information Center	L6	J-544
Southwest Research and Information Center	T51	J-574
Southwestern Low-Level Radioactive Waste Commission	L281	J-580
Spark of Divinity Mission	W47	J-582
SRS Community ReUse Organization	T9	J-583
State of Idaho, Department of Environmental Quality	L2	J-586
State of Idaho, Governor’s Office	T18	J-596
State of Idaho, Governor’s Office	L298	J-601
State of Nevada Agency for Nuclear Projects	E45	J-603
State of Nevada Agency for Nuclear Projects	T38	J-627
State of New Mexico, Governor’s Office	L304	J-632
State of South Carolina, Governor’s Nuclear Advisory Council	W298	J-636
State of Washington, Department of Ecology	W429	J-638
State of Washington, Department of Ecology	W545	J-639
State of Washington, Department of Ecology, and Oregon Department of Energy	L285	J-644
State of Washington, Department of Ecology, and Oregon Department of Energy	T13	J-646
Sun Rays Mechanical Contractors, Inc.	L306	J-650
Sun Rays Mechanical Contractors, Inc.	T17	J-651
Tewa Women United	T105	J-654
Toiyabe Chapter, Sierra Club	T42	J-659
Tri-Valley CAREs	L91	J-662
Tri-Valley CAREs	W555	J-666
U.S. Environmental Protection Agency	L94	J-670

TABLE J.3-1 (Cont.)

Organization	Comment Document ID No.	Starting Pg. No.
U.S. Nuclear Regulatory Commission	L8	J-680
U.S. Senator Jeff Merkley's Office	T122	J-693
U.S. Senator Ron Wyden's Office	L300	J-695
UU Ministry for Earth	W493	J-696
Valley Interfaith Project	W267	J-698
Valley Interfaith Project	W418	J-699
Washington State, Department of Health	T12	J-700
Waste Control Specialists, LLC	E41	J-701
West Valley Citizen Task Force	L275	J-707
Western Governors' Association	L99 (W327)	J-709
Whiteaker Community Council	T173	J-714
Women for a Better World	W21	J-715
Women's International League for Peace and Freedom	T116	J-717
Woodstock Neighborhood Association	W266	J-719
Yakama Nation Environmental Restoration Waste Management Program	L293	J-721

Alliance for Democracy, Commenter ID No. T131

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The Department of Energy has a long history of careless irresponsibility with regards to toxic and hazardous waste disposal. What are the number of lives that you feel are expendable through death or illness in carrying hazardous loads of highly radioactive waste on roads greatly populated in Washington, Oregon, and the rest of the country?

I say no lives should be lost or illness given with the negligent and unnecessary movement of nuclear waste and extra storage of toxic materials. Tesla, come back. Where are you?

MR. BROWN: Okay. Ethan is at the podium. John Felton will follow you.

MR. SCARL: Very good. My name is Ethan Scarl. I'm with Alliance for Democracy. I'm a physicist, retired. You gentle people did not create this nuclear waste, but you are charged with disposing of it in some rational fashion. It's an immense and impossibly impossible charge. There's been a lot of talk about space and volume, numbers of truckloads.

There has not been much talk about time, how long does this have to endure? And a reasonable estimate, given the half lives of some of the isotopes, is a hundred thousand years, which has been mentioned before. That's 25 times the length of

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T131-1 DOE agrees that use of a geologic repository such as that pursued in Finland would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

Alliance for Democracy, Commenter ID No. T131 (cont'd)

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written recorded history of the human race. What can happen? How can we protect it? Has anybody actually tried to deal with this incredible problem? And the answer is, oddly, yes.

There is a model that's -- someone referred to it earlier. Let me just ask for a show of hands. Anyone here heard of Olkiluoto? Anyone? One or two hands. It's amazing. That may be one of the most important sites in the world. It's in Northern Finland, and it's the repository under construction for the disposal of all the waste from Finland only. It's scheduled -- it's under construction. It's scheduled to be finished in 2020. It's going to be closed with the entrance bombed shut in the year 2100. It's intended to enclose the waste from one small country for -- that is generated over 100 years, and it has to protect all life on the planet from that waste for a hundred thousand years. And they're talking about it seriously.

T131-1 (Cont.)

Now, the reason I know about this is because, by coincidence, there is a movie showing in Portland right now at the Living Room Theater at Southwest 10th and Stark called Into Eternity. It documents that. It's a beautifully made movie. It's not contentious in its atmosphere. It shows high-level

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Alliance for Democracy, Commenter ID No. T131 (cont'd)

officials from Scandinavian countries trying to think about what does it mean, a hundred thousand years? How do you prevent human intrusion for cultures you cannot possibly guess what they're going to be like? What will they know? Will they have high technology? Will they be digging with bows and arrows? Will somebody with high technology dig a hole into this thing, and then people who have no clue about what radiation is will come after them?

There were debates of do we try to forget this? Do we wipe this from our memory, do we make it secret, or do we try to let people know? And the legal decision by the legislature in Helsinki was yes, we'll try to make our children know about it, and their children and their children and their children to know that this is a place you do not go, and teach their children to remember to forget and to never go there.

MR. BROWN: About 30 seconds left, please.

MR. SCARL: So I encourage you to go see that thing. It's an amazing thing, and it's very well done, pleasant. And my message to you is to say that if you're really going to be serious about dealing with this thing, it's an immense proposition. Look what they're going through -- enormous construction, T131-1 (Cont.)

Alliance for Democracy, Commenter ID No. T131 (cont'd)

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half a kilometer down and many kilometers of tunnel -- and try to extrapolate that from Finland to the United States and see what that implies. If we're going to be serious about it, there is a bit of a model, and I encourage you to look at it.

T131-1 (Cont.)

Alliance for Nuclear Accountability, Commenter ID No. T82

MR. BROWN: Thank you.

Susan Gordon, and Stuart Barger will be next. Susan.

MS. GORDON: My name is Susan Gordon, and I'm the Director of the Alliance for Nuclear Accountability.

ANA is made up of 36 member organizations most

Alliance for Nuclear Accountability, Commenter ID No. T82 (cont'd)

of whom live directly downwind and downstream from the Department of Energy's nuclear weapons production and waste clean-up sites. We've been working collaboratively since 1987 before there was a clean-up program at DOE.

Visible on this map are the major aquifers and rivers across the United States. You can see the largest production facilities in the nuclear weapons complex, all located near water supplies. The gray dots and outlines indicate Native American tribes and reservations.

At one point there were over 5,100 industrial facilities involved in nuclear weapons production. Approximately 3,900 of these facilities handled radioactive materials and were contaminated.

The production of nuclear weapons has result in creating the largest and most expensive environmental clean-up program in history. DOE now estimates clean-up costs between 274 billion and $329 billion, and the clean-up time lines have stretched out to 2062.

I brought along a couple of old pictures of

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past disposal practices at the Idaho National Laboratory. So there's one just dumping, dumping the barrels off the back of the truck, and here's the other one that shows, oh, it rains in Idaho and the barrels float.

What's missing is the third photo of the men in the back of the pickups with their shotguns blasting holes in the barrels so that they would sink down out of sight.

Approximately 3,750 square miles of land were confiscated for the nuclear weapons production complex site, leaving behind 75 million cubic meters of contaminated soil and 1.8 billion cubic meters of contaminate groundwater.

Please keep in mind that it is the ANA communities that are most impacted by the environmental and health legacy of nuclear weapons production. We are living with these wastes today. Because of this legacy, we believe that the 170 million Curies of greater-than-Class-C waste should be managed at commercial sites, not DOE sites.

It is especially problematic that the draft

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T82-1

T82-1 The EIS considered the range of reasonable alternatives for disposal of the inventory of GTCC LLRW and GTCC-like wastes identified for inclusion in these analyses. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

The Low-Level Radioactive Waste Policy Amendments Act (LLRWPAA, P.L. 99-240) assigns DOE responsibility for the disposal of GTCC LLRW generated by NRC and Agreement State licensees. The LLRWPAA (P.L. 99-240) does not limit DOE to using only non-DOE facilities or sites for GTCC LLRW disposal. Under NEPA, DOE must evaluate the range of reasonable alternatives for a GTCC LLRW disposal facility. DOE sites represent reasonable alternatives for a GTCC LLRW disposal facility.

The LLRWPAA (P.L. 99-240) specifies that GTCC LLRW, designated a federal responsibility under section 3(b)(1)(D) that results from activities licensed by the NRC, is to be disposed of in an NRC-licensed facility that has been determined to be adequate to protect public health and safety. However, unless specifically provided by law, the NRC does not have authority to license and regulate facilities operated by or on behalf of DOE. Further, the LLRWPAA does not limit DOE to using only non-DOE facilities or sites for GTCC LLRW disposal. Accordingly, if DOE selects a facility operated by or on behalf of DOE for disposal of GTCC LLRW for which it is responsible under section 3(b)(1)(D), clarification from Congress would be needed to determine NRC's role in licensing such a facility and related issues. In addition clarification from Congress may be needed on NRC's role if DOE selects a commercial GTCC LLRW disposal facility licensed by an Agreement State rather than by NRC.

Alliance for Nuclear Accountability, Commenter ID No. T82 (cont'd)

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environmental impact statement does not include any specific commercial sites as alternatives. The generic sites included aren't sufficient. Disposing of more waste at DOE sites will simply add to the burden these communities already bear.

T82-1 (Cont.)

ANA believes that waste should be managed as safely as possible, as close to the generation site as possible.

T82-2

How am I doing? Okay?

MR. BROWN: Just fine.

MS. GORDON: This should also be the DOE position. DOE needs to go back and start over with a new draft EIS that looks at real alternatives, like hardened on-site storage, and doesn't simply target DOE sites.

T82-3

It is a bad idea to expand the mission of WIPP to include commercial waste. New Mexico and the DOE communities have been told for more than three decades that WIPP is only for transuranic waste. People in the shadows of DOE nuclear weapons sites don't want more broken promises at any DOE site. Expanding the mission at WIPP would make it harder for future repositories

T82-4

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T82-2 DOE is responsible under the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240) for the disposal of GTCC LLRW. The purpose of the EIS is to evaluate alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. Continued storage of GTCC LLRW at the generating facilities was evaluated as part of the No Action alternative. Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites for reasons provided in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a more centralized disposal facility would result in lower overall human health risks compared to managing the wastes at multiple locations and can be conducted in a safe manner based on compliance with comprehensive regulatory requirements and past experiences.

The EIS evaluates the transportation impacts from the shipments that would be required to dispose of all of the GTCC LLRW and GTCC-like wastes at each of the reference locations evaluated. The EIS addresses the collective population risks during routine conditions and accidents, the radiological risks to the highest exposed individuals during routine conditions, and the consequences to individuals and populations as a result of transportation accidents, including those that could release radioactive or hazardous chemical contaminants. The EIS also evaluated the impact of intentional destructive acts that could occur during waste handling, transportation, and disposal (see Section 2.7.4.3 of the EIS). The potential risk of such destructive acts is estimated to be low. DOE sites considered in the EIS are secure, and the packaging for the GTCC LLRW and GTCC-like wastes would be robust. Because GTCC LLRW and GTCC-like wastes are not readily dispersible, the potential physical impacts from an intentional destructive act (e.g., an explosive blast) would be no greater than those from the release of any radioactivity from a severe accident during waste handling, transportation, and disposal.

DOE's requirements for transportation of radioactive waste are developed and continually revised to ensure maximum protection of public health and the environment, thereby minimizing the risk of a traffic accident. DOE has established a comprehensive emergency management program that provides detailed, hazard specific planning and preparedness measures to minimize the health impacts of accidents involving loss of control over radioactive material or toxic chemicals. DOE's transportation emergency preparedness program was established to ensure that DOE and its contractors, state, tribal, and local emergency responders are prepared to respond promptly, efficiently, and effectively to accidents involving DOE shipments of radioactive materials. Should an accident occur that involves a release of radioactive material to the environment, it would be promptly remediated in accordance with these procedures. These measures would help DOE to minimize and mitigate any impacts on the environment.

T82-3 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

T82-4 Disposal of GTCC LLRW and GTCC-like wastes at WIPP or the WIPP Vicinity site is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that additional legislation would be required for siting a new facility within the land withdrawal area. However, NEPA does not limit an EIS to proposing and evaluating

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T82-4 (Cont.)

because people would rightly distrust legal protections and promises.

I want to leave you with the basic principles that ANA groups have developed. So we've developed these over 24 years of working collaboratively together on DOE nuclear weapons environmental clean-up.

T82-5

First, nuclear waste should be stored as safely as possible, as close to site of generation as possible, in a manner that maximizes worker, public and environmental protection.

T82-6

Two, clean-up to the most protective standards that prevent harm to the environment and the health and safety of current and thousands of future generations to the maximum extent possible.

T82-7

Three, compliance with legally enforceable agreements with regulators independent of DOE to insure progress and accountability along with the necessary regular and consistent enforcement.

T82-8

Four, meaningful public participation processes that require early, continuous and effective public involvement for tribes, states and the public.

T82-9

Number five, access to all historical and

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alternatives that are currently authorized. Also, the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: "The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., Public Law [P.L.] 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions."

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by PL. 104-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts for all resource areas evaluated, including human health and transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

T82-5 See response to T82-2.

T82-6 DOE cleanup activities at any site must meet the most stringent standards applicable (federal, state, or local) to protect human health and the environment.

T82-7 DOE will comply will all existing agreements and applicable Federal, Tribal, State, and local requirements and regulations. Depending on the final decision on the disposal of GTCC waste, DOE will work with the appropriate authorities to address existing agreements and potential impacts to these agreements on disposal of GTCC waste at the selected site(s).

T82-8 DOE's goal with regard to its public participation process is to be able to disseminate the information to the public as early as possible so that input from the interested public can be obtained to inform the Final EIS. To this end, nine public hearings at venues accessible to the interested public for the various sites evaluated in the EIS were conducted. Notices were placed in various local newspapers to announce the public hearings before and during the scheduled hearings. Additional information is provided on page J-1 in Section J.1.

DOE initiated government-to-government consultations with potentially affected American Indian tribes in a timely manner consistent with DOE Order 144.1 and DOE's NEPA implementing guidelines. These consultations were done at a time that DOE had compiled and developed sufficient information for the Draft EIS (including identification of the GTCC LLRW and GTCC-like waste inventory) to allow for an informed consultation with potentially affected American Indian tribes. These consultations resulted in some of the tribes providing narrative text for inclusion in the EIS. Additional information is provided on page J-1 in Section J.1.

DOE will consult with any potentially affected public agencies and tribal governments prior to making any final decision on the selection of (an) alternative(s) for the disposal of GTCC LLRW and GTCC-like wastes.

Alliance for Nuclear Accountability, Commenter ID No. T82 (cont'd)

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current data relating to possible health and environment effects at nuclear weapons sites, health services for those exposed to radioactive and toxic contamination.

Thank you.

MR. BROWN: Thanks very much.

Susan, I wanted to ask you: do you have a smaller version of that map that can be submitted for the record? You can do that through the 27th. You've got some time for that.

MS. GORDON: Right. I will.

T82-9 (Cont.)

T82-9 Even though it is beyond the scope of the GTCC EIS, the comment is noted. DOE has established a Worker Health and Activities Program. The program promotes the health of the Department's workers and communities surrounding DOE sites by supporting:

- Occupational health studies of DOE's historical workforce;
- Historical dose reconstruction studies, which evaluate the risk to the public of past releases of radiation and chemicals around DOE's nuclear weapons facilities, and;
- Studies of communities located near DOE Superfund sites to determine if current contaminants in the environment could result in adverse human health effects. Information on the program can be found at http://www.hss.energy.gov/HealthSafety/ihs/hstudies/hhs.html.

Alliance for Nuclear Accountability, Commenter ID No. W428

Abplanalp, Jennifer Marie

From:	gtcceiswebmaster@anl.gov
Sent:	Friday, June 24, 2011 10:52 AM
To:	mail_gtcceisarchives; gtcceiswebmaster@anl.gov; gtcceis@anl.gov
Subject:	Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10428
Attachments:	DOE_comment_GTCC10428.doc

Thank you for your comment, Rebecca Anderson.

The comment tracking number that has been assigned to your comment is GTCC10428. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 24, 2011 10:51:29AM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10428

First Name: Rebecca
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Attachment: DOE comment.doc

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

1

Alliance for Nuclear Accountability – W428

Alliance for Nuclear Accountability, Commenter ID No. W428 (cont'd)

June 14, 2011

Arnold Edelman
Document Manager
Department of Energy Headquarters
1000 Independence Ave SW
Washington, D.C. 20585-0119

Dear Mr. Edelman,

I am writing to urge the Department of Energy to reconsider its Greater-Than-Class C (GTCC) waste removal plans. As a young adult, I care deeply about our nation's future energy and environmental situation; these policies will have an increasingly large impact on the lives of those in my generation. The Department of Energy's current waste removal plans listed in its Environmental Impact Statement could have detrimental effects on the environment and national security. The Department of Energy can ameliorate its GTCC waste policy by developing a second geologic repository and/or improving regulation of Hardened On-Site Storage. W428-1

The Department of Energy's current consideration of near-surface trenches, bore holes and vaults at DOE facilities to dispose of GTCC waste could lead to many problems. These sites already have an abundance of nuclear waste that will take billions of dollars and decades to clean. The WIPP facility can legally not be used for disposing of commercial GTCC waste by the DOE because the state of New Mexico does not permit commercial nuclear waste to be deposited in its repository. W428-2 Instead, the DOE should consider constructing a second geologic repository for the GTCC waste. The DOE has not complied with the Waste Policy Act of 1982, 42 U.S.C. §10101 et seq., which requires at least one geologic repository in which to dispose commercial nuclear waste. The only location considered since 1987 has been the Yucca Mountain site in Nevada. Although the Obama administration has shut down this plan, the DOE is still obligated to find another location for a geologic repository. In addition to meeting this responsibility, the DOE should consider this new option as a means for GTCC waste disposal. W428-3

The Department of Energy has deemed Hardened On-Site Storage (HOSS) an ill-fit option for the EIS due to its lack of permanence. HOSS, one of the current methods of holding GTCC waste, may be a temporary solution, but it is also the most environmentally sound and safe method of keeping this waste in check. Storing the waste in HOSS would prevent terrorists from stealing the radioactive material en route to disposal site to make "dirty bombs." If hardened in its current location, this waste will also not be susceptible to any accidents from vehicles or aircraft. If and when a scientifically sound, permanent solution to nuclear waste is developed, GTCC waste remaining in HOSS can be dealt with accordingly. This will be much less costly and more feasible than dealing with nuclear waste already buried in vaults or trenches. As always, the best solution is to minimize future waste production. Most of the GTCC W428-4

W428-1 The EIS considered the range of reasonable alternatives for the disposal of the GTCC waste inventory, including disposal in a deep geologic repository. DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository

Past operational experience with near-surface disposal facilities at DOE sites has shown that when properly implemented, they can provide isolation of radioactive waste from the environment for extended time periods. Past problems that have arisen with each option provide additional information to improve the design and performance of future land disposal facilities. Issues related to performance over time would be analyzed in a project-specific analysis to address technical and long-term concerns.

The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

W428-2 Disposal of GTCC LLRW and GTCC-like wastes at WIPP or the WIPP Vicinity site is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. In addition, site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal.

However, NEPA does not limit an EIS to proposing and evaluating alternatives that are currently authorized. Furthermore, the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: "The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., Public Law [P.L.] 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions."

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 10-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts for all resource areas evaluated, including human health and transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero

Alliance for Nuclear Accountability, Commenter ID No. W428 (cont'd)

waste projected in the EIS does not yet exist, and keeping current GTCC waste in HOSS will allow for more time to create a publicly-acceptable solution. W428-4 (Cont.)

Ultimately, the Department of Energy should consider creating a new Draft Environmental Impact Statement before writing the Final Environmental Impact Statement. This new DEIS should consider the two options explained above that go unaddressed in the current DEIS. A second geological repository and the use of Hardened On-Site Storage could be important and influential tools in the future of nuclear waste. Together they create an environmentally-sound and secure interim solution to the ongoing issue of GTCC waste. W428-5

Best wishes,

Rebecca J. Anderson
Intern, Alliance for Nuclear Accountability
Student, American University

because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

The EIS considered the range of reasonable alternatives for the disposal of the GTCC waste inventory, including disposal in a deep geologic repository. DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

W428-3 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

The NWPA applies to the disposal of spent nuclear fuel and high level waste which are not within the scope of this EIS. In addition DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in an existing geologic repository.

W428-4 Refer to the discussion in the last paragraph of the W428-1 response regarding HOSS.

Alliance for Nuclear Accountability, Commenter ID No. W428 (cont'd)

W428-5 DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

Refer to the discussion in the last paragraph of the W428-1 response regarding HOSS.

Alliance for Nuclear Accountability, Commenter ID No. W544

Abplanalp, Jennifer Marie

From:	gtcceiswebmaster@anl.gov
Sent:	Monday, June 27, 2011 4:22 PM
To:	mail_gtcceisarchives; gtcceiswebmaster@anl.gov; gtcceis@anl.gov
Subject:	Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10544
Attachments:	GTCC_DIES_comment_GTCC10544.doc

Thank you for your comment, Katherine Fuchs.

The comment tracking number that has been assigned to your comment is GTCC10544. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 27, 2011 04:21:30PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10544

First Name: Katherine
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Attachment: C:\fakepath\GTCC DIES comment.doc

Comment Submitted:
see attached Word doc.

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

1

Alliance for Nuclear Accountability, Commenter ID No. W544 (cont'd)

Alliance for Nuclear Accountability
322 4th St., NE
Washington, DC 20002

June 27, 2011

Arnold Edelman
Document Manager
Office of Technical and Regulatory Support (EM-43)
U.S. Department of Energy
1000 Independence Avenue,SW.

Mr. Edelman:

I am writing to comment on the Department of Energy's Greater Than Class C Low Level Radioactive Waste (GTCC) Draft Environmental Impact Statement (DEIS). There are three critical elements missing from the GTCC DEIS. These elements are:

1. Defining and regulating Hardened on Site Storage (HOSS).
2. Developing an alternative Deep Geologic Repository for radioactive waste.
3. Legal and physical restrictions at existing DOE sites.

First, The Department of Energy must consider HOSS as an option for GTCC disposal. The DOE's rejection of HOSS as outside the scope of this DEIS is unacceptable, as HOSS is the current status of much of our nation's GTCC waste.

HOSS is a safe way to store waste until a permanent, scientifically sound, and publicly acceptable solution is found. Part of that future solution, of course, should be drastically minimizing our generation of GTCC waste. Decisions about final disposal sites and technologies are currently premature. Much of our nation's Greater Than Class C waste will be produced after 2030, and we should know more about that waste before deciding how to dispose of it.

W544-1

DOE must create regulatory definitions and frameworks for HOSS. While some of our current GTCC waste is currently in HOSS, other GTCC waste is stored in ways that create environmental and public health risks. Defining and regulating HOSS would improve public safety until we find an acceptable permanent disposal site.

W544-2

Next, I want to draw attention to the fact that there are legal, scientific, and ethical restrictions which obligate the DOE to develop a deep geologic repository for radioactive waste. This fact is completely ignored in the DOE's GTCC DEIS.

This DIES's suggested alternatives to a deep geologic repository, including near-surface trenches, bore holes, and vaults, will all require billions of dollars and decades to remediate at some future point and should not be considered permanent disposal methods.

W544-3

W544-1 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

W544-2 The development of a regulatory framework for the use of HOSS at commercial nuclear power plants is outside the scope of the GTCC EIS. DOE does not have authority to regulate the storage of radioactive wastes at commercial facilities, including nuclear power plants. Under the Atomic Energy Act of 1954 as amended (AEA) (see United States Code: 42 USC § 2011), the NRC is responsible for regulating storage of such wastes. Radioactive waste storage requirements can be found in 10 CFR Part 30 (Rule of General Applicability to Domestic Licensing of Byproduct Material), 10 CFR Part 70 (Domestic Licensing of Special Nuclear Material), and 10 CFR Part 72 (Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste). In addition, the NRC has provided guidance for the storage of LLRW in SECY-94-198, Review of Existing Guidance Concerning the Extended Storage of Low-Level Radioactive Waste, which was issued on August 1, 1994.

W544-3 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

The NWPA applies to the disposal of spent nuclear fuel and high level waste which are not within the scope of this EIS. In addition DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in an existing geologic repository.

Alliance for Nuclear Accountability, Commenter ID No. W544 (cont'd)

The Nuclear Waste Policy Act of 1982 requires the DOE to develop a deep geologic repository for permanent disposal of radioactive waste. The DOE's previous site, Yucca Mountain, was technically unsound and faced insurmountable public opposition. The DOE should not delay in developing an alternative deep geologic repository that will be both scientifically and politically acceptable. The GTCC EIS needs to take this mission into account. W544-3 (Cont.) W544-4

Finally, GTCC should not be consolidated at existing DOE sites. W544-5

Many existing DOE sites are undergoing cleanup projects that have cost hundreds of billions of dollars over decades. It would be ridiculous to send new waste to remediated areas.

Some DOE sites being considered for GTCC consolidation, such as the Waste Isolation Processing Plant, have legal agreements in place that limit how much and what type of waste they can accept. Breaking these agreements would do irreparable harm to the DOE's relationships with host states and would likely result in costly litigation. Other DOE sites being considered for GTCC consolidation, such as Los Alamos National Laboratory, have seismic or other natural features that make them a dangerous place for waste disposal. W544-6

The DOE needs to take a long view and begin the technical and political work necessary to develop a new location for long-term disposal of GTCC waste. W544-7

The civil and scientific communities represented by the Alliance for Nuclear Accountability agree that moving ahead with HOSS as quickly as possible and developing a new permanent deep geologic repository for radioactive waste is the best possible way forward and we implore you to reconsider these options in a final GTCC EIS. Thank you for your consideration. I wish you the best of luck as you move forward with the challenging process of disposing of our nation's GTCC.

In Peace,

Katherine M. Fuchs
Program Director

W544-4 DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

The Blue Ribbon Commission (BRC) on America's Nuclear Future, in its final report to DOE on January 26, 2012, provided recommendations, which included the development of one or more permanent deep geologic facilities for the safe disposal of spent nuclear fuel and high-level radioactive waste and the development of one or more consolidated interim storage facilities as part of an integrated, comprehensive plan for managing the back end of the nuclear fuel cycle. In its Strategy for the Management and Disposal of Spent Nuclear Fuel and High Level Radioactive Waste (DOE 2013), developed in response to the BRC Report, the Administration agreed "that the development of geologic disposal capacity is currently the most cost-effective way of permanently disposing of used nuclear fuel and high-level radioactive waste while minimizing the burden on future generations" and proposed to "engage in a consent-based siting process and begin to conduct preliminary site investigations for a geologic repository." The Administration's goal is to have a repository constructed and its operations started by 2048. The Administration will work with Congress using the strategy as an actionable framework for building a national program for the management and disposal of the nation's used nuclear fuel and high-level radioactive waste (DOE 2013).

W544-5 DOE is performing environmental restoration activities at the Hanford Site, INL, LANL, NNSS, and SRS. The ongoing cleanup efforts at these sites will continue. If GTCC LLRW or GTCC-like waste were to be disposed at these sites, DOE does not anticipate negative impacts to ongoing cleanup activities at these sites.

W544-6 Disposal of GTCC LLRW and GTCC-like wastes at WIPP or the WIPP Vicinity site is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. In addition, site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal.

However, NEPA does not limit an EIS to proposing and evaluating alternatives that are currently authorized. Furthermore, the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: "The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., Public Law [P.L.] 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions."

Alliance for Nuclear Accountability, Commenter ID No. W544 (cont'd)

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 10-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative.

DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

Site-specific environmental factors, such as seismic or other natural features, as identified by commenters for all of the DOE sites, were taken into account and evaluated in the EIS as appropriate. The results of the evaluation were taken into consideration in identifying the preferred alternative presented in the Final EIS.

W544-7 The GTCC EIS was developed in response to the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240) and does provide the necessary step to begin the technical and political work necessary to develop a facility for the disposal of GTCC LLRW and GTCC like waste.

The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

DOE also conducted a generic evaluation of commercial disposal facilities on nonfederal lands in the EIS to order to provide, to the extent possible, information regarding the potential long-term performance of other (nonfederal) locations for siting a GTCC waste land disposal facility.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further site-specific NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

Babcock & Wilcox Technical Services Group, Commenter ID No. L309

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received
JUN 1 6 2011

June 13, 2011

Mr. Arnold M. Edelman, EIS Document Manager
Office of Environmental Management
US Department of Energy
Cloverleaf Building, EM-43
1000 Independence Avenue, SW
Washington DC 20585

Dear Mr. Edelman:

This letter is in response to B&W's review of DOE's Draft *Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCFC-Like Waste* (Draft GTCC EIS) (DOE/EIS-0375-D).

At the B&W facilities in Lynchburg, VA, we have GTCC-Like TRU waste (>100 nCi/g) that is stored in drums. Some of these drums are owned by DOE, and some are privately owned by B&W. This material is basically hot cell equipment and materials that became contaminated with TRU as a result of postirradiation examinations of research and commercial spent fuel. There is currently no path forward for the disposal of this material because it is nondefense related. The DOE owned material fits the definition of GTCC-Like material, but it appears that the privately owned material would be excluded under the strict definition that the GTCC-Like material must be DOE owned. As summarized in the attachment, B&W requests that the definition of GTCC-Like material be expanded to include privately owned GTCC-Like waste.

Feel free to contact me by phone (434-522-5715) or email (kyhour@babcock.com) to answer any questions you may have about the enclosed.

Sincerely,

Kevin Hour, Ph.D.
Manager Nuclear Materials and Inspection Services

babcock & wilcox technical services group, inc., a *Babcock & Wilcox company*

Babcock & Wilcox Technical Services Group – L309

Babcock & Wilcox Technical Services Group, Commenter ID No. L309 (cont'd)

Attachment 1

Review and Comments on the US Department of Energy Draft Environmental Impact Statement for the Disposal of Greater-than-class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D).

Abstract: The U.S. Department of Energy (DOE) has prepared the Draft *Environmental Impact Statement for the Disposal of Greater-than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D)* to evaluate the potential environmental impacts associated with the proposed development, operation, and long-term management of a disposal facility or facilities for GTCC low-level radioactive waste (LLRW) and DOE GTCC-like waste. GTCC LLRW has radionuclide concentrations exceeding the limits for Class C LLRW established by the U.S. Nuclear Regulatory commission (NRC). These wastes are generated by activities licensed by the NRC or Agreement States and cannot be disposed of in currently licensed commercial LLRW disposal facilities. DOE has prepared and is issuing this Draft EIS in accordance with Section 631 of the Energy Policy Act of 2005.

The NRC LLRW classification system does not apply to radioactive waste generated or owned by DOE and disposed of in DOE facilities. However, DOE owns or generates LLRW and non-defense-generated transuranic (TRU) radioactive waste, which have characteristics similar to those of GTCC LLRW and for which there may be no path for disposal. DOE has included these wastes for evaluation in this EIS because similar approaches may be used to dispose of both types of radioactive waste. For the purposes of this EIS, DOE is referring to this waste as GTCC-like waste. Much of the GTCC-like waste is TRU waste.

What this means: There are currently no commercial disposal facilities in the U.S. for GTCC LLRW. The only disposal facility in the U.S. that is currently licensed to handle TRU waste (generally defined as waste containing >100 nCi of alpha-emitting TRU isotopes per gram of waste, with half-lives greater than 20 years) is the Waste Isolation Pilot Plant (WIPP) in New Mexico. However, this facility is limited to defense related waste only. The Draft EIS is intended to address the disposal of GTCC and GTCC-like LLRW generated from nondefense activities, such as commercial power plants licensed by the NRC. It is also meant to address the disposal of GTCC and GTCC-like waste that DOE owns, such as the DOE owned TRU waste drums stored at the B&W Lynchburg Technology Center (LTC). These waste drums contain TRU contaminated hot cell equipment and materials that are owned by the DOE, because DOE sponsored the postirradiation examinations of the commercial spent nuclear fuel rods that resulted in the contamination. L309-1

Concern to be Addressed: Only about one-third of the TRU drums stored at the LTC are owned by DOE (currently 87 out of approximately 250). From a radiological standpoint, there is no difference between the "DOE owned" and "nonDOE owned" drums. The only difference is that B&W owns the "nonDOE" drums because B&W sponsored the postirradiation examinations of the spent nuclear fuels that resulted in the contamination of the hot cell equipment and materials stored in these drums.

L309-1 For purposes of analysis in this EIS, GTCC-like waste includes radioactive waste that is owned or generated by DOE and has characteristics sufficiently similar to those of GTCC LLRW such that a common disposal approach may be appropriate. The waste described by B&W as "nonDOE owned" TRU drums are included in the GTCC LLRW inventory estimates.

Babcock & Wilcox Technical Services Group, Commenter ID No. L309 (cont'd)

The EIS specifically states that GTCC-like waste refers to radioactive waste that is owned or generated by DOE (see box on page 1-1). Based on this definition, the DOE owned drums stored at the LTC could potentially be disposed of in the new facility, but the disposal of the B&W privately owned drums would be precluded. There would be no path forward for the disposal of the nonDOE owned drums. To address this issue, we believe that the definition of GTCC-like waste should not be limited to only DOE owned materials, but should be expanded to include privately owned GTCC-like waste.

This clarification is much like the distinction that DOE is attempting to make between the GTCC and GTCC-like waste. It is meant to address the disposal of waste materials that are similar from a radiological standpoint, but that may be precluded from disposal from a strict interpretation of definitions.

L309-1 (Cont.)

Big Pine Paiute Tribe of the Owens Valley, Commenter ID No. W548

Abplanalp, Jennifer Marie

From:	gtcceiswebmaster@anl.gov
Sent:	Monday, June 27, 2011 6:12 PM
To:	mail_gtcceisarchives; gtcceiswebmaster@anl.gov; gtcceis@anl.gov
Subject:	Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10548
Attachments:	CommentstoDOE--GTCCdraftEIS--signed--6-27-11_GTCC10548.pdf

Thank you for your comment, Bill Helmer.

The comment tracking number that has been assigned to your comment is GTCC10548. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 27, 2011 06:11:35PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10548

First Name: Bill
Last Name: Helmer
Organization: Big Pine Paiute Tribe of the Owens Valley
Address: PO Box 700
City: Big Pine
State: CA
Zip: 93513
Country: USA
Email: amargosa@aol.com
Privacy Preference: Don't withhold name or address from public record
Attachment: C:\fakepath\CommentstoDOE--GTCCdraftEIS--signed--6-27-11.pdf

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

1

Big Pine Paiute Tribe of the Owens Valley – W548

Big Pine Paiute Tribe of the Owens Valley, Commenter ID No. W548 (cont'd)

BIG PINE PAIUTE TRIBE OF THE OWENS VALLEY

Big Pine Paiute Indian Reservation

June 27, 2011

Greater-Than-Class C Low-Level Radioactive Waste EIS
Office of Technical and Regulatory Support (EM-43)
U.S. Department of Energy
1000 Independence Avenue, SW.
Washington, DC 20585-0119

RE: Comments on the Greater-Than-Class C Low-Level Radioactive Waste EIS

The following comments address the draft Greater-Than-Class C Low-Level Radioactive Waste EIS.

- Consultation

Government-to-government consultation has been improved since the Big Pine Paiute Tribe (Tribe) sent its scoping comments for the draft EIS on September 21, 2007. The DOE incorporated the comments of the American Indian Writers Committee (AIWC) of the Consolidated Group of Tribes and Organizations (CGTO) in the draft EIS. The Big Pine Paiute Tribe is a member of the CGTO, and Danelle Gutierrez is on the Big Pine Paiute Tribal Council and Cultural Committee, and is also on the American Indian Writers Committee.

Please implement all of the recommendations of the AIWC regarding the Greater-Than-Class C Low-Level Radioactive Waste EIS:

Recommendations of the Consolidated Group of Tribes and Organizations Annual Meeting

Nevada Test Site, August 31- September 2, 2009

1. The CGTO recommends approval of the AIWS text with recommended revisions relating to the Greater-Than-Class C Low-Level Radioactive Waste Environmental Impact Statement (GTTC EIS). Upon completion and incorporation of the revisions, text will be submitted to the Department of Energy/Environmental Management for inclusion into the Draft GTTC EIS.
2. The CGTO recommends the following individuals be appointed to serve on the

American Indian Writers Subgroup (AIWS) with corresponding alternates:

W548-1
W548-2

P.O. Box 700 * 825 South Main Street * Big Pine, CA 93513 * Office: 760-938-2003 * Fax: 760-938-2942

W548-1 The DOE appreciates the input of the Consolidated Group of the Tribes and Organizations in the development of the Tribal Narrative Text for the GTCC EIS. Even though it is beyond the scope of this GTCC EIS, the comment is noted. The operation and coordination of the CGTO is being managed at NNSS.

W548-2 See response to W548-1.

Big Pine Paiute Tribe of the Owens Valley, Commenter ID No. W548 (cont'd)

Primary Members of AIWS

- Betty Cornelius — Chemehuevi
- Lalovi Miller — Southern Paiute
- Maurice Frank-Churchill — Western Shoshone
- Jerry Charles — Western Shoshone
- Danelle Gutierrez — Owens Valley Paiute
- Gerald Kane — Owens Valley Paiute

AIWS Alternates:

- Brenda Drye — Southern Paiute
- Joe Kennedy — Western Shoshone
- Richard Wilder — Owens Valley

W548-1
W548-2
(Cont.)

3. The CGTO recommends the DOE/NNSA provide funding and writing opportunities for the American Indian Writers Subgroup (AIWS) and their designated alternates to develop text for the 2009-2010 Nevada Test Site (NTS) Site-wide Environmental Impact Statement (SWEIS).
4. The CGTO recommends the DOE/NNSA make provisions to insure the AIWS and their designated alternates are involved throughout all developmental phases of the draft NTS SWEIS text.
5. The CGTO recommends the DOE/NNSA make arrangements to have available all sections of the NTS SWEIS draft text, in advance for the AIWS and their designated alternates to use in the development of culturally appropriate text for inclusion into the draft SWEIS.
6. The CGTO recommends the DOE/NNSA provide funding and logistics to hold a meeting of the CGTO so that the AIWS can present their text for final approval prior to inclusion into the NTS SWEIS.
7. The CGTO recommends the DOE/NNSA hold regularly scheduled annual and other meetings as appropriate with the CGTO to receive project updates and interactions with the CGTO. In addition, appropriate funding and logistics are requested to be provided by the agency.

P.O. Box 700 * 825 South Main Street * Big Pine, CA 93513 * Office: 760-938-2003 * Fax: 760-938-2942

Big Pine Paiute Tribe of the Owens Valley, Commenter ID No. W548 (cont'd)

8. The CGTO recommends the DOE/NNSA support the nomination of a TCP previously identified as *Wunjikuda* with expanded studies to enhance previously collected ethnographic information and determination of an appropriate title using knowledgeable tribal elders identified by the CGTO.

9. The CGTO recommends the DOE/NNSA sponsor overnight camping activities at the proposed TCP location to elicit additional information from knowledgeable tribal representatives for the submittal of the nomination.

10. The CGTO recommends the DOE/NNSA provide funding and logistics for designated tribal representatives to conduct regularly scheduled site evaluations of the selected cultural resource sites as designated by the CGTO.

11. The CGTO recommends DOE/NNSA provide the necessary funding to support tribal representatives in their site evaluation activities as identified by the CGTO.

12. The CGTO recommends the deletion and discontinuance of the word "pilgrimage" in reports that refer to American Indian trail systems developed for or in cooperation with NTS Indian Program.

13. The CGTO recommends the DOE/NNSA provide information relating to National Environmental Policy Act (NEPA) criteria about criteria for being designated as a *Cooperating Agency*.

14. The CGTO recommends the DOE/NNSA provide funding and related logistics to host a Pinenut Harvest with participation from designated tribal representatives appointed by the CGTO. This event will be designed to record information and demonstrate traditional harvesting techniques and management strategies intended to stimulate growth and reduce fuel loads.

15. The CGTO recommends the DOE/NNSA provide historic baseline radiation data within locations containing pinyon and juniper stands on the NTS. In addition, it is recommended that pinyon samples be collected from selected sites in preparation of that event.

16. The CGTO recommends the DOE/NNSA provide funding and logistics for 3 tribal representatives (1 each from Western Shoshone, Southern Paiute and Owens Valley Paiute) designated by the CGTO to examine the pinenut crop 90 days in advance of the activity to determine the potential yield of the crop and the appropriateness of hosting a harvest.

17. The CGTO recommends the DOE/NNSA support publishing of the previously developed Indian History Project with editorial changes, as necessary.

W548-1
W548-2
(Cont.)

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Big Pine Paiute Tribe of the Owens Valley, Commenter ID No. W548 (cont'd)

18. The CGTO recommends that the DOE/NNSA locate the Townley Collection as previously requested to determine if the collection exists and the development of steps for tribal review and potential NAGPRA application, if determined necessary. W548-1 W548-2 (Cont.)

- **Hardened On Site Storage (HOSS) not considered as an Alternative**

On p. S-65, it is stated: "Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005, DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options." However, there should be flexibility in choosing options for the disposal of radioactive waste, especially if a long-term storage option is environmentally preferable. HOSS storage has been convincingly advocated by the Institute for Energy and Environmental Research (IEER) and other safe energy organizations. HOSS would allow long-term storage of GTCC wastes so that they can be monitored and retrieved until a better solution is found. As it stands now, DOE is proposing only permanent, irretrievable disposal in all of its alternatives. Alternatives for the proposed project should also include a plan for reducing or phasing out GTCC radioactive wastes, as well as all types of dangerous radioactive waste. W548-3

The Big Pine Paiute Tribe is strongly opposed to GTCC radioactive waste storage at the Nevada National Security Site (NNSS) [formerly known as the Nevada Test Site], and all the other sites proposed in Alternatives 3,4, and 5. W548-4 Radioactive waste stored at the NNSS would harm the environment as well as desecrate sacred lands. The NNSS is still contaminated from nuclear weapons testing, and allowing more poisonous substances to be stored on this land is not a sane alternative. W548-5 Alternative 2, GTCC radioactive waste storage at the Waste Isolation Pilot Project (WIPP) must also not be considered for GTCC waste disposal because the HOSS alternative should be chosen and the WIPP site was not intended for this type of radioactive waste. W548-6

Sincerely,

Bill Helmer

Bill Helmer
Tribal Historic Preservation Officer
Big Pine Paiute Tribe of the Owens Valley

P.O. Box 700 * 825 South Main Street * Big Pine, CA 93513 * Office: 760-938-2003 * Fax: 760-938-2942

W548-3 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

DOE does not have authority to regulate the storage of radioactive wastes at commercial facilities, including nuclear power plants. Under the Atomic Energy Act of 1954 as amended (AEA) (see United States Code: 42 USC § 2011), the NRC is responsible for regulating storage of such wastes. Radioactive waste storage requirements can be found in 10 CFR Part 30 (Rule of General Applicability to Domestic Licensing of Byproduct Material), 10 CFR Part 70 (Domestic Licensing of Special Nuclear Material), and 10 CFR Part 72 (Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste). In addition, the NRC has provided guidance for the storage of LLRW in SECY-94-198, Review of Existing Guidance Concerning the Extended Storage of Low-Level Radioactive Waste, which was issued on August 1, 1994.

W548-4 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

DOE also conducted a generic evaluation of commercial disposal facilities on nonfederal lands in the EIS to order to provide, to the extent possible, information regarding the potential long-term performance of other (nonfederal) locations for siting a GTCC waste land disposal facility.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further site-specific NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

W548-5 DOE is performing environmental restoration activities at NNSS. The ongoing cleanup efforts will continue.

The disposal of GTCC waste at NNSS, based on the EIS analysis, would not present any anticipated radioactive dose to the public. Before a final decision is made on disposing of any waste at NNSS or any other site, additional analysis would be conducted to further evaluate potential human health and environmental impacts.

Big Pine Paiute Tribe of the Owens Valley, Commenter ID No. W548 (cont'd)

W548-6 Disposal of GTCC LLRW and GTCC-like wastes at WIPP or the WIPP Vicinity site is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. In addition, site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal.

However, NEPA does not limit an EIS to proposing and evaluating alternatives that are currently authorized. Furthermore, the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: "The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., Public Law [P.L.] 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions."

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 10-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts for all resource areas evaluated, including human health and transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

Blue Ridge Environmental Defense League, Commenter ID No. T2

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MR. BROWN: Thank you. Louis Zeller is next and Steve Geddes will follow Louis.

MR. LOUIS ZELLER: Thank you. I appreciate this opportunity. My name is Louis Zeller and I'm the science director with the Blue Ridge Environmental Defense League. The Blue Ridge Environmental Defense League opposes the Department of Energy's plan to depose a greater-than-class C waste at Savannah River Site. Central Savannah River area must not become the dumping ground for hundreds of millions of curies of radioactive waste from the nation's nuclear power plants. Further, we oppose transporting this dangerous waste to any other Department of Energy site in New Mexico, Nevada, Idaho or Washington. We have had enough. Today I passed out some flyers here. I'd ask people to show them if you've got one and if you support this position. Now, the presentation earlier was quite correct about the types of waste which--included in greater-than-class C. The one which is the most worrisome is the activated metals which come from nuclear reactors. 98 percent of the

T2-1

T2-2

T2-1 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

DOE also conducted a generic evaluation of commercial disposal facilities on nonfederal lands in the EIS to order to provide, to the extent possible, information regarding the potential long-term performance of other (nonfederal) locations for siting a GTCC waste land disposal facility. It would not be reasonable to analyze in detail an essentially unlimited number of additional non-DOE or nonfederal sites

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further site-specific NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

T2-2 DOE is responsible under the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240) for the disposal of GTCC LLRW. The purpose of the EIS is to evaluate alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. Continued storage of GTCC LLRW at the generating facilities was evaluated as part of the No Action alternative. Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites for reasons provided in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a more centralized disposal facility would result in lower overall human health risks compared to managing the wastes at multiple locations and can be conducted in a safe manner based on compliance with comprehensive regulatory requirements and past experiences.

The EIS evaluates the transportation impacts from the shipments that would be required to dispose of all of the GTCC LLRW and GTCC-like wastes at each of the reference locations evaluated. The EIS addresses the collective population risks during routine conditions and accidents, the radiological risks to the highest exposed individuals during routine conditions, and the consequences to individuals and populations as a result of transportation accidents, including those that could release radioactive or hazardous chemical contaminants. The EIS also evaluated the impact of intentional destructive acts that could occur during waste handling, transportation, and disposal (see Section 2.7.4.3 of the EIS). The potential risk of such destructive acts is estimated to be low. DOE sites considered in the EIS are secure, and the packaging for the GTCC LLRW and GTCC-like wastes would be robust. Because GTCC LLRW and GTCC-like wastes are not readily dispersible, the potential physical impacts from an intentional destructive act (e.g., an explosive blast) would be no greater than those from the release of any radioactivity from a severe accident during waste handling, transportation, and disposal.

DOE's requirements for transportation of radioactive waste are developed and continually revised to ensure maximum protection of public health and the environment, thereby minimizing the risk of a traffic accident. DOE has established a comprehensive emergency management program that provides detailed, hazard specific planning and preparedness measures to minimize the health impacts of accidents involving loss of control over radioactive material or toxic chemicals. DOE's transportation emergency preparedness program was established to ensure that DOE and its contractors, state, tribal, and local emergency responders are prepared to respond promptly, efficiently, and effectively to accidents involving

Blue Ridge Environmental Defense League, Commenter ID No. T2 (cont'd)

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radioactivity would come from these power plants. A relatively minuscule part of that is so-called medical waste. Medical waste is not the problem here, nuclear power is the problem. In our news letter which I left over back on the bench back at that--by the doorway coming in I have reproduced a map from the Department of Energy's files from our own files from 1985 which show crystalline repository rock sites, seven in three Southeastern states, and also the Savannah River Site superimposed on this map. These seven sites for high-level nuclear waste were never removed from the Department of Energy's list of suitable sites in 1988 when the law changed. What we are looking at, we believe, is the camel's nose under the tent. If we take a little bit of waste this year or next year would we be willing to take a little bit more. We have had enough. We do have a recommendation that is that store greater-than-class C radioactive waste in secure facilities at or near the site of generation. This approach offers many advantages over the methods proposed by the Department of Energy. Also manage greater-than-class C in environmental secure safe, retrievable facilities, keep greater-than-class C facilities, which require little or no energy are resistant to terrorist attack and are not centralized, and abandon plans to bury the waste at Savannah River

T2-3

DOE shipments of radioactive materials. Should an accident occur that involves a release of radioactive material to the environment, it would be promptly remediated in accordance with these procedures. These measures would help DOE to minimize and mitigate any impacts on the environment.

T2-3 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

Blue Ridge Environmental Defense League, Commenter ID No. T2 (cont'd)

Site or any other Department of Energy site. Thank you very much.

CARC, Inc., Commenter ID No. T37

MR. BROWN: We actually have another person interested in making comments for the hearing, so we are reconvened. And our speaker is Mark Schinnerer, and welcome.

MR. SCHINNERER: Good job. Thank you. I do apologize for coming late and holding you over for a little bit, but thank you for staying and thank you for being here.

My name is Mark Schinnerer, and I'm the CEO of an organization called CARC, Incorporated, and we serve

CARC, Inc. – T37

CARC, Inc., Commenter ID No. T37 (cont'd)

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individuals with developmental disabilities. And one of the, I guess, premier programs that we have in our organization falls under the scope of what's called "supported employment." And supported employment is a program to find employment for our individuals who have disabilities in the community and to have a competitive job, to have a job that they can learn skills and find value and meaning in their life and be a productive member in the community like you and I are.

One of those jobs -- actually there's, I think, 12 individuals working as a sub -- I'll call it a "sub-subcontractor" with the WIPP program. And they are working in the records, scanning, verifying, retention process. They take records that are produced by that whole facility and help scan those documents, verify that it's accurately scanned, and for that organization then to file them so they can be retrieved later.

We have had this contract since 1991 in this program, and it's been a very successful arrangement with us and that contractor to provide jobs to our individuals. And they're learning valuable skills, and these are good quality jobs. And what we're here to talk about is the continuation of a project and continuation of a program that would allow them to continue to have their jobs.

CARC, Inc., Commenter ID No. T37 (cont'd)

If we see this WIPP site and this project start to decline because the very small original purpose that it was set up for is completed, that's a good thing in itself because we have chosen as a community to step up and say, "We have a problem in this country. You have a problem in your state and in your community, but we have the solution, and we want to solve that for you," which we have done successfully, very safely. And we know how to do what we do well.

With the expansion of this project to the Greater-Than-Class-C, it allows us to continue to do what we do well knowing what we know works, and in my case allows my individuals to continue to have jobs, you know, for a longer term in the future.

My fear is that as projects under the current structure, if it starts to, I guess, close because it's become very successful, that they may not be able to continue their jobs because so many records may not be being produced down the road, and all of those support services would just have to be scaled back.

So what happens to my individuals who have other challenges in their life to get a job now, as a community member? It seems to me, as I said, we know how to do this storage and solving a problem issue so well that people from all around the world come to see what we do. We have

CARC, Inc., Commenter ID No. T37 (cont'd)

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a reputation of records to do it safely, to do it effectively and efficiently, and I think as we look to expanding the scope and allowing Greater-Than-Class-C and potentially other levels of waste, nuclear waste, to come to this facility or one similar to it in the salt beds that we know so well, I think it's prudent to continue that so that we can continue to clean up the problems around the country.

We understand the problems. We understand the nature of the materials. We're not afraid of it. We accept it. Everybody else says, "Not in my backyard."

We say, "Please, in our backyard. We have a great backyard, and it's a very safe backyard, and we have the knowledge and expertise to do it safely."

I have another concern. Our nation is struggling with debt and finances and funding of our national budget, and we're all afraid of what that entails in the future. And for us to go out and look at other sites across the country that we might put this material in, that maybe doesn't even exist in a form that can be readily usable, you're now going to spend more money to build another building, and more money to maybe dig a hole, and all of to infrastructure that would need to be put in place to have another facility, when we have one sitting right here on our doorstep that's open and that's operating and can

T37-1

T37-1 Based on the GTCC EIS evaluation and WIPP's operating record, DOE believes that the WIPP repository would be a safe location for the disposal of GTCC LLRW and GTCC-like wastes, some of which include long-lived radionuclides. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require modification to existing law. In addition, it would be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit.

The State of New Mexico has indicated a willingness to accept GTCC LLRW and GTCC-like wastes for disposal at WIPP. Twenty-eight New Mexico State Senators signed a proclamation made in the Fiftieth Legislature, First Session, 2011, stating: "Be it resolved that we, the undersigned, support the opportunity for other potential missions in southeast New Mexico to adequately address the disposal of defense high-level waste, commercial high-level waste, Greater Than Class C LLRW and surplus plutonium waste, as well as the interim storage of spent nuclear fuel." In response to the Draft GTCC EIS, Secretary David Martin, Secretary of the New Mexico Environment Department, sent a letter to DOE on June 27, 2011, stating that "the Department encourages DOE to support the WIPP or WIPP Vicinity proposed locations as the preferred alternatives addressed in the Draft EIS. The geologic repository is the favored alternative being more effective for the enduring time frames for this waste type." In addition, the Governor of New Mexico, in a letter to DOE Secretary Steven Chu on September 1, 2011, stated that the State of New Mexico encourages DOE to support the proposed location of WIPP as the preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes.

CARC, Inc., Commenter ID No. T37 (cont'd)

very effectively do what you or we need to have done with this material. T37-1 (Cont.)

And I think it would be prudent for us, as I look at my business, how can I capitalize on the assets that I have to continue to grow my business? We, as a nation, should look at how can we capitalize on the assets that we have surrounding an issue or a problem to solve that problem or to grow that business or to increase production, I guess you could say.

So I guess those are my concerns from individuals who successfully have been employed for many, many years in this wonderful project, to the pragmatic view as an individual and citizen of this community and a taxpayer in this country, to do it reasonably.

Why do we need to waste our time, waste our money? And I think the information has been, you've looked at sites that aren't even viable, and we're wasting time and money. So I guess the old country boy in me says, "Come on, guys. Let's get on with it. We know how to do it here. We do it well, and the infrastructure is in place. Why not use what we got?"

And I think that's all.

Carlsbad Chamber of Commerce, Commenter ID No. T36

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Okay. Our next speaker is Robert Defer, and he will be followed by John Waters.

MR. DEFER: Good evening. I am Robert Defer, the CEO of the Carlsbad Chamber of Commerce. I want to thank you for the opportunity to share some information with you tonight.

You know, during my visit to WIPP, I learned that the area's big salt beds are ideal for the permanent disposal because of the salt's tendency to creep, to encapture it, to move in on it, to surround it as a cocoon, and it's perfect for doing this type of waste.

And the other reason is it's relatively easy to mind. But what impressed me the most was the professionalism that's going on out at WIPP. Also within that is the safety procedures and all the safety records that they have had during their inception. It's just fabulous what they're able to do and what has been done by WIPP.

It is evident that the salt is doing exactly what the scientists said it would do: Permanently isolating the radioactive waste from the environment. As a community, we have the opportunity to continue our partnership with the DOE and its contractors to remedy the nation's, not our problem, not just our problem, but the nation's nuclear waste by extending WIPP's scope to

Carlsbad Chamber of Commerce – T36

Carlsbad Chamber of Commerce, Commenter ID No. T36 (cont'd)

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include Greater-Than-Class-C waste.

As the Carlsbad Chamber of Commerce director, I realize the positive impact that the operations has had on the economy of Carlsbad also, and that's wonderful.

I want you to know that not only I, but the Carlsbad Chamber of Commerce completely endorses the WIPP project and change its scope so that it can receive Greater-Than-Class-C waste. Thank you very much. T36-1

T36-1 Comment noted.

Carlsbad City Council, Commenter ID No. T29

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MR. BROWN: Thank you. Janell Whitlock, and she will be followed by Dick Doss.

MS. WHITLOCK: Good evening, and thank you for giving me the opportunity to speak. My name is Janell Whitlock. I serve on the Carlsbad City Council, and I've been a member of this wonderful community for many years. I want to thank you for giving me this opportunity to express my opinion as to what I believe is the best alternative for the safe disposal of Greater-Than-Class-C waste.

Carlsbad City Council – T29

Carlsbad City Council, Commenter ID No. T29 (cont'd)

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My husband, the late Senator Louis Whitlock, and many members of this community are strong proponents for the WIPP project. I am certain in the early days they were really interested in the number of jobs they would bring to southeast New Mexico, but ultimately they were concerned about the safety, the safety of the land, the safety of the water, and the safety of the citizens of this area.

The Department of Energy, its contractors and the WIPP facility have performed beyond our expectations for more than three decades. Today, WIPP is one of the safest DOE facilities in the nation. Because of WIPP, 17 TRU Waste sites around the country have been cleaned up, and that creates a safer, cleaner environment for millions of Americans who live near those facilities.

T29-1

In my opinion, there is no scientific need to look any further for a disposal for the Greater-Than-Class-C waste. The WIPP site is one of the most studied repositories in the world, and the WIPP workforce has demonstrated that radioactive waste can be transported, can be managed and disposed of safely.

I ask you to consider WIPP as the alternative of choice for the Greater-Than-Class-C waste. And again, thank you for giving me the opportunity to speak.

MR. BROWN: The next speaker is Dick Doss, who

T29-1 Based on the GTCC EIS evaluation and WIPP's operating record, DOE believes that the WIPP repository would be a safe location for the disposal of GTCC LLRW and GTCC-like wastes, some of which include long-lived radionuclides. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require modification to existing law. In addition, it would be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit.

The State of New Mexico has indicated a willingness to accept GTCC LLRW and GTCC-like wastes for disposal at WIPP. Twenty-eight New Mexico State Senators signed a proclamation made in the Fiftieth Legislature, First Session, 2011, stating: "Be it resolved that we, the undersigned, support the opportunity for other potential missions in southeast New Mexico to adequately address the disposal of defense high-level waste, commercial high-level waste, Greater Than Class C LLRW and surplus plutonium waste, as well as the interim storage of spent nuclear fuel." In response to the Draft GTCC EIS, Secretary David Martin, Secretary of the New Mexico Environment Department, sent a letter to DOE on June 27, 2011, stating that "the Department encourages DOE to support the WIPP or WIPP Vicinity proposed locations as the preferred alternatives addressed in the Draft EIS. The geologic repository is the favored alternative being more effective for the enduring time frames for this waste type." In addition, the Governor of New Mexico, in a letter to DOE Secretary Steven Chu on September 1, 2011, stated that the State of New Mexico encourages DOE to support the proposed location of WIPP as the preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes.

Carlsbad City Council, Commenter ID No. T29 (cont'd)

will be followed by Russell Hardy.

MR. DOSS: Good evening. My name is Dick Doss. I'm a lifetime resident of Carlsbad. I'm a retired banker -- don't shoot me. I'm a member of the Carlsbad City Council -- don't shoot me again -- and a concerned citizen, who has enjoyed living in Carlsbad and raising a family here.

I couldn't support this project unless it was safe, and safety is the prime concern not only of the repository here, but of where we put the waste, Greater-Than-Class-C, that's out in the general area of the United States.

The second problem with where you are going to put it is the cost. And the study has been done here, the place has been shown to be safe and viable, and the cost has already mainly been absorbed by the TRU Waste that has been put into the ground and the Greater-Than-Class-C can go in at a much better price.

This facility has provided many local jobs, which are high-paying jobs, and has developed many, many young people in this country, who have the knowledge now of nuclear waste in scientific areas that are not available to be learned in other areas.

And local support for this project has been strong since it was first proposed by Senator Gant and Mud

Carlsbad City Council, Commenter ID No. T29 (cont'd)

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Reynolds from over in Lovington. I would just like to add my support to the use of the WIPP site for the storage of the Greater-Than-Class-C waste.

Carlsbad Department of Development, Commenter ID No. T129

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MR. BROWN: Thank you.

John Waters.

MR. WATERS: Hi, my name is John Waters. I am the executive director for the Carlsbad Department of Development. I also am a father of four, and was a very busy man today, taking around the governor's secretary of the economic development department, and I attended the City Council meeting, but this is important enough for me and my family to be here. I believe we will find that amongst everybody here. I think that there is wide support in Carlsbad for the WIPP project, not only for the project as it exists now, but for an expansion of the operations at the Waste Isolation Pilot Plant.

Greater-Than-Class-C waste is something that's been accumulating around the nation, not only at DOE sites but commercial sites across the country. It's out there. It's a problem. Carlsbad, we pride ourselves on solving

Carlsbad Department of Development – T129

Carlsbad Department of Development, Commenter ID No. T129 (cont'd)

problems. We are not a community that likes to sit by and say, "This is somebody else's problem. Take it somewhere else."

Carlsbad is a community of people that solve problems, and we're proud of it. We're proud we're solving the transuranic waste problem around the country. That, to us, is a source of pride. We're proud that we've proven skeptics and critics wrong by safely transporting this waste from across the country, millions of miles traveled to bring it here and handling it safely and safely interring it into the salt beds thar are 250 million years old. We're proud of that, and we're going to continue to show people across the nation how proud we are of that.

It's my understanding that this waste or some of this waste comes from materials that they've been sealed in small metal containers. They're activated metals that were maybe components of nuclear reactors either from DOE or commercial facilities. And that this low-level waste, the low-level waste involved with this needs to be isolated. They need to be isolated for somewhere around 500 years to possibly 1,000 years depending on what you're looking at.

Well, the WIPP site, which is only 26 miles from Carlsbad, it has an EPA certification for 10,000 years, to

Carlsbad Department of Development, Commenter ID No. T129 (cont'd)

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store radioactive waste for at least 10,000 years. You talk to scientists, many scientists, geologists around here, they'll add zeros under that figure, and I mean zeros with s's on it.

It's an impressive facility. We're fortunate to have the geology that we have here. The salt is a very stable formation. I believe, and I would like to offer this, my opinion, as a solution for the disposal of Greater-Than-Class-C waste, is the WIPP site. I agree, we shouldn't be putting it in Los Alamos. That's just ridiculous. We're trying to clean that place up. To put more up to there is counter-productive, it's counter-intuitive. You shouldn't be going out to mine a completely different site outside of the WIPP facility. We've got it there. We've got the hole in the ground. We're taking waste that are quite similar to that.

T129-1

We believe that that is the place for it. Listen, our nation is going through tough financial times. We hear about it every day. Congress fighting the deficit. We see it even in our local and regional economies and in other areas. I think it only makes sense to go with this existing successful repository. It makes fiscal sense. It's there. You don't have to go through the process of resisting in an area. You don't have to redrill a hole. You don't have to go through and do all

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Carlsbad Department of Development, Commenter ID No. T129 (cont'd)

of the things we've been doing here at WIPP the last 12 years. It is there. It's ready to go.

And I believe that this is, you know, after 12 years of safe efficient operations, I'm confident as a dad, as a community leader, as somebody who grew up here in Carlsbad. I'm confident that the people that work at the facility that are contractors, that are DOE, are on the right track. I believe that this is the place to put it. I believe that it will help solve the problem, and that's what we're about here in Carlsbad, is solving problems.

Thank you very much.

Cherry Country, Commenter ID No. W565

Abplanalp, Jennifer Marie

From: gtcceiswebmaster@anl.gov
Sent: Tuesday, June 28, 2011 12:03 AM
To: gtcceiswebmaster@anl.gov
Subject: Receipt: Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10565

Thank you for your comment, Michael Shadbolt.

The comment tracking number that has been assigned to your comment is GTCC10565. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 28, 2011 12:03:02AM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10565

First Name: Michael
Middle Initial: J
Last Name: Shadbolt
Organization: Cherry Country
Address: 6200 Oak Grove road
City: Rickreall
State: OR
Zip: 97306
Country: USA
Email: mike@thecherrycountry.com
Privacy Preference: Don't withhold name or address from public record

Comment Submitted:
As president of a growing food company named Cherry Country, I am naturally conscious of the health of the overall environment in Oregon since it so directly informs the opinions of our customers regarding Oregon as a place to grow food. If these shipments are allowed, it will detrimentally contribute to the state's image. When I lived in Astoria in the 1970s, I worked as a marine economist and read about Hanford's pernicious impact on the Columbia River. As a people, we should dither no longer and cease and desist any additional inbound nuclear waste to Hanford. We should also speed up funding of more action to contain the wastes that we already have. W565-1

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

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Cherry Country – W565

W565-1 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup effort will continue.

Citizen Action New Mexico, Commenter ID No. T73

Capital Reporting Company 70

MR. BROWN: Thank you. Dave McCoy is next, and Leona Morgan will follow Dave.

MR. MCCOY: Good evening. I'm Dave McCoy, Executive Director for Citizen Action New Mexico. We've been fighting nuclear waste disposal at the mixed waste landfill, other sites. Nobody has really spoken -- I'm not going to speak so much as the director as I want to put on my cap as an attorney. I am a licensed attorney in the state of California. And I want to look at this draft EIS from a legal perspective, and I won't have the kind of heartfelt comments that I'm so grateful for so many of you making.

The selection of WIPP as the alternative site provides numerous opportunities for lengthy litigation. A brief legal history of the Waste Isolation Pilot Plant is that an agreement was reached in 1981 that limited WIPP to the disposal of only defense-related transatlantic waste. A subsequent lawsuit in 1991 by the state of New Mexico sought to stop shipments to WIPP. Nevertheless, Congress made the determination to proceed with WIPP via the Land

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T73-1

Citizen Action New Mexico – T73

T73-1 Disposal of GTCC LLRW and GTCC-like wastes at WIPP or the WIPP Vicinity site is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. In addition, site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal.

However, NEPA does not limit an EIS to proposing and evaluating alternatives that are currently authorized. Furthermore, the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: “The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., Public Law [P.L.] 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions.”

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts for all resource areas evaluated, including human health and transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

Citizen Action New Mexico, Commenter ID No. T73 (cont'd)

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Withdrawal Act of 1992. Unless GTCC low-level waste is contaminated with transatlantic isotopes of defense origin; that is, non-commercial nuclear waste operations, the Waste Isolation Plant cannot accept the waste.

T73-1 (Cont.)

Using WIPP for a commercial radioactive waste storage would require amendment of the Land Withdrawal Act of 1992. DOE would also be in for a battle as to whether the EPA standards put in place for Yucca Mountain disposal, and those radiological releases to the public should prevail over the standards of another section of law. The EPA standards for WIPP require that the annual cumulative dose rate for many releases be less than .15 millisievert per year for 10,000 years after closing. Yucca Mountain standards have several added requirements regarding those exposures.

T73-2

The DOE proposal to further radioactively contaminate an impoverished minority public will bring additional litigation for environmental justice considerations. A modification of the Resource Conservation and Recovery Act disposal permit for WIPP from the New Mexico Environment

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T73-2 DOE agrees that any waste disposed at WIPP would need to meet the EPA standards. As presented in Section 4.3.4 of the GTCC EIS, DOE conducted a complementary cumulative distribution functions (CCDF) analysis in the same manner as was done for TRU waste (GTCC LLW Environmental Impact Statement, Post Closure Performance Data Package, October 2012). Based on this analysis, addition of the identified GTCC LLRW and GTCC-like waste to WIPP would be in compliance with existing EPA requirements.

Citizen Action New Mexico, Commenter ID No. T73 (cont'd)

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Department would receive further litigation. The Council on Environmental Quality regulations and DOE implementing regulations provide clear direction for tiering broad program decisions. These regulations encourage DOE officials to tier from broader programmatic EIS documents to those with a narrower scope in order to focus on the issues ready for decisions. DOE has not met those SEQ requirements.

No programmatic environmental impact statement exists for nuclear waste disposal in the U.S. That would include the DOE/GTCC-like waste or the commercial GTCC LLW. The treatment, storage and disposal of commercially generated GTCC waste, along with other DOE waste types that have similar hazard characteristics, must be made subject of a programmatic analysis under the National Environmental Policy Act. The plan to use WIPP as a disposal site is inconsistent, with a DOE final waste management PEIS, which Mr. Hancock mentioned, from 1997.

MR. BROWN: You got about a minute left. Thanks.

MR. MCCOY: The PEIS states, quote, "The only

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T73-3

T73-3 The scope of this EIS is adequate to inform decision-making for the disposal of GTCC LLRW and GTCC-like waste. Sufficient information is available to support the current decision-making process to identify (an) appropriate site(s) and method(s) to dispose of the limited amount of GTCC LLRW and GTCC-like waste identified in the EIS.

DOE believes this EIS is timely, especially given the length of time necessary to develop a GTCC LLRW disposal facility.

DOE developed this EIS to support a decision on selecting a disposal facility or facilities for GTCC LLRW and GTCC-like waste, to address legislative requirements, to address national security concerns (especially for sealed sources), and to protect public health and safety. The purpose and need for the proposed action, as discussed above, is stated in the EIS (Section 1.1). The scope of the EIS is focused on addressing the need for developing a disposal capability for the identified inventory of GTCC LLRW and GTCC-like wastes. DOE plans a tiered decision-making process, in which DOE would conduct further site-specific NEPA reviews before implementing an alternative ultimately selected on the basis of this EIS.

DOE explained in the WM PEIS (DOE, 1997, *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste*, DOE/EIS-0200-F, Office of Environmental Management, Washington, D.C.) that additional analyses would be prepared to implement DOE's programmatic decisions. The GTCC EIS analyzes the potential environmental impacts associated with the disposal of GTCC LLRW and GTCC-like (DOE) wastes. Since the WM PEIS relates only to DOE waste, the inclusion of commercial waste in the WM PEIS is premature until the GTCC EIS is finalized and a ROD is issued. Depending on the outcome of this ROD, DOE will evaluate whether additional programmatic or site-specific NEPA reviews or updates to previous decisions are needed, as appropriate. Any additional NEPA reviews or considerations will be conducted with full opportunity for public input, consistent with Council on Environmental Quality and DOE NEPA requirements.

Citizen Action New Mexico, Commenter ID No. T73 (cont'd)

alternative being considered for the WIPP is a possible treatment of all contact handled TRU waste under the TRU Waste centralized alternative; thus, the impacts for treatment of true waste at WIPP were not appropriately considered for the inclusion of this waste."

I could go on with a whole lot more violations and failure to comply with the NEPA that are going to confront the DOE. And the first people it will be turned to in this battle against this GTCC waste coming here, will be the attorneys. So you might as well look at some of these legal problems that you're going to be facing, and stop wasting your time as presenting the WIPP as some kind of a location where this is going to be stored. Legally speaking, it just ain't (sic) gonna happen, and you're wasting our time and money even coming out with this proposition. Thank you.

Citizens for Alternatives to Radioactive Dumping, Commenter ID No. T69

MR. BROWN: And Mary Alice Trujillo will follow Janet.

MS. GREENWALD: Hi, I'm Janet Greenwald, and I'm a coordinator of Citizens for Alternatives to Radioactive Dumping, a 33-year-old organization, state-wide organization that is mostly volunteers. Our mission is to protect the land and people of New Mexico from radioactive contamination, which I'll state right away, is impossible.

In my job, I see a lot of people who are ill and some people who are dying, and I also work with the children of families that have been devastated by radioactive contamination. I'm talking about uranium miners, I'm talking about production workers. I am grateful that Carlsbad does have a culture of safety and that no major issues of gross contamination have happened there.

I want to illustrate to you how dangerous these wastes are. Several years ago, a janitor who worked at WIPP went up to the mezzanine where he should

Citizens for Alternatives to Radioactive Dumping, Commenter ID No. T69 (cont'd)

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not have been, and with his friends, they smoked some cigarettes. In order to cover up the smoke, that smell of smoke, they opened a small trap door in a pipe where radioactive gases that have built up in the transportation of the WIPP karsts were being vacuumed out to a HEPA filter. He was dead within six months from bleeding lungs from a few minutes of exposure. Radioactive wastes are mixed with chemicals, they produce gases, they're very active, and they're dangerous, they're very dangerous.

WIPP is in one of the largest karstlands in the world, where water runs underground rather than above ground. DOE claims that WIPP is on an island in a sea of karst, but no independent scientist has ever supported that position, and some of DOE's own contractors and scientists have disagreed with it. They disagree with sitting a nuclear facility in southeastern New Mexico. NRC forbids nuclear facilities to be sited in CARD. It's too unstable. If you want to learn more about that, you can turn to CARD's Website, cardnm.org, or you can turn to EPA docket and see the current controversy over why the

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T69-1

T69-1 The WIPP has been certified by the EPA as an acceptable facility for the disposal of defense-generated TRU waste. The physical and chemical characteristics of the GTCC LLRW and GTCC-like wastes proposed for disposal in the WIPP repository are comparable to the TRU wastes currently being disposed of in the repository.

Dissolution has occurred outside of the WIPP Land Withdrawal Boundary, as shown by karst features in the Nash Draw area. The EPA has noted that it is possible that dissolution occurred at the WIPP site sometime in the distant past (i.e., millions of years ago for strata-bound features) but was associated with a geologic setting other than that currently present at WIPP. However, dissolution in the underlying geology is not an ongoing process at the WIPP site. The EPA, as part of its compliance certification process, concurred with the modeling performed by DOE (which assumed that there was no karst within the WIPP site boundary) and indicated that this was consistent with existing borehole data and other geologic information.

Citizens for Alternatives to Radioactive Dumping, Commenter ID No. T69 (cont'd)

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wellheads at WIPP are inexplicably rising and falling.

Over the last couple of days, I've been traveling over the southern north-south WIPP route and talking about people along that route. I have been listening to them and listening to their concerns and their approvals also. They've mentioned several times that they were grateful, or several people mentioned that they were grateful that the Department of Energy kept their promise to make the highway between I-40 and the WIPP site a four-lane road. They're very appreciative of that kept promise. They're very unappreciative of the fact that the WIPP trucks park everywhere. They park next to their stores, next to their restaurants, and they know that there has been no study on the effect of the radiation that these trucks give off to pregnant women, women in general, the fetus, the young child. Because all radiation standards are based, as Chelsea told us, on reference man. Everyone else, and especially the fetus, is much more susceptible to radiation, contamination and resulting illnesses than reference men.

MR. BROWN: One minute left.

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T69-1 (Cont.)

T69-2

T69-2 Disposition of the GTCC LLRW and GTCC-like wastes will be handled in a manner that is protective of human health and the environment and in compliance with applicable requirements and regulations. Doses to workers and the public will be minimized to the extent practical. The methodology used to estimate the radiological human health impacts in the EIS is based on standard practices that are subject to revision as our understanding of the effects of radiation on humans evolves. The same methodology is used in the evaluation of all alternatives; thus, any modification of this methodology would not affect the comparisons among alternatives and the identification of the preferred alternative.

Citizens for Alternatives to Radioactive Dumping, Commenter ID No. T69 (cont'd)

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MS. GREENWALD: Okay.

MR. BROWN: Okay, thanks.

MS. GREENWALD: When I talked to these people along the route, they said that they were going to fight commercial waste going to WIPP, and they said, there is many reasons for that, but the main reason is that the Department of Energy came to them and told them that if transatlantic military waste went through their communities, if they went along with this, that there would never be commercial waste disposal at WIPP. And they said to me, where we come from, a man's words still mean something, and that we feel deeply resentful that the Department of Energy lied to us. Thank you for your time.

T69-3

T69-3 Disposal of GTCC LLRW and GTCC-like wastes at WIPP or the WIPP Vicinity site is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. In addition, site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal.

However, NEPA does not limit an EIS to proposing and evaluating alternatives that are currently authorized. Furthermore, the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: "The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., Public Law [P.L.] 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions."

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 10-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts for all resource areas evaluated, including human health and transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero post-closure because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

Citizens for Alternatives to Radioactive Dumping, Commenter ID No. T33

25

MR. BROWN: Thank you.

Janet Greenwald, and Noel Marquez will be next.

MS. GREENWALD: Hi, I'm Janet Greenwald, and I'm co-coordinator of Citizens for Alternatives to Radioactive Dumping. It's a mostly volunteer group, a statewide group. It was founded by people in southeastern New Mexico who are concerned about the ramifications of nuclear projects for their lives. CARD concentrates on safe environments and healthy citizens.

I know that one of the reasons that WIPP is being considered for Greater-Than-Class-C waste is a good safety record here at WIPP and the good safety culture here in Carlsbad. Unfortunately, human intention cannot change the hydrology and geology of this area. Southeastern New Mexico is one of the largest karst lands in the world.

In the 30 years that the stability of the WIPP site has been debated, there has never been an independent scientist who has said that they think this is good place, southeastern New Mexico, for siting nuclear facilities.

The NRC forbids siting nuclear facilities in karst. The Department of Energy's claim is that the WIPP side is an island in a sea of karst, and as I say though,

T33-1

T33-1 The WIPP has been certified by the EPA as an acceptable facility for the disposal of defense-generated TRU waste. The physical and chemical characteristics of the GTCC LLRW and GTCC-like wastes proposed for disposal in the WIPP repository are comparable to the TRU wastes currently being disposed of in the repository.

Dissolution has occurred outside of the WIPP Land Withdrawal Boundary, as shown by karst features in the Nash Draw area. The EPA has noted that it is possible that dissolution occurred at the WIPP site sometime in the distant past (i.e., millions of years ago for strata-bound features) but was associated with a geologic setting other than that currently present at WIPP. However, dissolution in the underlying geology is not an ongoing process at the WIPP site. The EPA, as part of its compliance certification process, concurred with the modeling performed by DOE (which assumed that there was no karst within the WIPP site boundary) and indicated that this was consistent with existing borehole data and other geologic information.

WIPP is located in a salt formation, and moisture (brine) is naturally present. The brine makes up about 1% of the rock volume. The brine comes in two forms: interstitial and included. Interstitial brine is trapped between crystal facies (between fracture boundaries at the microscopic scale). Included brine is inside small cavities called inclusions trapped within the crystals themselves. Samples of brine collected from locations just inches apart from one another show different chemical and isotopic compositions, indicating that the brine did not move more than a few inches from where it was trapped when an ancient tidal flat dried up 250 million years ago. This indicates the extremely slow movement of water in this salt formation. In addition, the current design for operating WIPP involves sealing the shafts to ensure that no fresh water can enter and affect the disposed-of wastes.

Citizens for Alternatives to Radioactive Dumping, Commenter ID No. T33 (cont'd)

independent scientists have not supported that idea, and even some DOE scientists have not supported that idea.

You can look into this long historical debate by going to CARD's website at card.nm.org. If you want to see the more recent aspects of the debate, you could got to epa.gov on the last recertification of WIPP.

So CARD's position is that there should be no more nuclear facilities sited in this area. We know that there are many benefits to the people here who have done such a fine job at WIPP, but we are frightened about the -- not the near future, but the far future, as far as a situation with water goes.

T33-1
(Cont.)

Karst is where water runs underground. It runs, we believe, above the WIPP site, according to our consultants and some of DOE's consultants, and eventually the Pecos River and other water sources would be polluted. Maybe not in our lifetime, maybe not in our children's lifetime, but we believe by our grandchildren's lifetime that that will be so. And this pollution will go on to Texas and the communities along the Mexican border where the Rio Grande and the Pecos mix together, so that one can't drink it, and one can't use it for agriculture.

We are hoping that the Department of Energy and negotiations will be blessed with far-sightedness and wisdom when siting this repository. We're sorry we can't

Citizens for Alternatives to Radioactive Dumping, Commenter ID No. T33 (cont'd)

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offer answers for the disposal of this waste. We hate to say, "Anywhere but here."

I guess that's one of the things that we are saying. I want to thank you once again for this opportunity to speak, and good evening to everyone.

Citizens for Alternatives to Radioactive Dumping, Commenter ID No. L59

L-59

received JUN 27 2011

JUN 27 2011

Mr. Arnold M. Edelman
EIS Document Manager
US Department of Energy
GTCC EIS
Cloverleaf Building EM-43
1,000 Independence Ave SW
Washington D.C 20585

Dear Mr. Edelman,

New Mexico was promised, when we accepted waste from bomb-making, that we would not have to deal with commercial waste. Bringing GTCC waste to WIPP would break that promise.

The people in Carlsbad would profit from additional waste coming to WIPP but we who live on the WIPP routes would only experience additional risks to our health and enviroment.

L59-1

Citizens for Alternatives to Radioactive Dumping – L59

L59-1 Disposal of GTCC LLRW and GTCC-like wastes at WIPP or the WIPP Vicinity site is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. In addition, site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal.

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Citizens for Alternatives to Radioactive Dumping, Commenter ID No. L59 (cont'd)

Received

L59-2
If GTCC needs deep permanent buriel, why not build a special repository for it? New Mexico has already been chosen for uranium mining, atomic bomb production, bomb testing and disposal of transuranic waste.

L59-3
Is it fair to choose New Mexico for yet another dangerous nuclear project? We are a minority majority state. Have you considered that bringing GTCC waste here would be a case of environmental racism?

L59-4
Please do not send GTCC down our highways, already over burdened with dangerous nuclear shipments.

Sincerely,
Janet Greenwald
Co-coordinator, CARD
(Citizens for Alternatives to Radioactive Dumping)
202 Harvard SE, Alb NM 87106

L59-2 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW

Also, DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in an existing geologic repository.

L59-3 All relevant potential exposure pathways were considered in the analyses presented in the EIS. These analyses addressed a range of reasonable scenarios and estimated the potential impacts on all environmental resources, including environmental justice, consistent with NEPA requirements. Environmental justice impacts to residents of New Mexico were addressed in Sections 4.2.7, 8.2.7, and 11.2.7 in the EIS.

L59-4 DOE's requirements for transportation of radioactive waste are developed and continually revised to ensure maximum protection of public health and the environment, thereby minimizing the risks of routine transportation and of a traffic accident. DOE has established a comprehensive emergency management program that provides detailed, hazard specific planning and preparedness measures to minimize the health impacts of accidents involving loss of control over radioactive material or toxic chemicals. DOE's transportation emergency preparedness program was established to ensure that DOE and its contractors, state, tribal, and local emergency responders are prepared to respond promptly, efficiently, and effectively to accidents involving DOE shipments of radioactive materials. Should an accident occur that involves a release of radioactive material to the environment, it would be promptly remediated in accordance with these procedures. These measures would help DOE to minimize and mitigate any impacts on the environment.

City of Mosier, City Councilor, Commenter ID No. W346

Abplanalp, Jennifer Marie

From:	gtcceiswebmaster@anl.gov
Sent:	Thursday, June 23, 2011 12:23 AM
To:	gtcceiswebmaster@anl.gov
Subject:	Receipt: Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10346

Thank you for your comment, Kathleen Fitzpatrick.

The comment tracking number that has been assigned to your comment is GTCC10346. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 23, 2011 12:23:11AM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10346

First Name: Kathleen
Last Name: Fitzpatrick
Organization: City of Mosier City Councilor
Address: 1500 Rock Creek Rd.
City: Mosier
State: OR
Zip: 97040
Country: USA
Email: kfitzz77@gmail.com
Privacy Preference: Don't withhold name or address from public record

Comment Submitted:
Currently, all of the US DOE's proposals for cleanup would leave the Columbia River heavily contaminated for thousands of years. If you can't clean up what's there, how can you propose to ship more in? W346-1

No more waste until you clean up your mess!

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

1

City of Mosier, City Councilor – W346

W346-1 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup efforts will continue.

City of Portland, Oregon, Commenter ID No. L283

CITY OF

PORTLAND, OREGON

Sam Adams, Mayor
Amanda Fritz, Commissioner
Nick Fish, Commissioner
Dan Saltzman, Commissioner
Randy Leonard, Commissioner

May 19, 2011

Arnold Edelman
Document Manager, Office of Technical and Regulatory Support (EM-43)
U.S. Department of Energy
1000 Independence Avenue,SW.
Washington, DC 20585–0119

RE: Greater-Than-Class C Low-Level Radioactive Waste EIS

Thank you for the opportunity to comment on the Draft Greater-Than-Class C Low-Level Radioactive Waste Environmental Impact Statement (GTCC EIS). We appreciate the complexity that the USDOE faces in proposing alternatives for the safe disposal of Greater-Than-Class-C radioactive waste.

The Portland City Council opposes the transportation of nuclear waste through our region to the Hanford site and supports the alternatives in the GTCC EIS which are most protective of the long-term health of the Columbia River and our citizens. L283-1

As you know, Portland sits at the confluence of the Columbia and Willamette Rivers, the health of which are vital to the success of this city. The Hanford Site, the most contaminated site in the Western Hemisphere, currently has documented leakage of strontium-90 in the Columbia River at concentrations of 1200 times the EPA standard. We understand that on December 18, 2009, the DOE adopted a preferred alternative in the Draft Tank Closure and Waste Management (TC&WM) EIS, which proposes not shipping additional GTCC LLRW to Hanford at least until the Waste Treatment Plant is operational. While we appreciate that decision, it has come to our attention that a number of the proposed alternatives in this draft EIS pose serious threats to regional human and environmental health. L283-2

In addition to the downstream impacts of the on-site mitigation and clean-up activity at Hanford, we are significantly dismayed by Alternatives3-5 in the draft EIS, which propose the construction of facilities at Hanford,for the receipt, treatment, and storage of nuclear waste from other US nuclear facilities. Despite the 2009 action by DOE limiting receipt of nuclear waste at that facility until the Waste Treatment Plan is operational, future receipt of off-site waste at Hanford is projected to have significant adverse long-term impacts on the groundwater, which ultimately impacts the Columbia River. Moreover, the transfer of nuclear waste through Oregon on its way to Hanford poses an unacceptable risk to the health of Portland citizens. L283-3

City of Portland, Oregon – L283

L283-1 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

If DOE decides to implement its preferred alternative for the TC&WM EIS, GTCC LLRW and GTCC-like wastes would not be shipped through the Columbia River Gorge for disposal at the Hanford Site until the waste treatment plant is operational. However, regardless of where the GTCC waste disposal facility is ultimately located, a relatively small amount of GTCC LLRW and GTCC-like wastes may be transported through the Columbia River Gorge on their way to the disposal facility. The waste would be generated within the states of Oregon and Washington and would include actinide sealed sources and Cs-137 irradiators from local medical institutions, research facilities, universities, and other NRC and Agreement State licensees.

The transportation of radioactive waste will meet or exceed DOT and NRC regulatory requirements that promote the protection of human health and the environment. These regulations include requirements for radioactive materials packaging, marking, labeling, placarding, shipping papers, and highway routing. The waste shipments would be on preferred routes, which are interstate highways or alternative routes designated by a state routing agency in accordance with DOT regulations (49 CFR Part 397, Subpart D). The GTCC LLRW and GTCC-like wastes would be shipped in approved waste packages and transportation casks. The robust nature of these casks limits the potential release of radioactive and chemically hazardous material under the severest of accident conditions. It is unlikely that the transportation of GTCC LLRW and GTCC-like wastes to any of the alternative sites evaluated in the EIS would cause an additional fatality as a result of radiation from either incident-free transportation or postulated transportation accidents.

The EIS evaluated the transportation impacts from the shipments that would be required to dispose of all of the GTCC LLRW and GTCC-like wastes at the various disposal sites. The EIS addressed the collective population risks during routine conditions and accidents, the radiological risks to the highest exposed individuals during routine conditions, and the consequences to individuals and populations as a result of transportation accidents, including those that could release radioactive or hazardous chemical materials. About 12,600 shipments would be required to transport all of the GTCC LLRW and GTCC-like wastes to the Hanford Site for disposal. This would result in about 50 million km (30 million mi) of highway travel, with no expected LCFs. One fatality directly related to an accident might occur (see Section 6.2.9.1).

The EIS also evaluated the impact of intentional destructive acts that could occur during waste handling, transportation, and disposal (see Section 2.7.4.3 of the EIS). The potential for such destructive acts is low. DOE sites considered in the EIS are secured, and the packaging for the GTCC LLRW and GTCC-like wastes would be robust. The GTCC LLRW and GTCC-like wastes are not readily dispersible, and the impacts from any attempts to disperse these materials during transportation (such as the impacts from an explosive blast) would not be greater than the impacts from any potential accidental release of radioactivity. Impacts from severe natural phenomena, such as earthquakes and tornados, would not be expected to be significant, given that the GTCC LLRW and GTCC-like wastes are largely not dispersible and given the robust nature of the waste packages and containers.

DOE's standard operating procedure for transportation of radioactive waste is developed and continually revised to ensure that the utmost protection of public health and the environment is achieved and that the risk of a traffic accident is minimized. For example, DOE has established a comprehensive emergency management program (Transportation Emergency Preparedness Program or TEPP) that provides detailed, hazard specific planning and preparedness measures to minimize the health impacts from accidents involving loss of control over radioactive

City of Portland, Oregon, Commenter ID No. L283 (cont'd)

As stated in the Mayor's testimony on the Hanford TC&WM EIS last year, the USDOE estimated 816 cancer deaths to residents along shipping routes, and to people in traffic near the trucks, from a similar 2008 proposal for nuclear waste shipments. That estimate is based on radiation doses for an adult male and does not account for the possibility of traffic accidents, leakages, or acts of terror along the transfer routes. The City of Portland adamantly opposes any alternative in the GTCC EIS that poses such incalculably high risk to the health of our citizens and surrounding environment. L283-4

Given that there are already many barriers to quickly and adequately cleaning up the existing nuclear waste at Hanford, it is plainly unacceptable to consider importing additional waste from other sites. L283-5

We recognize that the treatment of nuclear waste is a regional and national issue that requires the collaboration of all levels of government to develop practical and safe solutions. In objecting to the transport of nuclear waste through this region, we offer this city's support in developing a plan for the on-site treatment of nuclear waste to either mitigate the health risks of the waste in transport or to eliminate the need for transport altogether. Treating nuclear waste on-site – proposed Alternative #1 – is the best opportunity for our communities to avoid further health and environmental impacts from waste produced from other regional, decommissioned nuclear facilities. L283-6

The City of Portland urges the USDOE to follow through on the agency's fourth strategic theme: Environmental Responsibility: Protecting the environment by providing a responsible resolution to the environmental legacy of nuclear weapons production. L283-7

The Portland City Council opposes the transportation of nuclear waste through our region and supports the alternatives in the GTCC EIS which are most protective of the long-term health of the Columbia River and our citizens.

Sincerely,

Sam Adams
Mayor

Amanda Fritz
Commissioner

Nick Fish
Commissioner

Dan Saltzman
Commissioner

Randy Leonard
Commissioner

material or toxic chemicals. DOE's TEPP was established to ensure that its contractors and state, tribal, and local emergency responders are prepared to respond promptly, efficiently, and effectively to accidents involving DOE shipments of radioactive materials

If an accident that involved a release of radioactive material to the environment occurred, it would be remediated promptly in accordance with these procedures. These measures would help DOE minimize and mitigate any impacts on the environment.

L283-2 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

L283-3 See response to L283-1.

L283-4 A number of commenters indicated they believed shipping offsite waste would result in 800 LCFs. This value for transportation risk does not exist in this GTCC EIS. DOE believes that the value of approximately 800 LCFs, cited in the public comments, is from the results provided in the *Draft Global Nuclear Energy Partnership Programmatic Environmental Impact Statement* (GNEP PEIS) regarding transportation of spent nuclear fuel (SNF) and HLW. This value represents the maximum impacts associated with 50 years of transportation activities supporting the operations of all existing U.S. commercial light-water reactors if they all were replaced with high-temperature, gas-cooled reactors. The GNEP PEIS was canceled by DOE on June 29, 2009 (74 FR 31017).

The GNEP PEIS involved many more shipments than those for disposal of GTCC LLRW and GTCC-like wastes. Because of this, the resulting estimated impacts for that program (now terminated) were much greater than those given in this EIS. The same types of analyses were done in both the GNEP PEIS and this EIS, but no LCFs are expected to result from transportation of the GTCC LLRW or GTCC-like wastes to the potential disposal sites considered in the GTCC EIS due to the much lower shipment numbers.

L283-5 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup efforts will continue.

L283-6 DOE is responsible under the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240) for the disposal of GTCC LLRW. The purpose of the EIS is to evaluate alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. Continued storage of GTCC LLRW at the generating facilities was evaluated as part of the No Action alternative. Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites for reasons provided in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a more centralized disposal facility would result in lower overall human health risks compared to managing the wastes at multiple locations and can be conducted in a safe manner based on compliance with comprehensive regulatory requirements and past experiences.

City of Portland, Oregon, Commenter ID No. L283 (cont'd)

The EIS evaluates the transportation impacts from the shipments that would be required to dispose of all of the GTCC LLRW and GTCC-like wastes at each of the reference locations evaluated. The EIS addresses the collective population risks during routine conditions and accidents, the radiological risks to the highest exposed individuals during routine conditions, and the consequences to individuals and populations as a result of transportation accidents, including those that could release radioactive or hazardous chemical contaminants. The EIS also evaluated the impact of intentional destructive acts that could occur during waste handling, transportation, and disposal (see Section 2.7.4.3 of the EIS). The potential risk of such destructive acts is estimated to be low. DOE sites considered in the EIS are secure, and the packaging for the GTCC LLRW and GTCC-like wastes would be robust. Because GTCC LLRW and GTCC-like wastes are not readily dispersible, the potential physical impacts from an intentional destructive act (e.g., an explosive blast) would be no greater than those from the release of any radioactivity from a severe accident during waste handling, transportation, and disposal.

DOE's requirements for transportation of radioactive waste are developed and continually revised to ensure maximum protection of public health and the environment, thereby minimizing the risk of a traffic accident. DOE has established a comprehensive emergency management program that provides detailed, hazard specific planning and preparedness measures to minimize the health impacts of accidents involving loss of control over radioactive material or toxic chemicals. DOE's transportation emergency preparedness program was established to ensure that DOE and its contractors, state, tribal, and local emergency responders are prepared to respond promptly, efficiently, and effectively to accidents involving DOE shipments of radioactive materials. Should an accident occur that involves a release of radioactive material to the environment, it would be promptly remediated in accordance with these procedures. These measures would help DOE to minimize and mitigate any impacts on the environment.

L283-7 Stopping the production of nuclear weapons and avoiding or reducing the amount of GTCC LLRW and GTCC-like wastes generated are outside the scope of this EIS, which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes.

Clark County, Commenter ID No. T39

MR. BROWN: Okay. Thanks, Steve.

The next speaker, Phil, will go next. And he will be followed by Jim Haber.

MR. KLEVORICK: My name is Phil Klevorick,

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and I represent Clark County today. These are the comments from Clark County on the Draft EIS for the Greater-than-Class C waste. Clark County is also reviewing the document, and we will be providing further detailed comments before the June deadline.

(Reading) The Draft EIS recognizes the Low-Level Radioactive Waste --

Am I talking too fast? Because I do talk fast. You're good?

-- Policy Amendments of 1985 specifics with the Greater-Class-C Low-Level Radioactive Waste as designated by the federal responsibility under Section 3(b)(1)(d) and is disposed of in the facility that is adequate to protect public safety and licensed by the NRC.

The DOE owns and generates the majority of Greater-than-Class C waste and both the low-level radioactive and non-defense generated TRU waste having characteristics similar to that of the Greater-Class C waste. And, also, the DOE intends to determine their disposal path as well. The DOE is proposing to construct and operate a facility, or facilities, or maybe of an existing facility for disposal of this waste.

The transportation description within the

T39-1

T39-1 Calculation of the collective population risk (under routine and accident conditions) is provided in the EIS. While these estimates are conservative, the calculations used expected values where practical (e.g., external shipment dose rates) and provide a reasonable measure for comparison among alternatives, as summarized in Tables 2.7 5 and 2.7 6, and the estimates show that the transportation risks would be small. All alternatives involve routes of hundreds of miles through similar types of rural, suburban, and urban areas. For specific local impacts, Section 5.3.9.2 provides information on potential human health impacts on individuals during normal waste transport along a route. However, the consideration of specific local stakeholder concerns is more appropriate during the final planning stages of a project when actual route selections are finalized, not at the level addressed in this EIS. A generic accident consequence assessment was performed because there is no way to predict the exact location and conditions of an accident, as discussed in C.9.3.3 of the EIS. For all alternatives, potential accidents, even those at the same location, could have impacts that range from negligible to significant depending on the waste involved, the accident severity, and weather conditions. Such an analysis would not help distinguish between alternatives because all alternatives involve routes through or near major population centers.

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T39-1 (Cont.)

DEIS is very general and vague. It is not site-specific to any possible DOE site, including the NNSS or, as I refer to it, the "N2S2." Transportation of the Greater-than-Class C waste to any disposal site located in the N2S2 would involve unacceptable impacts for the heavily populated and, approximately, 2 million residents of Clark County within which lies the City of Las Vegas and other major cities and communities.

T39-2

Since there is no rail access to the N2S2 and the cost of constructing such access would be almost $3 billion, according to the DOE's own estimates of March 2008 Application for a Certificate of Public Convenience and Necessity as filed for the Surface Transportation Board, File Number FD-35106, for the construction and operation of the Caliente Railroad supporting the high-level nuclear waste repository at Yucca Mountain, there is no mention of a railroad being newly constructed or the use of intermodal transport or transfer nearby any proposed site, including N2S2.

According to Table S-3, a total of 12,600 truck shipments or approximately 5,000 rail shipments would be required over 60 years. Given the unlikelihood that the Caliente Railroad would be constructed specifically for this, Clark County would bear the brunt of the shipments, as the bottleneck from

T39-3

T39-2 DOE/NNSA analyzed various radioactive waste shipping routes through and around metropolitan Las Vegas, Nevada, in the Final Site-Wide Environmental Impact Statement for the Continued Operation of the Department of Energy/National Nuclear Security Administration Nevada National Security Site and Off-Site Locations in the State of Nevada (NNSS SWEIS). DOE/NNSA continued discussions with the State of Nevada on routing options throughout the preparation of the Final NNSS SWEIS. After taking into consideration the comments and concerns expressed by State, county, and local government officials and the public in general during the review and comment period for the Draft NNSS SWEIS, DOE/NNSA decided to maintain the current highway routing restrictions for shipments of low-level radioactive waste (LLW) and mixed-low level radioactive waste (MLLW), as described in the Waste Acceptance Criteria (WAC) for the site. DOE/NNSA explained this decision in the Final NNSS SWEIS. The unchanged WAC restrictions are to avoid (1) crossing the Colorado River near Hoover Dam and (2) the greater metropolitan Las Vegas interstate system. DOE/NNSA is not considering, nor is it making, changes to the NNSS WAC with regard to routing.

Before transporting any GTCC waste to NNSS, DOE would confer with State of Nevada officials. Among the matters to be discussed and resolved would be the best transportation route to use. DOE would welcome the participation of Clark County officials in the transportation route discussions. DOE does not intend to make any decisions regarding specific waste transportation routes via this NEPA process. Any changes to existing routing would be made through revisions to the NNSS waste acceptance criteria (WAC). Revisions to the WAC are undertaken in coordination with the Nevada Division of Environmental Protection (NDEP), pursuant to the Agreement in Principle between the State of Nevada and the DOE/NNSA Nevada Site Office.

T39-3 For calculation of the collective population risk, see the response to T39-1.

The additional human health impacts from intermodal transfer and transport of waste from the nearest rail access point to those disposal sites without direct rail access is generally a small percentage of the total risk discussed in Section C.9.5.5 of the EIS. As is the case for NNSS and similar sites, costs involved in either building a rail spur to the site or the additional cost of intermodal operations were taken into consideration when developing the preferred alternative.

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most of the county would culminate in our region. Thus it would be fair to assume that the risk of an accident occurring would be greater in Clark County than almost in any other region of the country.

T39-3 (Cont.)

Many of these shipments, according to the Draft EIS, would be highway-route-controlled quantity. And like we question as to why they're not all such classification. By law, these shipments must use the Interstate system and, therefore, would bisect Clark County along the I-15 corridor. This increased frequency with the Greater-than-Class C shipments, along with the type of material being shipped, would put Las Vegas' tourism-dependent economy at considerable risk in the event of an accident or a terrorism attack.

T39-4

As no routes were present -- presented in the DEIS, Clark County must assume that I-15 as the major transportation route, which would be highly discouraged because of the stigma associated to any shipment of any nuclear waste is still very high and reigns of great concern for the majority of the residents of Clark County.

In fact, there is no economic analysis or transportation plan submitted -- truck, railroad or anything else -- along with the DEIS that would allow

T39-5

T39-4 As stated in Section C.9.4.1.1 of the EIS on route selection, many of the GTCC LLRW and GTCC-like wastes considered in the EIS would meet the definition of a highway route controlled quantity (HRCQ) (49 CFR 173.403). However, as noted in the discussion, states and Native American tribes have the opportunity to designate "preferred routes" to replace or supplement the interstate highway system. For those wastes not specifically designated as HRCQ, the selection of a route is left to the carrier, but in the case of GTCC LLRW and GTCC-like wastes, additional consultation with transportation stakeholders would occur.

DOE/NNSA analyzed various radioactive waste shipping routes through and around metropolitan Las Vegas, Nevada, in the Draft NNSS SWEIS. DOE/NNSA continued discussions with the State of Nevada on routing options throughout the preparation of the Final NNSS SWEIS. After taking into consideration the comments and concerns expressed by State, county, and local government officials and the public in general during the review and comment period for the Draft NNSS SWEIS, DOE/NNSA decided to maintain the current highway routing restrictions for shipments of low-level radioactive waste (LLW) and mixed-low level radioactive waste (MLLW), as described in the Waste Acceptance Criteria (WAC) for the site. DOE/NNSA explained this decision in the Final NNSS SWEIS. The unchanged WAC restrictions are to avoid (1) crossing the Colorado River near Hoover Dam and (2) the greater metropolitan Las Vegas interstate system. DOE/NNSA is not considering, nor is it making, changes to the NNSS WAC with regard to routing.

Once an alternative is selected in a ROD for this EIS, implementation will include, as needed and appropriate, NEPA reviews and other analysis (e.g., transportation).

T39-5 The primary radiological transportation risk to the public for any alternative is from the low level of radiation emanating from the transport vehicle. As discussed in Section 5.3.9.1, the collective population risk is a measure of the total risk posed to society as a whole. A comparison of the collective population risk provides a meaningful evaluation of the relative risks between disposal locations, as provided in Tables 2.7 5 and 2.7 6. The magnitude of the collective population risk is primarily determined by the number of routes, the length of each route, the number of shipments along each route, the external dose rate of each shipment, and the population density along a given route. The primary differences between alternatives from the standpoint of transportation are the lengths of the routes as determined by the location of the disposal sites (destination of the shipments). Thus, higher costs and collective population risks are associated with alternatives that require transportation over longer distances. All alternatives involve routes that have similar characteristics, with no significant differences for comparison among alternatives, requiring transportation through a range of rural and urban areas. In addition, the routes used in the analysis are considered representative routes (as discussed in Appendix C, Section C.9.4.1.1, because the actual routes used would be determined in the future. For each disposal site, the routes most affected would be the interstate highways that are in closest proximity to the site.

There are no definitive studies related to the effects of radioactive waste shipments on local traffic, tourism, and property values. With an average of only one to two shipments per day over the potential 60 year lifetime of a proposed disposal facility in the case of GTCC LLRW and GTCC-like waste shipments, it is unlikely that there would be any significant impact on tourism and property values in Clark County or near any of the other sites considered for disposal.

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further analyses by interested and potentially affected parties. T39-5 (Cont.)

The DEIS fails to review any socioeconomic impact that may be associated with the transportation and subsequent disposal of the Greater-than-Class C at the N2S2. Consideration and risk assessment must be conducted in order to better define the entire impact, such as activities that may occur in Clark County. Failing to do so is a failure to meet the NEPA compliance and thorough review of alternative actions as presented within the DEIS. T39-6

In addition, there is no mention of how the wastes will be packaged for final disposal for optimal configuration for both shipments and permanent disposal. The DEIS uses a very general overview to radiological impact assessment of the Greater-than-Class C waste shipments and ignores the importance of nonradiological factors in defining the true scope and nature of the impacts associated with such transportation. T39-7

There is a definitive need to further evaluate the important nonradiological impacts that are not used to discriminate among potential disposal locations. The DEIS does not acknowledge that any facility chosen for disposal of Greater-than-Class C T39-8

T39-6 The estimated costs associated with the construction and operation of GTCC waste disposal facilities at each of the sites – including costs for direct and indirect labor, equipment, materials, services, and subcontracts – are included in the assessment of each waste management alternative in the EIS. The cost estimates for the land disposal methods are based on a conceptual design of the disposal facility and could increase with actual implementation. Costs shown for WIPP are based on actual costs experienced to date and reflect construction and operation costs of an operating geologic repository. The economic analysis in the EIS addresses the potential economic impacts, including potential impacts resulting from in migration of workers or their families during the construction period, and any consequent impacts on housing, public finances, public service employment, and traffic.

Costs for institutional controls out to a 10,000-year time frame were not evaluated because the institutional control period was assumed to be for the first 100 years after facility closure. Follow-on site-specific NEPA reviews would take a closer look the implementation and costs of institutional controls.

In general, transportation costs would be similar across all disposal alternatives. The primary difference would be related to the distances traveled in each case.

There are no definitive studies related to the effects of radioactive waste shipments on local tourism and property values. With an average of only one to two shipments per day over the potential 60 year lifetime of a proposed disposal facility in the case of GTCC LLRW and GTCC-like waste shipments, it is unlikely that there would be any significant impact on tourism and property values.

T39-7 Information on waste forms and waste packages and containers is provided in the EIS to allow for a comparative analysis of alternatives for transportation and waste disposal. Treatment of the wastes prior to disposal is outside the scope of the EIS. Such treatment is assumed to be addressed prior to receipt of the waste at the GTCC LLRW and GTCC-like waste disposal facility. DOE agrees that it is important to immobilize long-lived radionuclides such as Tc-99 and I 129 prior to disposal. Solidification techniques (e.g., use of grout) are expected to immobilize certain wastes in the GTCC LLRW and GTCC-like waste inventory. If needed, the actual stabilization methods used will depend, in part, on the waste stream, packaging, and final disposal facility design. DOE considers the assumptions used for waste form stability (see Appendix B) to be reasonable for purposes of the comparative analysis provided in the EIS.

The waste characteristics and physical form would have to meet the disposal facility waste acceptance criteria. It is expected that these waste acceptance criteria would identify requirements (such as allowable concentrations) for individual radionuclides, including Tc 99 and I-129. The specific waste forms and packages used to dispose of GTCC LLRW and GTCC-like wastes would be determined in the future as part of the waste acceptance criteria and packaging requirements developed. See the discussion in Section B.5 and C.9.4.2 of the EIS for more information on packaging requirements. All GTCC LLRW and GTCC-like wastes would be packaged and transported in accordance with all applicable federal and state requirements, and waste disposal activities would be conducted in accordance with appropriate requirements.

T39-8 The NRC served as a commenting agency on the GTCC EIS and therefore did not actively participate in the preparation of the GTCC EIS. Issues associated with potential regulatory changes or NRC licensing would be addressed as necessary to enable implementation.

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waste must be licensed by and regulated by the NRC. According to Christine Gelles, Director of Waste Disposal, the NRC were invited, as a cooperating agent, but declined to do so as potential conflict in interest.

T39-8 (Cont.)

In fact, the NRC itself, Subsection 61.55 Sub(iv), Waste Classification, basically states that the waste disposal must be done in a geological repository as defined in Part 60 or 63 of the chapter. Thus, Alternatives 4, disposal in a new trench disposal facility; and Alternative 5, disposal in a new vault disposal facility, are not to be considered. Given that NRC's direction, these alternatives should not have been considered while one can directly interpret the NRC direction as being only a single alternative, which is the geologic disposal proposal.

T39-9

The DEIS also states Area 5 has been used for disposal of higher-activity Low-Level Radioactive Waste and TRU waste in boreholes. No analyses has been provided as to the safety and consequence of this disposal method.

However, Section 2.6.5, reviews the N2S2 area within Area 5, which they used as a basis for evaluation because, along with Area 3 supporting the site's radioactive waste management program; as far as

T39-10

T39-9 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

T39-10 As indicated in Section 1.4.3 of the GTCC EIS, reference locations are intended to serve as a starting point for each of the sites being considered. If a site or sites were selected for possible implementation of a land disposal method or methods, site-specific NEPA reviews would be conducted as needed, along with further optimization by a selection study, to identify the location or locations within a given site that would be considered the best ones to accommodate the land disposal method(s).

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that Clark County is aware, neither of these two areas have been studied for a geologic repository, nor does the DEIS state that either have been.

To select either of these areas within the N2S2 would be not acceptable because no analysis has been conducted or provided as being satisfactory foundation to be used in support of geologic disposal rule as specified by the NRC.

T39-10 (Cont.)

Clark County is aware of the Greater-than-Class C history and have been proposed to have disposed of a lot of the high level -- nation's high level waste and spent nuclear fuel at Yucca. Clark County is fearful that Yucca would be chosen in the near term with its present demise before the NRC and DOE's attempt to withdraw its application for the construction of this facility.

Clark County does question why the DOE seeks public comment to create a Preferred Alternative. Clark County does not -- does look forward to further information and clarification of the DEIS.

T39-11

T39-11 A preferred alternative is not required to be included in a Draft EIS. The Council on Environmental Quality regulations in 40 CFR 1502.14(e) specify that the section on alternatives in an EIS shall identify the agency's preferred alternative or alternatives, if one or more exists, in the Draft EIS and identify such alternative(s) in the Final EIS unless another law prohibits the expression of such a preference; that is, a preferred alternative shall be identified in the Draft EIS if one exists. If no preferred alternative has been identified at the Draft EIS stage, a preferred alternative need not be included. By the time the Final EIS is filed, 40 CFR 1502.14(e) presumes the existence of a preferred alternative and requires its identification in the Final EIS unless another law prohibits the expression of such a preference.

DOE did not have a preferred alternative at the time of issuance of the Draft EIS because of the complex nature of the proposed action and the potential implications for disposal of GTCC LLRW and GTCC-like wastes. To seek public input on how to identify a preferred alternative for inclusion in the Final EIS, the Draft EIS presented considerations for developing a preferred alternative in the Summary (in Section S.6) and in Section 2.9. As required by 40 CFR 1502.14(e), the Final EIS contains a preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes (see Section 2.10). In developing the preferred alternative, DOE took into consideration public comments on the Draft EIS, public EIS scoping comments, and other factors identified in Sections S.6 and 2.9 of the EIS.

The publication by the EPA of a NOA of the Final EIS in the Federal Register initiated a 30-day public availability or "waiting" period. While the availability period is not a formal public comment period, the public can comment on the Final EIS, including the preferred alternative, prior to final agency action. Comments received will be addressed by DOE in a ROD. As required by the Energy Policy Act of 2005, DOE must submit a Report to Congress that includes the alternatives considered in the EIS and await Congressional action before making a final decision regarding which alternative(s) to implement. The Report to Congress will be made available to the public on the GTCC EIS website (http://www.gtcceis.anl.gov/).

Clark County Nuclear Waste Division, Commenter ID No. W541

Abplanalp, Jennifer Marie

From:	gtcceiswebmaster@anl.gov
Sent:	Monday, June 27, 2011 3:55 PM
To:	mail_gtcceisarchives; gtcceiswebmaster@anl.gov; gtcceis@anl.gov
Subject:	Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10541
Attachments:	GTCC_Final_Comments_6.27.11_GTCC10541.pdf

Thank you for your comment, Phil Klevorick.

The comment tracking number that has been assigned to your comment is GTCC10541. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 27, 2011 03:55:20PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10541

First Name: Phil
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Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

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Clark County Nuclear Waste Division – W541

Clark County Nuclear Waste Division, Commenter ID No. W541 (cont'd)

Department of Comprehensive Planning

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Nancy Lipski, Director

**CLARK COUNTY FINAL COMMENTS
TO THE U.S. DEPARTMENT OF ENERGY'S DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR DISPOSAL OF GREATER-THAN-CLASS-C RADIOACTIVE WASTE AND GREATER THAN CLASS C-LIKE WASTE (DOE/EIS-0375-D)**

June 27, 2011

Clark County has reviewed the U.S, Department of Energy's (DOE) Draft Environmental Impact Statement for the Disposal of Greater-Than-Class-C Radioactive (GTCC) Waste and GTCC-Like Waste. Clark County wishes to submit it's comments for the record and in a timely manner for the final review of this aforementioned document.

The draft environmental impact statement (DEIS) recognizes the Low-Level Radioactive Waste (LLRW) Policy Amendments Act of 1985 specifies the GTCC LLRW is designated a federal responsibility under Section 3(b)(1)(D) and is to be disposed of in a facility that is adequate to protect public safety and licensed by the Nuclear Regulatory Commission (NRC). The DOE owns and generates the majority of the GTCC waste (both LLRW and non-defense generated TRU waste having characteristics similar to those of GTCC LLRW and DOE intends to determine their disposal path as well). The DOE is proposing to construct and operate a new facility or facilities or to use an existing facility for this disposal of GTCC LLRW and GTCC-like waste.

It appears that the DOE has made a deliberate choice not to designate a preferred alternative in the DEIS. Instead, it is seeking input from the community and stakeholders to create a preferred alternative-presumably a combination of one of the five alternatives proposed or may be an entirely unanalyzed approach. Given the fact that this unknown is extremely important to the final outcome and decision, combined with the enormous potential permutations of 5 alternatives (currently and to be expanded) and 7 potential sites, Clark County looks forward to analyzing and providing comments to the Final Environmental Impact Statement (FEIS). Clark County understands there will be a minimum of a 30-day comment period once the FEIS is issued, to which it is recommended this period should be a minimum of 60-days to analyze the potential impacts the preferred alternative may have on the environment and citizens of Clark County, Nevada.

The transportation description within the DEIS is very general and vague. It is not site specific to any possible DOE site, including the Nevada National Security Site (NNSS). Transportation of GTCC waste to any disposal facility located at the NNSS would involve unacceptable impacts for the heavily populated Clark County (approximately two million residents) within which lies the major cities of Las Vegas, Henderson, North Las Vegas as well as other cities, communities and Tribal lands. Since there is no rail access to NNSS, and the cost for constructing such access would be almost $3 billion (DOE's own estimates in March 2008 Application For A Certificate of Public Convenience and Necessity as filed with the Surface Transportation Board – FD35106 for the construction and operation of the Caliente Railroad supporting the High Level nuclear Waste repository at Yucca Mountain, Nevada (Yucca)). There is no mention of a railroad being newly constructed or the use of intermodal transfer nearby any proposed site, including the NNSS. In fact, in Section 9.4, Pg.9-81 (NNSS) there is absolutely no mention of cumulative impacts on transportation along with the current Low-level and Mixed Radioactive (LLRW and MRW) waste shipments to the NNSS. This is in addition to all of the other activities currently on-going, as well as other future ones, such as the acceptance of untreated LLRW and MRW from other sites around the U.S. This failure to analyze these cumulative details is of serious concern to Clark County, not to mention the planning needed for emergency management purposes. W541-1

W541-1 Calculation of the collective population risk (under routine and accident conditions) is provided in the EIS. While these estimates are conservative, the calculations used expected values where practical (e.g., external shipment dose rates) and provide a reasonable measure for comparison among alternatives, as summarized in Tables 2.7 5 and 2.7 6, and the estimates show that the transportation risks would be small. All alternatives involve routes of hundreds of miles through similar types of rural, suburban, and urban areas. For specific local impacts, Section 5.3.9.2 provides information on potential human health impacts on individuals during normal waste transport along a route. However, the consideration of specific local stakeholder concerns is more appropriate during the final planning stages of a project when actual route selections are finalized, not at the level addressed in this EIS. A generic accident consequence assessment was performed because there is no way to predict the exact location and conditions of an accident, as discussed in C.9.3.3 of the EIS. For all alternatives, potential accidents, even those at the same location, could have impacts that range from negligible to significant depending on the waste involved, the accident severity, and weather conditions. Such an analysis would not help distinguish between alternatives because all alternatives involve routes through or near major population centers.

The additional human health impacts from intermodal transfer and transport of waste from the nearest rail access point to those disposal sites without direct rail access is generally a small percentage of the total risk discussed in Section C.9.5.5 of the EIS. As is the case for NNSS and similar sites, costs involved in either building a rail spur to the site or the additional cost of intermodal operations were taken into consideration when developing the preferred alternative. For the rail option, the use of dedicated trains, if sufficient waste is available for transport at the same time, could reduce transportation risks and costs by minimizing transit times. The current rail analysis therefore bounds what might be expected if dedicated trains were used.

In general, transportation costs would be similar across all disposal alternatives. The primary difference would be related to the distances traveled in each case. Thus, the transportation costs will scale with the shipment distances travelled as presented in the EIS. Any decisions made by DOE would take these factors into account during implementation.

With an average of only one to two shipments per day over the potential 60 year lifetime of a proposed disposal facility in the case of GTCC LLRW and GTCC-like waste shipments, it is unlikely that there would be any significant impact on any local road traffic or current NNSS operations.

Once an alternative is selected in a ROD for this EIS for implementation, site-specific NEPA reviews would be conducted as needed, including an assessment of specific routing and an accident analysis, including dedicated trains and the potential for multiple railcar accidents if applicable. This process will include planning that involves transportation stakeholders.

Clark County Nuclear Waste Division, Commenter ID No. W541 (cont'd)

According to Table 3-3, a total of 12,600 truck shipments or about 5,000 rail shipments would be required (over 60 years). Given the unlikelihood that the Caliente Railroad would be constructed specifically for this, Clark County would bear the brunt of shipments as the bottleneck from most of the country would culminate in our region. Thus, it would be fair to assume the risk of an accident occurring would be greater in Clark County than in almost any other region in the country. Many of these shipments, according to the DEIS, would be "Highway Route-Controlled Quantity" (HRCQ) shipments (why not all?). By law, HRCQ shipments must use the interstate highway system and would therefore bisect Clark County along Interstate 15 (I-15). This increased frequency of GTCC shipments along with the type of material being shipped would put Las Vegas' tourism-dependent economy at considerable risk in the event of an accident or terrorist attack. W541-1 (Cont.) W541-2

As no routes were presented in the DEIS, Clark County must assume the use of I-15 and U.S. 95 as major transportation routes. This would be highly discouraged because the stigma associated to the shipment of any nuclear waste type is still very high and reigns of great concern to the majority of residents in Clark County. In fact, there is no economic analyses or transportation plan submitted (truck, railroad, etc.) along with the DEIS that would allow further analyses by interested and potentially affected parties. Therefore, Clark County is not able to properly analyze any cumulative impacts these additional shipments would have on first responders or any other emergency personnel, as well as, the additional equipment that maybe needed. W541-3

The DEIS fails to review the socio-economic impact that may be associated with the transportation and subsequent disposal of the GTCC at the NNSS. Consideration and risk assessment must be conducted in order to better define the entire impact such activities may have on Clark County. Failing to do this is a failure to meet National Environmental Policy Act (NEPA) compliance and thorough review of alternative actions as presented within the DEIS. In addition, there is no mention of how the wastes will be packaged for final disposal for optimal configuration (both for shipments and permanent disposal). Also, the DEIS uses a very general 'overview' to radiological impact assessment for GTCC waste shipments and ignores the importance of non-radiological factors in defining the true scope and nature of impacts associated with such transportation. There is a definite need to further evaluate the important non-radiological impacts that are not used to discriminate among potential disposal locations. W541-4

The DEIS does not acknowledge that any facility chosen for disposal of GTCC waste must be licensed and regulated by the NRC. According to Christine Gelles, Director of Waste Disposal (DOE), the NRC was invited as a cooperating agency, but declined due to potential conflict of interest. In fact the NRC, itself, in SubSection 61.55 (iv) Waste Classification states: W541-5

Waste that is not generally acceptable for near-surface disposal is waste for which form and disposal methods must be different, and in general more stringent, than those specified for Class C waste. In the absence of specific requirements in this part, such waste must be disposed of in a geologic repository as defined in part 60 or 63 of this chapter unless proposals for disposal of such waste in a disposal site licensed pursuant to this part are approved by the Commission.

Thus, Alternative 4 (disposal in a new trench disposal facility) and Alternative 5 (disposal in a new vault disposal facility) are not to be considered. Has the DOE commenced discussions with the NRC in rulemaking on this issue? Given the NRCs direction, these alternatives should not have been considered while one can directly interpret the NRC direction as being only a single alternative, the geologic disposal proposal. Clark County would recommend current disposal practices, in place hardened storage facilities until any proposed alternative, except for no alternative, is considered for GTCC disposal. W541-6

The DEIS also states Area 5 has been used to dispose of higher-activity low-level radioactive waste and TRU waste in boreholes. No analysis has been provided as to the safety and consequence of this disposal method. However, borehole disposal is still being considered for this area without any description as to what is available, depth, substrate, depth to groundwater, testing that would ensure containment or loss through exposure to the surface or groundwater, the number of boreholes that would be required, etc. The described depth to groundwater for the Frenchman Flat area according to the DEIS9.1.3.2.3, Page 9-29 ranges from 708 feet to 927feet, but without knowing the locations of borehole disposal areas, spacing and concentration, it is impossible to comment on the impacts to the groundwater except to say yes, there will be unless more of this missing information is provided. W541-7

However, 3.2.6.5 reviews the NNSS area within Area 5 which they used as a basis for evaluation because along with Area 3, supporting the site's radioactive waste management program. As far as Clark County is aware, neither of these two areas have been studied for a geologic repository nor does the DEIS state that either have been.

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W541-2 The risk of an accident would naturally be expected to be higher in an area where there are the greatest number of shipments. However, this is true for the area surrounding each disposal site considered in each alternative.

As stated in Section C.9.4.1.1 of the EIS on route selection, many of the GTCC LLRW and GTCC-like wastes considered in the EIS would meet the definition of a highway route HRCQ (49 CFR 173.403). However, as noted in the discussion, states and Native American tribes have the opportunity to designate "preferred routes" to replace or supplement the interstate highway system. For those wastes not specifically designated as HRCQ, the selection of a route is left to the carrier, but in the case of GTCC LLRW and GTCC-like wastes, additional consultation with transportation stakeholders would occur.

DOE/NNSA analyzed various radioactive waste shipping routes through and around metropolitan Las Vegas, Nevada, in the Draft NNSS SWEIS. DOE/NNSA continued discussions with the State of Nevada on routing options throughout the preparation of the Final NNSS SWEIS. After taking into consideration the comments and concerns expressed by State, county, and local government officials and the public in general during the review and comment period for the Draft NNSS SWEIS, DOE/NNSA decided to maintain the current highway routing restrictions for shipments of low-level radioactive waste (LLW) and mixed-low level radioactive waste (MLLW), as described in the Waste Acceptance Criteria (WAC) for the site. DOE/NNSA explained this decision in the Final NNSS SWEIS. The unchanged WAC restrictions are to avoid (1) crossing the Colorado River near Hoover Dam and (2) the greater metropolitan Las Vegas interstate system. DOE/NNSA is not considering, nor is it making, changes to the NNSS WAC with regard to routing.

Once an alternative is selected in a ROD for this EIS, implementation will include, as needed and appropriate, NEPA reviews and other analysis (e.g., transportation).

W541-3 All alternatives involve routes that have similar characteristics, with no significant differences for comparison among alternatives, requiring transportation through a range of rural and urban areas. In addition, the routes used in the analysis are considered representative routes (as discussed in Appendix C, Section C.9.4.1.1, because the actual routes used would be determined in the future. For each disposal site, the routes most affected would be the interstate highways that are in closest proximity to the site.

The primary radiological transportation risk to the public for any alternative is from the low level of radiation emanating from the transport vehicle. As discussed in Section 5.3.9.1, the collective population risk is a measure of the total risk posed to society as a whole. A comparison of the collective population risk provides a meaningful evaluation of the relative risks between disposal locations, as provided in Tables 2.7 5 and 2.7 6. The magnitude of the collective population risk is primarily determined by the number of routes, the length of each route, the number of shipments along each route, the external dose rate of each shipment, and the population density along a given route. The primary differences between alternatives from the standpoint of transportation are the lengths of the routes as determined by the location of the disposal sites (destination of the shipments). Thus, higher costs and collective population risks are associated with alternatives that require transportation over longer distances.

There are no definitive studies related to the effects of radioactive waste shipments (i.e. stigmatism) on such factors as local traffic, tourism, and property values. With an average of only one to two shipments per day over the potential 60 year lifetime of a proposed disposal facility in the case of GTCC LLRW and GTCC-like waste shipments, it is unlikely that there would be any significant impact on tourism and property values in Clark County or near any of the other sites considered for disposal.

Clark County Nuclear Waste Division, Commenter ID No. W541 (cont'd)

To select either of these areas within the NNSS would not be acceptable because no analysis has been conducted or provided as being a satisfactory foundation to be used in support of the geologic disposal rule as specified by the NRC. No descriptions are provided as to the distance or location of any actual disposal would be from the Clark County boundary to the east of both Area 3 and Area 5 disposal cells. Clark County is aware of the history of the GTCC and having been proposed to have been disposed of along with the nation's high level waste and spent nuclear fuel at Yucca (because of their similar characteristics and life expectancy). Clark County is fearful Yucca Mountain would be chosen in the near term, with its present demise before the NRC and DOE's attempt to withdraw its application for the construction of this facility. W541-7 (Cont.)

Additional performance assessment issues presented are flawed in the DEIS. Firstly, Page 5-65 conclusion is just the opposite to the argument made–as the distance would increase from 100m to 500m, the maximum annual radiation dose would increase by more than 70% when in actuality it would decrease. Secondly, there is no quantitative data provided that would support the comments that near surface cover could meet the expected performance requirements for disposal of GTCC. Thirdly, the DEIS is deficient, because by assuming the facility characteristics to which the performance is most sensitive will be met rather than showing or demonstrating they can be met and if the DOE is wrong on this, the impact will be significantly different that as expected (such as water filtration through engineered barrier failure after 500years as compared to the 10,000 years for the disposal cycle). Fourthly, Clark County does not want to assume the certification of transportation containers will be certified by United States Department of Transportation when there may be other planned certification entities needed. There is no description as to the certification protocol or process for these shipping containers provided. W541-8 W541-9 W541-10 W541-11

Clark County thanks the DOE for the opportunity to provide these comments, which is respectfully submitted for consideration. We also look forward to providing additional clarification and comments in the FEIS once released, based on the DOE preferred alternative and addressing the concerns that impact both the environment, citizens, and the visitors to the County of Clark.

Sincerely,

Irene Navis

Irene Navis, Manager
Nuclear Waste Division

Page 3 of 3

W541-4 The estimated costs associated with the construction and operation of GTCC waste disposal facilities at each of the sites – including costs for direct and indirect labor, equipment, materials, services, and subcontracts – are included in the assessment of each waste management alternative in the EIS. The cost estimates for the land disposal methods are based on a conceptual design of the disposal facility and could increase with actual implementation. Costs shown for WIPP are based on actual costs experienced to date and reflect construction and operation costs of an operating geologic repository. The economic analysis in the EIS addresses the potential economic impacts, including potential impacts resulting from in migration of workers or their families during the construction period, and any consequent impacts on housing, public finances, public service employment, and traffic.

Costs for institutional controls out to a 10,000-year time frame were not evaluated because the institutional control period was assumed to be for the first 100 years after facility closure. Site-specific NEPA reviews would be conducted as needed and would take a closer look the implementation and costs of institutional controls.

The primary differences between alternatives from the standpoint of transportation are the lengths of the routes as determined by the location of the disposal sites (destination of the shipments). Thus, higher costs and collective population risks are associated with alternatives that require transportation over longer distances.

There are no definitive studies related to the effects of radioactive waste shipments on such factors as local tourism and property values. With an average of only one to two shipments per day over the potential 60 year lifetime of a proposed disposal facility in the case of GTCC LLRW and GTCC-like waste shipments, it is unlikely that there would be any significant impact on tourism and property values.

W541-5 The LLRWPAA (P.L. 99-240) specifies that GTCC LLRW, designated a federal responsibility under section 3(b)(1)(D) that results from activities licensed by the NRC, is to be disposed of in an NRC-licensed facility that has been determined to be adequate to protect public health and safety. However, unless specifically provided by law, the NRC does not have authority to license and regulate facilities operated by or on behalf of DOE. Further, the LLRWPAA does not limit DOE to using only non-DOE facilities or sites for GTCC LLRW disposal. Accordingly, if DOE selects a facility operated by or on behalf of DOE for disposal of GTCC LLRW for which it is responsible under section 3(b)(1)(D), clarification from Congress would be needed to determine NRC's role in licensing such a facility and related issues. In addition clarification from Congress may be needed on NRC's role if DOE selects a commercial GTCC LLRW disposal facility licensed by an Agreement State rather than by NRC.

The NRC served as a commenting agency on the GTCC EIS and therefore did not actively participate in the preparation of the GTCC EIS. Issues associated with potential regulatory changes or NRC licensing would be addressed as necessary to enable implementation.

W541-6 While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), this regulation also indicates that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW. The NRC served as a commenting agency on the GTCC EIS and therefore did not actively participate in the preparation of the GTCC EIS. Issues associated with potential regulatory changes or NRC licensing would be addressed as necessary to enable implementation.

W541-7 As indicated in Section 1.4.3 of the GTCC EIS, reference locations are intended to serve as a starting point for each of the sites being considered. If a site or sites were selected for possible implementation of a land disposal method or methods, site-specific NEPA reviews would be conducted as needed, along with further optimization by a selection study, to identify the location or locations within a given site that would be considered the best ones to accommodate the land disposal method(s).

Clark County Nuclear Waste Division, Commenter ID No. W541 (cont'd)

DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS.

The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

The Secretary of Energy determined that a permanent repository for high-level waste and spent nuclear fuel at Yucca Mountain, Nevada, is not a workable option and will not be developed. Therefore, DOE concluded that co-disposal at a Yucca Mountain repository is not a reasonable alternative and has eliminated it from evaluation in this EIS, as described in Section 2.6 of the EIS.

W541-8 The text in Section 5.3.4.3 was corrected to state that the maximum annual radiation dose would decrease (not increase) by more than 70%, as would be expected as stated in the opening sentence of the paragraph.

W541-9 Data used to evaluate the performance of the near surface disposal method for the NNSS reference location may be found in Chapter 9 and Appendix E of the GTCC EIS.

W541-10 The EIS analyses are based on conceptual engineering information and necessitated the use of a number of simplifying assumptions. This approach is consistent with NEPA, which requires such analyses to be made early in the decision-making process. The various land disposal conceptual designs were assumed to be constructed and operated in a comparable manner at each of the various sites. Information on the conceptual engineering designs for the three proposed land disposal methods is provided in Section D.3 of Appendix D in the EIS. By using the same conceptual designs at all of the sites evaluated in the GTCC EIS, except for cases where a design did not apply (e.g., an intermediate-depth borehole at a site with shallow groundwater), the potential impacts (e.g., radionuclides reaching the groundwater) at the different environmental settings could be readily compared.

In performing these evaluations, a number of engineering measures were included in the conceptual facility designs to minimize the likelihood of contaminant migration from the disposal units. No facility design can guarantee that radionuclide migration from the facility would not occur over and beyond a 10,000-year time period. It was assumed that these measures would perform similarly for all conceptual designs, remaining intact for 500 years after the disposal facility closed. After 500 years, the barriers would gradually fail. To account for these engineered features in the modeling calculations, it was assumed that the water infiltration to the top of the waste disposal area would be zero for the first 500 years and then 20% of the natural rate for the area for the remainder of the time period (through 10,000 years). A water infiltration rate of 20% of the natural rate for the area was only used for the disposal area; the natural background infiltration rate was used at the perimeter of the waste disposal units. Again, this approach enables a comparative evaluation of the influence that site-specific environmental factors would have on the potential migration of radionuclides from the disposal facilities and the potential impacts on human health. It should be emphasized that project- and site-specific engineering factors would be incorporated into the actual facility designs of the site or sites selected in a ROD to dispose of GTCC LLRW and GTCC-like wastes.

Clark County Nuclear Waste Division, Commenter ID No. W541 (cont'd)

DOE recognizes that modeling potential releases of radionuclides from the conceptual disposal sites far into the future approximates what might actually occur. Sufficient detail was included in these designs for use in the EIS analyses, consistent with the current stage of this process. Some of the input values may change in the future and could result in higher impacts (such as from increased precipitation at some sites due to climate change), while others could result in lower impacts (due to decreased precipitation).

DOE believes that 500 years is a realistic time period for the longevity of the types of engineering barriers assumed in the analyses. DOE believes the approach and the assumptions used in the EIS are reasonable for performing the comparative analysis of alternatives required by NEPA. For example, the assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study.

Modeling results can be very sensitive to some factors, such as the Kd for a given radionuclide. Care was taken to use average site values for such input parameters for comparison among alternatives. More extensive and detailed sensitivity analysis may need to be conducted during the implementation phase for a GTCC LLRW and GTCC-like waste disposal facility, based on more specific information on the engineering designs of the disposal facilities and their influence on the integrity of waste packages, waste containers, barrier materials, and the surrounding native soil (e.g., location-specific Kd values). However, the results of the evaluation presented in the EIS are sufficient to inform the selection of sites and methods for disposal. Site-specific NEPA reviews would be conducted as needed.

W541-11 Information on waste forms and waste packages and containers is provided in the EIS to allow for a comparative analysis of alternatives for transportation and waste disposal. The specific waste forms and packages used to dispose of GTCC LLRW and GTCC-like wastes would be determined in the future as part of the development of waste acceptance criteria and packaging requirements. See the discussion in Section B.5 and C.9.4.2 of the EIS for more information on packaging requirements. All GTCC LLRW and GTCC-like wastes would be packaged and transported in accordance with all applicable federal, state, and facility requirements.

Coalition 21, Commenter ID No. L274

DRAFT ENVIRONMENTAL IMPACT STATEMENT for the DISPOSAL OF GREATER THAN-CLASS C (GTCC) LOW-LEVEL RADIOACTIVE WASTE AND GTCC-LIKE WASTE (DOE/EIS-0375-D)

U.S. Department of Energy

received
MAY 24 2011

WRITTEN COMMENT FORM

Must be received on or before June 27, 2011

Mr. ____ Mrs. ____ Ms. ____ Mr. & Mrs. ____ Dr. ____

Name: John Tanner

Title: President

Organization: Coalition 21

Address: 2175 Tasman Ave.

City: Idaho Falls State: ID Zip Code: 83404

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Comment:

We completely agree with the Department of Energy's interest in developing a disposal plan for greater than class C nuclear waste. Probably any of the methods and sites presented would be environmentally safe with sufficient research. They vary considerably in the political obstacles. It is DOE's choice what to attempt. L274-1

Regarding disposal at Idaho's INL, the Idaho Settlement Agreement would need to be renegotiated; and such disposal would be a reversal of DOE's efforts of the past few decades to remove buried waste from the INL. There are similar problems of public perception of the risk of burial over a major aquifer at some of the other sites mentioned in the draft EIS. L274-2

The best approach might be storage at the present sites until a geological repository is available for high level waste/spent fuel. That is one more reason for DOE to take the need for such a repository seriously. L274-3

Please use other side if more space is needed. John E. Tanner, Jr.

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Comment forms may be mailed to:
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or sent by electronic mail to:
gtcceis@anl.gov

Coalition 21 – L274

L274-1 Comment noted. DOE believes that the preferred alternative is protective of both the environment and public health and safety.

L274-2 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

L274-3 The action alternatives evaluated in the GTCC EIS did not include interim storage of GTCC LLRW and GTCC-like wastes until a geologic repository for spent nuclear fuel and high-level radioactive waste becomes available because such interim storage is outside the scope of the GTCC EIS. The purpose of the GTCC EIS is to evaluate the range of reasonable alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. The No Action Alternative evaluates continued storage of GTCC LLRW and GTCC-like wastes consistent with ongoing practices.

Code Pink Portland, Commenter ID No. T135

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MR. BROWN: Thank you. We have Martha Shelley next and then Joe Walsh.

MS. SHELLEY: Hi. I am Martha Shelley. I'm with Code Pink Portland.

AUDIENCE MEMBER: Yes. Right on.

MS. SHELLEY: I would like to say I support the creation of a deep geological repository for existing nuclear waste, and absolutely oppose the building of additional nuclear power plants to create additional nuclear waste. These gentlemen here say that a deep repository was too expensive, it's going to cost two or three billion dollars. This country spends $120 billion every year on wars in the Middle East, and has since -- what, ten years ago. 120 billion, but we can't put a deep depository in this country for the nuclear waste.

The DOE and the NRC are acting with unbelievable arrogance. You talk about repositories to control waste for 10,000 years. 10,000 years ago people were just hunter, gatherers. Only 5,000 years ago the

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T135-1

T135-2

T135-3

T135-1 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

T135-2 Stopping the construction of additional nuclear power plants which generate nuclear waste is outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

T135-3 DOE recognizes that results from modeling potential releases of radionuclides from the conceptual disposal sites far into the future only approximates what could actually occur and is highly uncertain. However, his approach is consistent with NEPA, which requires such analyses to be made to aid in the decision-making process. Analysis of the expected performance of the disposal options used best available data and scientific methods for estimating the performance of the engineered and natural systems, including analysis of the uncertainties associated with estimating performance over long periods of time.

Code Pink Portland, Commenter ID No. T135 (cont'd)

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pyramids were being built. This country, what, 400 years old, that Columbus, quote, "discovered" America?

We're talking about plutonium. It's the most poisonous substance on the planet. An ounce of it released and disbursed evenly will kill every human being on the planet, one ounce. Its half-life is 24,000 years. The amount released in Fukushima is going to be dangerous for up to half a million years. Half a million years ago, there were human beings on the planet living in caves. It was paleolithic times. It took until 10,000 years ago for human beings to start building towns, to start moving away from hunting and gathering into civilized areas.

The arrogance to think that you can plan for 10,000 years, that you're going to make us safe for 10,000 years, is unbelievable. The nuclear industry seems to be willing to poison the entire planet for the next half million years in order to reap short-term profits for the psychopaths that we call CEOs.

I don't believe any of your environmental impact statements or charts or statistics. They're no more reliable than the Tokyo Electric Power assurances about the safety of Fukushima or any of the other

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T135-3 Cont.

Code Pink Portland, Commenter ID No. T135 (cont'd)

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power plants over there. They're junk. Your agency has been captured by the people it's supposed to regulate, and if you guys had any conscious, you would quit your jobs and start talking honestly about what could be done about nuclear power.

Colorado State Patrol, Commenter ID No. W339

Abplanalp, Jennifer Marie

From:	gtcceiswebmaster@anl.gov
Sent:	Wednesday, June 22, 2011 5:09 PM
To:	gtcceiswebmaster@anl.gov
Subject:	Receipt: Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10339

Thank you for your comment, Tammy Ottmer.

The comment tracking number that has been assigned to your comment is GTCC10339. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 22, 2011 05:08:37PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10339

First Name: Tammy
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Privacy Preference: Don't withhold name or address from public record

Comment Submitted:
General comment about the use of RADTRAN, TRAGIS, RISKIND:

Any data generated by these programs is out of date. All of these programs will need to be re-run once they are updated with 2010 census data as well as current routing information. W339-1

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

1

Colorado State Patrol – W339

W339-1 Overall, the total distances travelled for each disposal site considered would not be expected to significantly change from 2008 (date of the TRAGIS routing database used). Minor changes, possibly a few percent (upward for all alternatives), might be expected to occur in the population estimates with the use of updated census information because of the overall increase in the general U.S. population and because all alternatives involve a range of routes and long distances which would negate any sharp increases or decreases in population in localized areas. However, such changes would not affect the relative comparison among alternatives. Any potential site-specific NEPA reviews would use the latest information available.

Columbia Ecovillage, Commenter ID No. W487

Abplanalp, Jennifer Marie

From: gtcceiswebmaster@anl.gov
Sent: Sunday, June 26, 2011 12:22 AM
To: gtcceiswebmaster@anl.gov
Subject: Receipt: Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10487

Thank you for your comment, Donald McKinlay.

The comment tracking number that has been assigned to your comment is GTCC10487. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 26, 2011 12:21:33AM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10487

First Name: Donald
Last Name: McKinlay
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Privacy Preference: Don't withhold name or address from public record

Comment Submitted:
It is a crime to transport radioactive waste. W487-1

It is a crime to produce radioactive waste that needs to be transported to another location. W487-2

It is a crime to increase cancer, birth defects, other diseases, environmental destruction and extinctions through these activities and the promotion of these activities. W487-3

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

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Columbia Ecovillage – W487

W487-1 It is not a crime to transport radioactive waste in the U.S. Its transport is governed by a number of federal regulations. The U.S. Department of Transportation (DOT) and the NRC have primary responsibility for federal regulations governing commercial radioactive materials transportation. Non-DOE shipments of GTCC LLRW from commercial sites would be transported by commercial carriers and would be regulated by DOT and the NRC. In addition, DOE shipments by commercial carriers of GTCC LLRW from commercial sites or of GTCC-like waste from DOE sites would be regulated by DOT and NRC.

DOE has broad authority under the AEA to regulate all aspects of activities involving radioactive materials that are undertaken by DOE or undertaken on its behalf, including the transportation of radioactive wastes. However, in most cases that do not involve national security, DOE does not exercise its authority to regulate DOE shipments and instead utilizes commercial carriers that undertake shipments of DOE materials under the same terms and conditions as those used for commercial shipments. These shipments are subject to regulation by DOT and the NRC. As a matter of policy, however, even in the limited circumstances where DOE exercises its AEA authority for shipments, DOE requirements mandate that all DOE shipments be undertaken in accordance with the requirements and standards that apply to comparable commercial shipments, unless there is a determination that national security or another critical interest requires different action.

W487-2 DOE is responsible under the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240) for the disposal of GTCC LLRW. The purpose of the EIS is to evaluate alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. Continued storage of GTCC LLRW at the generating facilities was evaluated as part of the No Action alternative. Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites for reasons provided in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a more centralized disposal facility would result in lower overall human health risks compared to managing the wastes at multiple locations and can be conducted in a safe manner based on compliance with comprehensive regulatory requirements and past experiences.

W487-3 Stopping the generation of nuclear waste, the production of nuclear weapons and avoiding or reducing the amount of GTCC LLRW and GTCC-like wastes generated are outside the scope of this EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

Columbia Riverkeeper, Commenter ID No. T15

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MR. BROWN: Thanks very much.

Amy Harwood, and she'll be followed by Janet Johnson.

MS. HARWOOD: My name is Amy Harwood, and I'm here representing Columbia Riverkeeper.

Just short comments, but I do want to share in, echo Jerry's comments and say that we are opposed to additional waste coming to the Hanford Site and support the ongoing cleanup to continue of the existing buried waste. T15-1

We have significant concerns about the legacy that this leaves for the communities near and down river from Hanford. We have concerns about the ability for the Department of Energy to fulfill their obligations in the tri-party agreement. T15-2

And I'll just say, on a side note, I've been, the last couple of days, going to some high school classes and talking to them about Hanford, and it's resonated to me to see their reactions, some of the high school students' reactions, to this issue. It's sort of shock. I think a

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T15-1 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

T15-2 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup efforts will continue.

Columbia Riverkeeper, Commenter ID No. T15 (cont'd)

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lot of them have grown up feeling like Hanford is pretty important to their families, and to think that this is going to get added on to this legacy, it's been interesting seeing some of their reactions.

The Hanford Reach is well documented as the only remaining -- as one of the remaining significant spawning grounds for the fall-run Chinook Salmon on the main stem of the Columbia.

And I'm sure this isn't news to anyone in this room, but I find it surprising that there is such a lack of information about Department of Energy's ESA obligations for impact several species in the EIS, and we find it unacceptable. T15-3

Also, the cost reasoning for not considering more appropriate locations in deep geological sites is definitely not reasonable. You said in the presentation that the salt site costs $2 billion, and yet the VIT plant being built at Hanford is considerably more than that. So I think that that actually came across as sounding like a drop in the bucket. T15-4

And then, just on a personal note, I split my time between LaGrande, Oregon, and Portland. So I travel on I-84 and I-5 a lot. And I find it really discouraging that it seems as though the analysis for the transportation of this waste is being left up until the T15-5

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T15-3 DOE discusses its obligations under the Endangered Species Act in Section 5.2.5 of the Draft EIS. Further consultation with the US Fish and Wildlife Service would occur as necessary as part of site-specific NEPA reviews to implementation of the preferred alternative.

T15-4 DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

T15-5 The routes used in the analysis are considered representative routes because the actual routes used would be determined in the future as discussed in Appendix C of the EIS, Section C.9.4.1.1. For each disposal site such as Hanford, the routes most affected would be the interstate highways that are in closest proximity to the site. Regardless of where the GTCC waste disposal facility is ultimately located, a relatively small amount of GTCC LLRW and GTCC-like wastes may be transported through the Columbia River Gorge on its way to the disposal facility. The waste would be generated within the states of Oregon and Washington and would include actinide sealed sources and Cs-137 irradiators from local medical institutions, research facilities, universities, and other NRC and Agreement State licensees.

Columbia Riverkeeper, Commenter ID No. T15 (cont'd)

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site-specific review, and I think that that's an inappropriate place for that analysis to exist.

I suspect that, in Portland, you'll hear from people concerned about the fact that these trucks would be going -- potentially going through the city, but then again, we don't even know if that's the case because there's very little recognition of what routes would actually be used.

And I think it's sort of a deep irony that the origin of NEPA is from highways being built through neighborhoods and the impact that they would have on people, and yet you have totally left that part out of this EIS, which, to me, seems like something that will actually impact a far greater number of people than even the individual sites that you're considering.

I will leave the rest of my comments to be submitted in paper through Columbia Riverkeeper, but thanks a lot.

T15-5 (Cont.)

Columbia Riverkeeper, Commenter ID No. W539

Abplanalp, Jennifer Marie

From:	gtcceiswebmaster@anl.gov
Sent:	Monday, June 27, 2011 2:49 PM
To:	mail_gtcceisarchives; gtcceiswebmaster@anl.gov; gtcceis@anl.gov
Subject:	Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10539
Attachments:	GTCC_Comments_Dan_FINAL_GTCC10539.pdf

Thank you for your comment, Daniel Serres.

The comment tracking number that has been assigned to your comment is GTCC10539. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 27, 2011 02:48:49PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10539

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Privacy Preference: Don't withhold name or address from public record
Attachment: GTCC Comments Dan FINAL.pdf

Comment Submitted:
Please see the attached comments of Columbia Riverkeeper with regard to the Draft Environmental Impact Statement for Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D).

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

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Columbia Riverkeeper, Commenter ID No. W539 (cont'd)

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June 23, 2011

Greater-Than-Class C Low-Level Radioactive Waste EIS
Office of Technical and Regulatory Support (EM-43)
U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 20585-0119

Via Email and U.S. Mail

RE: **Public Comments on the Draft Environmental Impact Statement for Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D)**

Dear Mr. Edelman and Office of Technical and Regulatory Support (EM-43):

On behalf of Columbia Riverkeeper, please accept the following public comments on the DEIS for the Disposal of Greater-Than-Class-C (GTCC) and GTCC-like wastes.

I. COLUMBIA RIVERKEEPER'S COMMITMENT TO PROMPT, EFFECTIVE CLEANUP AT HANFORD

Columbia Riverkeeper is a 501(c)(3) nonprofit organization with thousands of members in Washington and Oregon. Our mission is to protect and restore the Columbia River, from its headwaters to the Pacific Ocean. Since 1989, Columbia Riverkeeper has played an active role in monitoring and improving cleanup activities at the Hanford Nuclear Reservation (Hanford). A legacy of the Cold War, the Hanford site continues to leach radioactive pollution into the Columbia River. Hanford's legacy is not a local issue. Nuclear contamination from Hanford threatens the Pacific Northwest's people, a world-renowned salmon fishery, and countless other cultural and natural resources.

Each summer Columbia Riverkeeper leads a series of kayak trips on the Hanford Reach of the Columbia River. During these trips, Columbia Riverkeeper's staff and members tour areas of the Hanford Reach that are currently being polluted by excessive levels of radioactive contaminants. The Hanford Reach is particularly unique because it is the last free-flowing stretch of the Columbia River. For example, during a trip on July 17, 2010, Riverkeeper's staff and members observed over a dozen salmon &/or steelhead while kayaking past the Hanford site. On these educational tours, our members learn

W539-1

W539-1 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

Columbia Riverkeeper, Commenter ID No. W539 (cont'd)

about the Endangered Species Act-listed salmon and steelhead that spawn, rear, and migrate in the Hanford Reach.

Columbia Riverkeeper's staff and members are dedicated to a long-term solution for Hanford cleanup and adamantly oppose the importation of additional radioactive or chemical wastes to the Hanford site. Consistent with these values, we urge the Department of Energy to remove Hanford from the list of sites being considered for disposal of GTCC and GTCC-like wastes. W539-1 (Cont.)

II. PROPOSED U.S. DEPARTMENT OF ENERGY ACTION AND THREATS POSED BY IMPORTATION OF NEW WASTE

A. The U.S. Department of Energy's Proposal.

U.S. DOE is considering multiple sites and methods for the disposal of GTCC and GTCC-like wastes. Hanford is one of six federal sites being considered for disposal of some or all of the GTCC waste. The GTCC DEIS ("DEIS") does not identify a preferred alternative for either the location or method of GTCC and GTCC-like wastes. Rather, USDOE considered multiple sites and methods for disposal in addition to deep geologic disposal, which is the recommended method for disposal for GTCC waste.

At the Hanford site, DOE proposes three different methods of disposal – boreholes, trenches, and vaults. The proposed location for the disposal activities is not specifically identified, but USDOE generally intends to use land south of Hanford's 200 East area. Hanford's 200 Area is already characterized by high levels of soil, soil-water, and groundwater contamination. Indeed, over 80 square miles of the Hanford site already exceed legal standards for groundwater contamination. USDOE's proposal to introduce more waste into trenches, boreholes, and vaults at the site will contribute to added long-term contamination of groundwater. W539-2

As described in greater detail below, all of the disposal options identified for Hanford fail to achieve an adequate level of containment for highly radioactive GTCC wastes. GTCC and GTCC-like wastes contain long-lived and mobile contaminants that are not suitable for near-surface disposal. USDOE considers other options – both in disposal method and location – for GTCC and GTCC- like wastes. CRK supports the use of deep geologic disposal for the waste streams identified in the GTCC DEIS. W539-3 Although the DEIS considers potential deep geologic disposal at the Waste Isolation Pilot Plant (WIPP) in New Mexico, this location cannot currently accept non-defense related wastes under existing law. Hence, USDOE fails to identify an adequate range of alternatives for deep geologic disposal of GTCC wastes. W539-4

B. Threats Posed by GTCC and GTCC-like Waste Disposal Options

GTCC and GTCC-like wastes contain long-lived and mobile contaminants, such as Technecium-99, Cesium-137, plutonium, americium, and curium.[1] As noted in the

2

W539-2 DOE has considered cumulative impacts at the Hanford Site in this GTCC EIS. The disposal of GTCC LLRW and GTCC-like waste at the Hanford Site could result in environmental impacts that may warrant mitigation for Tc-99 and I-129 through limiting receipt of these waste streams (see Table 6.2.4.2 and Figure 6.2.4.1 in this EIS).

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

W539-3 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

W539-4 Disposal of GTCC LLRW and GTCC-like wastes at WIPP or the WIPP Vicinity site is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. In addition, site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal.

However, NEPA does not limit an EIS to proposing and evaluating alternatives that are currently authorized. Furthermore, the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: "The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., Public Law [P.L.] 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions."

Columbia Riverkeeper, Commenter ID No. W539 (cont'd)

EIS, groundwater in Hanford's 200 Area already exceeds drinking water standards for chemical and radioactive contamination. Ultimately, this groundwater migrates to the Columbia River. Plant, animal, and aquatic life at the Hanford site and in the Columbia River – in addition to downstream human communities – face direct contamination risks from radiological and chemical wastes already at the Hanford site. Because of the long-lived and mobile nature of the GTCC wastes proposed for disposal at Hanford, USDOE's disposal options at the Hanford site are unacceptable and do not protect human health and the environment.

W539-5

Importation of GTCC and GTCC-like wastes would involve the importation and disposal in near-surface environments of highly dangerous waste. GTCC waste contains contaminants such as uranium, Tc-99, and I-129 – all of which are already present at excessive levels in Hanford groundwater. The DEIS estimates that the peak annual risk to human health and the environment will reach high levels when combined with existing risks at the Hanford site – 48 mrem/year for trench disposal and 49 rem/year for vault disposal.[11] Worse yet, the peak ground water dose for vaults and trenches is roughly 600 mrem/year – a level that poses a serious risk to human health.

Disturbingly, the peak risk for added GTCC wastes would compound the risks that already exist at the Hanford site from groundwater pollution. The existing risk is a major human health and environmental risk, and it is the subject of a major cleanup operation at the Hanford site. Proposals to add more radioactive waste to the Hanford site – like the current USDOE proposal to dispose of GTCC waste at Hanford – undermine the efficacy and momentum behind cleanup efforts.

III. COMMENTS ON MAJOR FLAWS IN USDOE ANALYSIS

W539-6

Columbia Riverkeeper opposes the disposal of off-site GTCC and GTCC-like wastes at the Hanford site. DOE's analysis does not provide an adequate range of alternatives for using the correct disposal method – deep geologic disposal. The following comments address some of the specific problems with the disposal of GTCC and GTCC-like wastes at Hanford.

A. EIS Understates the Risk from Borehole Disposal Method at Hanford

W539-7

USDOE's analysis presents highly diverging estimates of radioactive doses from trench disposal, above-ground vaults, and intermediate depth borehole disposal. The DEIS presents estimates of radioactive risks that differ by an order of magnitode between trenches and boreholes, yet the DEIS does not present an adequate explanation for this discrepancy. Simply put, it appears that USDOE is sharply underestimating the risk from borehole disposal of GTCC and GTCC-like wastes.

In particular, USDOE's analysis underestimates the risks from borehole disposal methods that will likely directly contribute to direct dose risks as well as long-term groundwater contamination by GTCC wastes. Hanford has a long history of contamination arising from waste disposal methods that introduced radioactive materials

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DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 10-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts for all resource areas evaluated, including human health and transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

W539-5 The GTCC EIS evaluates the transportation impacts from the shipments that would be required to dispose of the entire inventory of GTCC LLRW and GTCC-like wastes at the Hanford Site and all the other sites being evaluated.

The GTCC EIS evaluates collective population risks during routine conditions and accidents, radiological risks to the highest exposed individuals during routine conditions, and consequences to individuals and populations as a result of transportation accidents, including the release of radioactive or hazardous chemical materials. For the truck option, it is estimated that about 12,600 shipments resulting in about 50 million km (30 million mi) of travel would be required. This transport of GTCC LLRW and GTCC-like wastes would not result in any LCFs, although one fatality directly related to an accident might occur (see Section 6.2.9.1).

In addition, Chapter 6 of the TC&WM EIS also has evaluated cumulative impacts addressing disposal of potential future wastes (including GTCC LLRW and GTCC-like waste) at the Hanford site.

W539-6 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

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into the soil column. Boreholes are likely to be roughly as dangerous as trenches and vaults in the long-term. Because GTCC wastes contain long-lived and potentially mobile contaminants such as uranium, USDOE cannot reasonably anticipate boreholes to be significantly more effective at reducing risks than trenches and vaults. Over the thousands of years where highly radioactive GTCC waste will remain dangerous, none of these storage options are likely to remain robust.

Additionally, the groundwater risks posed by borehole disposal are estimated to be 1/3rd the level of trenches and vaults. The groundwater dose for uranium, alone, is anticipated to be 200 mrem/year for borehole disposal and 600 mrem/year for trenches and vaults. Again, the discrepancy between the dose estimates is too large, given that the long-lived and mobile nature of uranium will cause any of the non-geologic disposal options to fail over the thousands of years that uranium will remain dangerous. Regardless, all of the estimated dose rates for groundwater are unacceptably high. USDOE's own analysis demonstrates that the risk of disposal in boreholes, trenches or vaults will harm human health and the environment.

USDOE also makes a critical error in assuming that engineered barriers will remain effective for hundreds of years. According to USDOE's analysis, "it is assumed that the engineered barriers (including the cover) would remain effective for the first 500 years after closure of the disposal facility and that during this time, essentially no infiltrating water would reach the wastes from the top of the disposal facility."[xiii] USDOE fails to account for the high potential for lateral groundwater flow to occur and to increase over time. USDOE states that radionuclides underneath engineered barriers will be "available" to infiltrating water after 500 years. Realistically, the barriers may fail sooner than 500 years, increasing the risk to the environment and the public from some of the more short-lived radionuclides (such as Cesium) that may be contained in GTCC wastes. W539-7 (Cont.)

B. Lack of integration of TC/WM EIS information

USDOE's proposal to bring GTCC waste into Hanford directly conflicts with USDOE's own analysis produced in the Tank Closure and Waste Management (TC&WM DEIS). According to the GTCC DEIS, "DOE announced in the December 18, 2009, *Federal Register* (74 FR 67189) that its preferred alternative in the Draft Tank Closure and Waste Management (TC&WM) EIS (DOE 2009) includes not shipping GTCC LLRW to Hanford at least until the Waste Treatment Plant is operational." Given the previous clear indication from the TC&WM EIS, the Hanford site should not be considered a reasonable alternative for disposal of GTCC wastes. W539-8

USDOE briefly acknowledges but does not fully incorporate the analysis conclusions of the TC& WM DEIS in its evaluation of GTCC waste options. For example,

> For the Hanford Site, as stated in the *Draft Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington*

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W539-7 The EIS analyses are based on conceptual engineering information and necessitated the use of a number of simplifying assumptions. This approach is consistent with NEPA, which requires such analyses to be made early in the decision-making process. The various land disposal conceptual designs were assumed to be constructed and operated in a comparable manner at each of the various sites. Information on the conceptual engineering designs for the three proposed land disposal methods is provided in Section D.3 of Appendix D in the EIS. By using the same conceptual designs at all of the sites evaluated in the GTCC EIS, except for cases where a design did not apply (e.g., an intermediate-depth borehole at a site with shallow groundwater), the potential impacts (e.g., radionuclides reaching the groundwater) at the different environmental settings could be readily compared.

In performing these evaluations, a number of engineering measures were included in the conceptual facility designs to minimize the likelihood of contaminant migration from the disposal units. No facility design can guarantee that radionuclide migration from the facility would not occur over and beyond a 10,000-year time period. It was assumed that these measures would perform similarly for all conceptual designs, remaining intact for 500 years after the disposal facility closed. After 500 years, the barriers would gradually fail. To account for these engineered features in the modeling calculations, it was assumed that the water infiltration to the top of the waste disposal area would be zero for the first 500 years and then 20% of the natural rate for the area for the remainder of the time period (through 10,000 years). A water infiltration rate of 20% of the natural rate for the area was only used for the disposal area; the natural background infiltration rate was used at the perimeter of the waste disposal units. Again, this approach enables a comparative evaluation of the influence that site-specific environmental factors would have on the potential migration of radionuclides from the disposal facilities and the potential impacts on human health. It should be emphasized that project- and site-specific engineering factors would be incorporated into the actual facility designs of the site or sites selected in a ROD to dispose of GTCC LLRW and GTCC-like wastes.

DOE recognizes that modeling potential releases of radionuclides from the conceptual disposal sites far into the future approximates what might actually occur. Sufficient detail was included in these designs for use in the EIS analyses, consistent with the current stage of this process. Some of the input values may change in the future and could result in higher impacts (such as from increased precipitation at some sites due to climate change), while others could result in lower impacts (due to decreased precipitation).

DOE believes that 500 years is a realistic time period for the longevity of the types of engineering barriers assumed in the analyses. DOE believes the approach and the assumptions used in the EIS are reasonable for performing the comparative analysis of alternatives required by NEPA. For example, the assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study.

Estimated radiation doses and LCFs were calculated for each site and disposal concept for 10,000 years, and if the peak impact did not occur during this time frame, the analysis was extended out to 100,000 years. DOE believes that the assumptions made to support the long-term modeling calculations for the groundwater pathway are reasonable and enable a comparative evaluation of the impacts between alternatives. The results of the evaluation presented in the EIS are sufficient to inform the selection of sites and methods for disposal. Site-specific NEPA reviews would be conducted as needed.

W539-8 See response to W539-1.

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(DOE 2009), when the impacts of technetium-99 from past leaks and cribs and trenches (ditches) are combined, DOE believes it may not be prudent to add significant additional technetium-99 to the existing environment. Therefore, one means of mitigating this impact would be for DOE to limit disposal of off-site waste streams containing iodine-129 or technetium-99 at Hanford.

GTCC DEIS at S-50. USDOE does not propose a reasonable method of limiting GTCC imported waste to sources without Tc-99 or I-129. The DEIS should provide specific mitigation measures that directly address how problem contaminants – those that are long-lived, mobile, and already posing a threat to groundwater and the Columbia River – will be excluded from GTCC wastes that could come to the Hanford site. W539-9

Additionally, USDOE's analysis fails to fully account for the cumulative burden of other chemical and radioactive contaminants that remain on the Hanford site, for which cleanup has thus far been unsuccessful. For example, the uranium dose for groundwater from GTCC waste presents a significant risk on its own, but it is likely to be much worse when combined with the significant uranium contamination that already exists on the Hanford site. The TC&WM DEIS predicts that uranium contamination will be a major risk to public health and the environment for thousands of years. W539-10

Figure U-25. Spatial Distribution of Groundwater Uranium-238 Concentration (Non-TC & WM EIS Sources), Calendar Year 2135

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W539-9 Information on waste forms and waste packages and containers is provided in the EIS to allow for a comparative analysis of alternatives for transportation and waste disposal. Treatment of the wastes prior to disposal is outside the scope of the EIS. Such treatment is assumed to be addressed prior to receipt of the waste at the GTCC LLRW and GTCC-like waste disposal facility. DOE agrees that it is important to immobilize long-lived radionuclides such as Tc-99 and I 129 prior to disposal. Solidification techniques (e.g., use of grout) are expected to immobilize certain wastes in the GTCC LLRW and GTCC-like waste inventory. If needed, the actual stabilization methods used will depend, in part, on the waste stream, packaging, and final disposal facility design. DOE considers the assumptions used for waste form stability (see Appendix B) to be reasonable for purposes of the comparative analysis provided in the EIS.

The waste characteristics and physical form would have to meet the disposal facility waste acceptance criteria. It is expected that these waste acceptance criteria would identify requirements (such as allowable concentrations) for individual radionuclides, including Tc 99 and I-129. The specific waste forms and packages used to dispose of GTCC LLRW and GTCC-like wastes would be determined in the future as part of the waste acceptance criteria and packaging requirements developed. See the discussion in Section B.5 and C.9.4.2 of the EIS for more information on packaging requirements. All GTCC LLRW and GTCC-like wastes would be packaged and transported in accordance with all applicable federal and state requirements, and waste disposal activities would be conducted in accordance with appropriate requirements

W539-10 See response to W539-2.

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TC&WM DEIS, Appendix U-26.

USDOE appears to use different modeling methodology for its GTCC DEIS than it did for the TC&WM DEIS. The TC&WM DEIS used a more sophisticated modeling approach to predict long-term contamination risks (such as the uranium contamination depicted above). The discrepancy between the methods used in the two NEPA analyses should be resolved by USDOE adopting the more rigorous approach. Because the more rigorous modeling approach is readily available (and has been used by USDOE, itself), the current GTCC DEIS is deficient and does not use the best available science. We oppose the consideration of Hanford as a GTCC waste disposal option. However, if USDOE is going to continue to consider Hanford as a possible disposal location, the agency should, at the very least, incorporate the most detailed and thorough analysis available. W539-11

C. Lack of specific information about transportation routes and risks of transportation of GTCC and GTCC-like wastes

The proposed plan acknowledges that disposal of GTCC wastes will require at least 12,000 truckloads of highly radioactive waste. The GTCC DEIS does not identify specific routes and the proportion of wastes likely to travel those routes. Without specific information about the routes that would be necessary for shipping GTCC wastes, the public cannot meaningfully weigh the relative risks between different disposal locations. For example, if waste generated in California were to be shipped to Hanford, the highly populated I-5 corridor could be used.

NEPA requires USDOE to disclose the potential impacts of its proposed action. The lack of detailed information about potential shipping routes has generated significant confusion and concern in communities near the Columbia River. The I-84 corridor through the scenic Columbia River Gorge is narrow, busy, and home to thousands of Oregonians and Washingtonians. The main highways through the Gorge pass through the center of cities like The Dalles, Bingen, White Salmon, and Hood River. The public has a right to know precisely how many shipments would be routed through specific cities and towns. W539-12

In general, cross-country shipments of GTCC waste to Hanford represent a significant risk to the public, and one that is dramatically understated in the GTCC DEIS. W539-13 The DEIS essentially dismisses the potential for a radiological release from an accident or attack on a nuclear waste shipment. W539-14 When combined with the lack of specific shipping route information, this underestimation of the risk of an accident or attack prevents the public from getting a realistic picture of the transportation risks associated with the shipment of GTCC wastes. USDOE should revise and re-issue the GTCC DEIS in a form that includes detailed analysis of transportation risks, specific to the potential use of the Hanford site and the routes that approach the site.

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W539-11 A more sophisticated modeling approach would not provide any appreciable difference in the overall modeling results for the GTCC EIS. The specific locations that would be used at each potential site for development of a disposal facility for GTCC LLRW and GTCC-like wastes are not known at this time. The use of "reference locations" was used in the EIS to allow for a quantitative assessment of the impacts that could occur at each site. While some parameters could change within a short distance, most would not. For consistency across potential disposal sites, the RESRAD-OFFSITE computer code was used to model the migration of radionuclides from the GTCC LLRW and GTCC-like wastes placed into the conceptual disposal facility designs for the three land disposal methods (not all three methods were evaluated for each site). Site-specific information provided by technical staff from various sites that were evaluated was used in these modeling analyses to the extent it was available, and conservative assumptions were used to fill any remaining data gaps. While the computer model was largely developed to support environmental restoration activities, it has a number of features that make it a good choice for use in this EIS.

The RESRAD-OFFSITE code, like all codes, has limitations. This code was selected for the GTCC EIS analysis because of its manageable number of input parameters, its comprehensive transport analysis for radionuclides in the unsaturated zones and saturated zone, and its flexibility in accepting radionuclide release rates calculated outside the RESRAD-OFFSITE framework. Furthermore, the RESRAD-OFFSITE code has been benchmarked with other computer codes. The results obtained from the code are considered to be technically sound estimates.

The analysis presented in the EIS is adequate for the comparison of the disposal alternatives evaluated. Fate and transport parameters utilized in the estimations were based on site-specific (e.g., specific to the reference location to the extent available) information and, as such, are considered reasonable for the purpose of the comparison made in the EIS. However, DOE recognizes that additional project- and site-specific information and modeling could be used to inform the implementation of a disposal facility at a given location. This additional information is expected to reduce the uncertainty associated with these types of evaluations to the extent possible. Site-specific information would be evaluated in any site-specific NEPA review that would be conducted based on a ROD for this EIS.

W539-12 The primary radiological transportation risk to the public for any alternative is from the low level of radiation emanating from the transport vehicle. As discussed in Section 5.3.9.1, the collective population risk is a measure of the total risk posed to society as a whole. A comparison of the collective population risk provides a meaningful evaluation of the relative risks between disposal locations, as provided in Tables 2.7 5 and 2.7 6. The magnitude of the collective population risk is primarily determined by the number of routes, the length of each route, the number of shipments along each route, the external dose rate of each shipment, and the population density along a given route. The primary differences between alternatives from the standpoint of transportation are the lengths of the routes as determined by the location of the disposal sites (destination of the shipments). Thus, higher collective population risks are associated with alternatives that require transportation over longer distances. All alternatives involve routes that have similar characteristics, with no significant differences for comparison among alternatives, requiring transportation through a range of rural and urban areas. In addition, the routes used in the analysis are considered representative routes because the actual routes used would be determined in the future as discussed in Appendix C, Section C.9.4.1.1. For each disposal site, the routes most affected would be the interstate highways that are in closest proximity to the site.

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D. Excessive Long-Term Cumulative Risk to the Columbia River and Human Health

W539-15

The proposed plan for sending GTCC waste to Hanford must be considered in tandem with other proposals to store, treat, and ship additional waste to the site. For example, USDOE has proposed shipping over 3 million cubic feet of highly radioactive waste to the Hanford site in addition to the GTCC waste disposal plan. The GTCC DEIS must account for the cumulative impacts of all waste disposal activities proposed for the site. Clearly, according to the TC&WM DEIS, contamination at the site already exceeds levels that are acceptable for human health and the environment. USDOE must take a comprehensive, coordinated look at the impacts of contamination at the Hanford site as well as waste that could be added to the site.

Already, members of the public and tribal members who consume large quantities of fish from the Columbia River experience increased rates of cancer. Columbia River salmon carry a toxic burden, not only from Hanford, but also from other industrial and agricultural activities throughout the basin. USDOE must evaluate how GTCC wastes, which would ultimately reach groundwater and the Columbia River, would contribute to an already impaired River system and the health of those who use the River.

W539-16

In the long-term, USDOE states that it evaluates risk based on a resident farmer scenario. Presumably, because institutional controls cannot be relied upon to fully control the site, USDOE must evaluate the risk to the public from using groundwater for crop irrigation, drinking water, and other purposes. Moreover, the State of Oregon has recently adopted enhanced fish consumption standards intended to reduce toxic pollution into the Columbia River. We urge USDOE to incorporate into its revised GTCC DEIS assumptions that reflect a higher level of fish consumption. Columbia River Treaty Tribes must be engaged in this process, and USDOE should incorporate the site-specific impact assessments that have been developed for the Hanford site before giving Hanford consideration as a disposal site for GTCC and GTCC-like wastes.

E. Failure to Consult Under Section 7 of the Endangered Species Act.

W539-17

USDOE is largely dismissive of potential impacts to fish and wildlife species from the importation of GTCC and GTCC-like wastes to Hanford and the disposal of these wastes in trenches, vaults, or boreholes. USDOE states,

> Impacts on these species would likely be small, since the area of habitat disturbance would be small relative to the overall size of such habitat in the area. Several federally listed or state-listed bird and mammal species occur within the GTCC project areas at the Hanford Site, SRS, LANL, and NNSS. Impacts on these species would likely be small, since the area of habitat disturbance would be small relative to the overall size of such habitat in the area. Adverse impacts would be minimized by conducting biological surveys in the project area and using good engineering practices to minimize impacts on the environment.

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If DOE decides to implement its preferred alternative for the TC&WM EIS, GTCC LLRW and GTCC-like wastes would not be shipped through the Columbia River Gorge for disposal at the Hanford Site until the waste treatment plant is operational. However, regardless of where the GTCC waste disposal facility is ultimately located, a relatively small amount of GTCC LLRW and GTCC-like wastes may be transported through the Columbia River Gorge on their way to the disposal facility. The waste would be generated within the states of Oregon and Washington and would include actinide sealed sources and Cs-137 irradiators from local medical institutions, research facilities, universities, and other NRC and Agreement State licensees.

W539-13 Calculation of the collective population risk (under routine and accident conditions) is provided in the EIS. While these estimates are conservative, the calculations used expected values where practical (e.g., external shipment dose rates) and provide a reasonable measure for comparison among alternatives, as summarized in Tables 2.7 5 and 2.7 6, and the estimates show that the transportation risks would be small. All alternatives involve routes of hundreds of miles through similar types of rural, suburban, and urban areas. For specific local impacts, Section 5.3.9.2 provides information on potential human health impacts on individuals during normal waste transport along a route. However, the consideration of specific local stakeholder concerns is more appropriate during the final planning stages of a project when actual route selections are finalized, not at the level addressed in this EIS. A generic accident consequence assessment was performed because there is no way to predict the exact location and conditions of an accident, as discussed in C.9.3.3 of the EIS. For all alternatives, potential accidents, even those at the same location, could have impacts that range from negligible to significant depending on the waste involved, the accident severity, and weather conditions. Such an analysis would not help distinguish between alternatives because all alternatives involve routes through or near sensitive areas and major population centers.

All information necessary to duplicate the transportation accident consequence assessment was available in Section 5.3.9.3 of the Draft EIS, with the exception of the source terms used for the contact-handled and remote-handled Other Waste. These latter source terms have been added to Section 5.3.9.3 of the Final EIS. The accident risk analysis (see Section C.9.3.1) is separate from the accident consequence analysis (see Section C.9.3.3). All relevant data for the accident risk analysis, with the exception of the shipment source terms and route information, are provided in Section C.9.3. Approximately 1,200 routes were considered in this analysis, so it was not considered practical to include this information in the EIS. Such information is readily available by using the TRAGIS routing model, as referenced in Appendix C. Shipment-specific source terms were determined by dividing the origin source inventory by the number of shipments from that site. Site inventories were published in Sandia (2007, 2008), as referenced in Appendix B, which also contains the per-shipment packaging assumptions for each waste type. The shipment-specific source terms were omitted from the EIS for brevity and because of the low estimated impacts.

Once an alternative is selected in a ROD for this EIS for implementation, site-specific NEPA reviews would be conducted as needed, including an assessment of specific routing and an accident analysis. This process will include planning that involves transportation stakeholders.

W539-14 A generic accident consequence assessment was performed because there is no way to predict the exact location and conditions of an accident, as discussed in C.9.3.3 of the EIS. For all alternatives, potential accidents, even those at the same location, could have impacts that range from negligible to significant depending on the waste involved, the accident severity, and weather conditions. Such an analysis would not help distinguish between alternatives because all alternatives involve routes through or near major population centers. All information necessary to duplicate the transportation accident consequence assessment was available in Section 5.3.9.3 of the Draft EIS, with the exception of the source terms used for the contact-handled and remote-handled Other Waste. These latter source terms have been added to Section 5.3.9.3 of the Final EIS.

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GTCC DEIS at S-43. USDOE does not provide adequate specificity to warrant the conclusion that fish and wildlife impacts would be minor. Indeed, as demonstrated in the previous TC&WM DEIS, the Columbia River and the surrounding environment at the Hanford site face contamination risks for thousands of years already. USDOE has not undertaken an adequately detailed review of how GTCC waste will exacerbate ecological risks to fish and wildlife at the Hanford site, which is important habitat for multiple federally listed fish and wildlife species.

As Columbia Riverkeeper has noted in many previous comments, USDOE is required to consult with the federal expert agencies when a federal action at Hanford may affect federally-listed endangered or threatened species. *See* Columbia Riverkeeper Comment on USDOE Mercury Storage at Hanford (Aug. 2009); Columbia Riverkeeper Comment to USDOE on Tri-Party Agreement Proposed Changes and Consent Decree (Dec. 2009); Columbia Riverkeeper Comment on USDOE Tank Closure Waste Management Environmental Impact Statement (May 2010). Pursuant to Section 7 of the Endangered Species Act (ESA), USDOE must consult with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) to determine how the proposed action may affect any threatened or endangered species in the Hanford Reach of the Columbia River.

i. Endangered and Threatened Salmon and Steelhead in the Hanford Reach.

Among the forty-three species of fish present in the Hanford Reach are several endangered species, including the Upper Columbia River spring-run Chinook salmon and steelhead ESUs. For thousands of years, the Columbia River supported the most abundant salmon runs on Earth.[iv] Beginning in the late 1990s, the National Marine Fisheries Services listed thirteen stocks of migratory salmonids as threatened or endangered under the Endangered Species Act. These fish spend part of their life-cycle in the Columbia River and its tributaries and part of their life in the Pacific Ocean, eventually returning to the Columbia to reproduce and die.

The Hanford Reach is well documented as the only remaining significant spawning ground for the fall run Chinook salmon on the mainstem of the Columbia River.[v] According to the U.S. Fish and Wildlife Service, "[t]he [Hanford] Reach contains islands, riffles, gravel bars, oxbow ponds, and backwater sloughs that support some of the most productive spawning areas in the Northwest, including the largest remaining stock of wild fall Chinook salmon in the Columbia River."[vi] The fall Chinook salmon that spawn and rear throughout the Hanford Reach support in-river commercial and tribal fisheries, commercial fisheries in the North Pacific Ocean, and sport fisheries.[vii]

In addition to fall run Chinook salmon, the Hanford Reach also supports over forty other species of fish, including sturgeon, steelhead, and bull trout. The prevalence of endangered and threatened fish in the Hanford Reach raises serious questions about the current and future impacts of Hanford's pollution legacy and USDOE's decisions that impact how much pollution will enter the Columbia for generations. Importantly,

W539-17 (Cont.)

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The accident risk analysis (see Section C.9.3.1) is separate from the accident consequence analysis (see Section C.9.3.3). All relevant data for the accident risk analysis, with the exception of the shipment source terms and route information, are provided in Section C.9.3. Approximately 1,200 routes were considered in this analysis, so it was not considered practical to include this information in the EIS. Such information is readily available by using the TRAGIS routing model, as referenced in Appendix C. Shipment-specific source terms were determined by dividing the origin source inventory by the number of shipments from that site. Site inventories were published in Sandia (2007, 2008), as referenced in Appendix B, which also contains the per-shipment packaging assumptions for each waste type. The shipment-specific source terms were omitted from the EIS for brevity and because of the low estimated impacts.

The analysis of intentional destructive acts is given in Section 2.7.4.3 of the EIS. This analysis provides a perspective on the risks that the GTCC LLRW and GTCC-like wastes could pose should such an act occur. In general, the risk presented from an intentional destructive act is similar to that from a high-severity transportation accident. The accident consequence assessment (given in Section 5.3.9.3 of the Final EIS) presents the results for transportation accidents that fall into the highest severity category. The severe environment that occurs under such conditions can be considered to be similar to that which could be initially instigated by an act of sabotage. In highly populated areas, where the highest exposures would be anticipated, a rapid response would be expected, minimizing the amount of time available to fully breach a Type B package. Should such shipments be diverted and the radioactive material removed for dispersion, higher exposures could be achieved, and potential impacts could be significant. The economic impact could reach several billions of dollars. The extent of the impacts would depend on the exact location of the release, density of the surrounding population, local meteorology, and emergency response capabilities in the affected area. In addition, the final transportation routes will not be selected until a ROD for the EIS is issued and site-specific NEPA review would be conducted as needed.

W539-15 See response to W539-5.

W539-16 All relevant potential exposure pathways were considered in the analyses presented in the EIS, including impacts from surface runoff and airborne emissions. These analyses addressed a range of reasonable scenarios and estimated the potential impacts on all environmental resources consistent with NEPA requirements. For the human health assessment, the focus was on the groundwater pathway, since this is the most likely manner in which someone could be exposed to the radioactive contaminants in the GTCC LLRW and GTCC-like wastes in the distant future. As discussed in Section 2.7.4.2, the hypothetical resident farmer scenario was only used to provide estimates for comparing the various sites evaluated; however, this scenario may not be consistent with the reasonably foreseeable future scenario at some of the sites evaluated. Site-specific NEPA reviews would be conducted as needed. This information could include sensitive subpopulations and specific pathways of exposure for American Indians. In a similar fashion, additional cumulative impacts analyses would be conducted by using additional site-specific information when the location selected for a GTCC LLRW and GTCC-like waste disposal facility was determined.

W539-17 All relevant potential exposure pathways were considered in the analyses presented in the EIS. These analyses addressed a range of reasonable scenarios and estimated the potential impacts on all environmental resources, including ecological resources, consistent with NEPA requirements. DOE discusses its obligations under the Endangered Species Act in Section 5.2.5 of the Draft EIS. Further consultation with the US Fish and Wildlife Service and/or the National Marine Fisheries Service would occur as necessary as part of site-specific NEPA review to implementation of the preferred alternative.

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strontium-90, uranium, chromium and other contaminants are documented entering salmon spawning grounds along the Hanford Reach.[viii] GTCC waste disposal at Hanford will ultimately add to this existing contamination burden.

ii. USDOE Must Consult Under ESA § 7.

Section 7 of the Endangered Species Act (ESA), the heart of the ESA's requirements for federal actions, imposes strict substantive and procedural duties on federal agencies to ensure that their activities do not cause jeopardy to listed species or adverse modification to their critical habitat. 16 U.S.C. § 1536(a)(2). Not satisfied that federal agencies possessed the requisite expertise, Congress added a strict procedural requirement: that the determination of whether any federal action would be likely to result in jeopardy or adverse modification would be made "in consultation with and with the assistance of [the Services]." *Id.* This mandatory consultation is the key to section 7; in fact, Congress titled Section 7, "Interagency Cooperation."

Section 7 embodies another safeguard to protect against substantive jeopardy. Section 7 requires federal agencies—action and expert agencies alike—to use the best available scientific information in meeting their section 7 obligations. The agencies are generally the repositories of the best scientific evidence given their role in listing threatened and endangered species, in conducting section 7 consultations, in issuing incidental take permits and statements, and in developing recovery plans.

The ESA mandates consultations to ensure that an agency action "is not likely to jeopardize the continued existence of any" listed species or adversely modify critical habitat. 16 U.S.C. § 1536(a)(2). Regulations require such consultations whenever an action "may affect" a listed species. *See* 50 C.F.R. § 402.14. Where an action is "likely to adversely effect" a listed species, the agency must conduct formal consultation with the National Marine Fisheries Service (NMFS) and/or the U.S. Fish and Wildlife Service (USFWS) (collectively "the Services"). The end product of formal consultation is a biological opinion in which the Services determine whether the action will cause jeopardy to the species or adversely modify designated critical habitat. 16 U.S.C. § 1536(b).

W539-17 (Cont.)

In their joint consultation regulations, NMFS and the FWS established a preliminary review that can be used to sidestep formal consultation in limited situations. For all actions that "may affect" a listed species, the action agency must determine whether the action is "likely to adversely affect" or "not likely to adversely affect" the listed species. 50 C.F.R. § 402.14(a)–(b). An action that is "likely to adversely affect" a listed species or its critical habitat must undergo formal consultation that culminates with the services' issuance of a biological opinion that complies with the ESA and regulatory requirements. *Id.* §§ 402.02, 402.14(a).

Under the joint regulations, a "not likely to adversely affect" determination can lead instead to an informal consultation, which consists of all discussions and communications between the agencies and ends with the Services' written concurrence in that determination. *Id.* § 402.13. If the expert agency does not concur, the action is

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deemed "likely to adversely affect" and the agencies must conduct a formal consultation. *Id.* §§ 402.02, 402.14(a). Use of informal consultation is optional in those instances where it is available.

An agency may avoid "consultation only when it has determined the proposed action is unlikely to adversely affect the protected species or habitat and the [expert agency] concurs with that determination." *Tinoqui-Chalola Council of Kitanemuk v. U.S. Dept. of Energy*, 232 F.3d 1300, 1306 (9th Cir. 2000) (citing 50 C.F.R. § 402.14(b)).

> ***Question 1:*** Has USDOE initiated Section 7 consultation with NMFS and/or the USFWS regarding the proposed strontium-90 action?
>
> ***Question 2:*** If USDOE has not initiated Section 7 consultation, does USDOE intend to initiate Section 7 consultation? Please explain
>
> ***Question 3:*** If USDOE has not and does not intend to initiate Section 7 consultation, please explain the agency's rationale for not consulting with the Services under the ESA.

W539-17 (Cont.)

III. CONCLUSION: USDOE MUST ABANDON ITS CONSIDERATION OF HANFORD FOR DISPOSAL OF GTCC AND GTCC-LIKE WASTES

Thank you in advance for considering Columbia Riverkeeper's comments on the proposal to dispose GTCC and GTCC-like wastes at the Hanford site. We strongly urge USDOE to abandon its consideration of Hanford as a disposal site for these highly radioactive wastes. If USDOE has any questions or would like to discuss these public comments, please contact Columbia Riverkeeper at crk@gorge.net to arrange a meeting.

W539-18

Sincerely,

/s/ Dan Serres

Dan Serres
Columbia Riverkeeper
Conservation Director

/s/ Lauren Goldberg

Lauren Goldberg
Columbia Riverkeeper
Staff Attorney

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W539-18 Comment noted.

Columbia Riverkeeper, Commenter ID No. W539 (cont'd)

[i] GTCC EIS 1-18.

[ii] GTCC EIS 5-47, Table 5-4

[iii] GTCC EIS 5-51.

[iv] National Resource Council, *Managing the Columbia River: Instream Flows, Water Withdrawals, and Salmon Survival* (2004).

[v] "The Hanford Reach of the Columbia River provides the only major spawning habitat for the upriver bright race of fall Chinook salmon in the mainstem Columbia River." USDOE-PNNL, PNL-7289; USDOE OSTI ID: 7051730. "Today, however, the 51-mile Hanford Reach is the only significant spawning habitat that remains for the upriver bright race of fall Chinook salmon in the main stem Columbia River." USDOE-PNNL at: http://science-ed.pnl.gov/pals/resource/cards/Chinooksalmon.stm (2009).

[v] U.S. Fish and Wildlife Service Website, http://www.fws.gov/hanfordreach/salmon.html.

[vi] *Id.*

[vii] *Id.*

[viii] *See e.g. Groundwater Contaminants at Hanford*, Washington Dept. of Ecology http://www.ecy.wa.gov/programs/nwp/gwhanfordcont.htm; *Hanford Site Groundwater Monitoring for Fiscal Year 2008*, Department of Energy, DOE/RL-2008-66; *Hanford Integrated Groundwater and Vadose Zone Management Plan*, Department of Energy, DOE/RL-2007-20, Pg. 3.

11

Columbia Riverkeeper, Commenter ID No. T119

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MR. BROWN: Chuck Johnson is speaking, and Toby Cantine, I believe, will follow.

MR. JOHNSON: I'm Chuck Johnson. I'm a board member of Columbia Riverkeepers, and I'm going to express some general comments in opposition to this proposal in the EIS to store additional radioactive waste. In this case, greater-than-class C waste at the Hanford site on the Columbia River, the lifeblood of the Pacific Northwest.

Columbia Riverkeepers' staff members will speak later with more specific comments. The fact that we are here at all reflects to me the tone-deafness of the U.S. Department of Energy and the antidemocratic nature of the nuclear power and weapons complex. The people of Oregon and Washington have spoken out clearly, consistently and repeatedly against the storage of additional radioactive waste at Hanford until the existing massive volume and hazard of radioactive waste already leaking and lurking under the surface and seeping through the aquifers into the Columbia River has been fully cleaned up.

In a statewide vote in Oregon in 1987, and in Washington in 2004, the voter's of both states voted by greater than three-to-one margin to oppose any

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T119-1

T119-1 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup efforts will continue.

Columbia Riverkeeper, Commenter ID No. T119 (cont'd)

Capital Reporting Company 23

storage of additional radioactive waste at the Hanford site until they've had a complete cleanup of that site. Just this morning, the Oregonian, Oregon's largest circulation newspaper, strongly editorialized against this particular greater-than-class C plant.

T119-1 (Cont.)

Back in the Clinton administration, U.S. DOE Secretary Hazel O'Leary promised that the Hanford site would become a cleanup site, not a site for additional radioactive waste generating activity. Washington State, the tribal government put sovereign treaties over the land, and the DOE signed the tri-party agreement to change the Hanford site's mission from generation of waste, from waste producing activities, to waste containment and cleanup.

T119-2

This proposal blows a hole in the tri-party agreement large enough to drive over a thousand radioactive waste trucks through it. It is absurd that the U.S. DOE continues to come to our region with a straight face and propose to double the amount of long-lived radionuclides to the Hanford site, or even to bring any additional waste at all in the face of universal, consistent public opposition. We expect dictatorships to behave in this way, but not

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T119-2 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

Columbia Riverkeeper, Commenter ID No. T119 (cont'd)

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representatives of the U.S. government.

Finally, your EIS is deficient for any location in the U.S., not just at Hanford, because your proposed methods of disposal guarantee migration from the site of lethal, extremely long-lived nuclear elements. T119-3

The best course for U.S. DOE at this point is to go back to the drawing board. The fact that no granite rock sites are being considered for long-term disposal is purely a political consideration and a scientific travesty. T119-4 You need to know that we will fight you bitterly every step of the way if you proceed with any proposal for storing additional radioactive or chemical waste at Hanford. Thank you.

T119-3 The three land disposal facility conceptual designs (above-grade vault, enhanced near-surface trench, and intermediate-depth borehole) were selected as being representative of a range of land disposal configurations (varying degrees of waste consolidation and geometry) that could be employed for the disposal of the GTCC LLRW and GTCC-like waste inventory. As discussed in Section 1.4.2, each concept has been used to some degree in the United States or other countries. The same vault, borehole, and trench characteristics were considered for the disposal sites evaluated in order to compare the performance of each site's natural hydrological, geological, and meteorological properties relative to contaminant fate and transport once any engineered barriers would begin to fail.

The conceptual nature of these configurations takes into account the characteristics of all of the disposal sites for which they were considered, but their designs (e.g., width, depth, cover depth, reinforced containment) could be altered or enhanced, as necessary, to provide an optimal solution at a specific location. As an example, the cover depth could be adjusted to ensure that roots from vegetation would not compromise the top of the engineered barrier. In addition, the dimensions of the generic land disposal units (e.g., trench - width and depth, borehole – diameter and depth, vault – width, depth, and height) were selected based on similar existing facilities, existing equipment and methods for construction, and optimized (maximized waste volume disposed of for a given disposal unit volume; simple waste handling procedures to minimize exposure) for the types of waste packages considered. All designs could also accommodate different disposal packages (existing and proposed) with minor variations in their dimensions, but the EIS analyses would remain relevant for each option considered.

No facility design can guarantee that radionuclide migration from the facility would not occur over and beyond a 10,000-year time period. Past operational experience with near-surface types of disposal facilities at DOE sites has shown that when properly implemented, they can provide isolation of radioactive waste from the environment for extended time periods. Past problems that have arisen with each option provide additional information to improve the design and performance of future land disposal facilities. Issues related to performance over time would be analyzed in a project-specific analysis to address technical and long-term concerns.

T119-4 The action alternatives evaluated in the GTCC EIS did not include interim storage of GTCC LLRW and GTCC-like wastes until a geologic repository, in granite or otherwise, for spent nuclear fuel and high-level radioactive waste becomes available because such interim storage is outside the scope of the GTCC EIS. The purpose of the GTCC EIS is to evaluate the range of reasonable alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. The No Action Alternative evaluates continued storage of GTCC LLRW and GTCC-like wastes consistent with ongoing practices.

Concerned Citizens for Nuclear Safety, Commenter ID No. T98

MR. BROWN: Okay. Joni Arends is next and I think it's Tom Gallegos is next.

Joni.

MS. ARENDS: Good evening. My name is Joni Arends, and I am with Concerned Citizens for Nuclear

Concerned Citizens for Nuclear Safety, Commenter ID No. T98 (cont'd)

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Safety, based in Santa Fe.

First of all, I'm going to have four main points. The first one is that CCNS supports the legal analysis that was presented last evening by Don Hancock and Southwest Research and Information Center, as well as Dave McCoy with Citizen Action New Mexico, with regard to the problems with this draft environmental impact statement.

We're very concerned about the 26 year delay in bringing this project forward, and we're concerned about the length of time that this EIS will go on, for the next 70 years, and believe that there should be an alternative, which would be to create a Manhattan II type project where the Department of Energy would use its expertise with these contaminants, with these radionuclides to figure out another way to do this rather than scoop and move or hide and hope.

And we really support a Manhattan II type of project to figure out how to solve this problem to protect human health and the environment.

Secondly, CCNS will be submitting our comments with regard to the corrective measures evaluation

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T98-1

T98-1 The EIS considered the range of reasonable alternatives for disposal of the inventory of GTCC LLRW and GTCC-like wastes identified for inclusion in these analyses. DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

Long-term storage and a retrievable "disposal" option were considered to be outside the scope of the EIS because neither would provide a permanent disposal solution. Regarding the use of mined cavities, DOE does not believe it is reasonable to dispose of GTCC LLRW and GTCC like waste in a new mined cavity (other than the existing WIPP facility) because of the potential cost and time it would take to develop such an alternative in comparison to the relatively small amount of waste. With regard to existing mines, no specific mine has been identified as having the proper characteristics for disposal of GTCC LLRW and GTCC-like wastes.

Concerned Citizens for Nuclear Safety, Commenter ID No. T98 (cont'd)

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report that was submitted by many different groups to the New Mexico Environment Department recently about our concerns about the inadequate knowledge of Area G. In particular, we're concerned about the fact that during the hazardous waste permit hearing last year, one of the exhibits was a schematic that showed either a cone, a volcanic cone, or a volcanic dike directly under Area G. T98-2

And I want to make sure that the record reflects that there's 21 million cubic feet of waste already buried in unlined pits, trenches and shafts at Los Alamos National Laboratory, and every time it rains or snows those contaminants are moving towards our drinking water supply in Santa Fe, in Albuquerque and communities along with the biota and the plants and animals. T98-3

So now I'm going to shift gears. I'm going to thank you, Holmes, for this open and fair process and to acknowledge that when the environmental impact statement processes take place or originate with DOE Headquarters, it's a much different process than when it's run by Los Alamos National Laboratory, the

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T98-2 Site-specific environmental factors, such as past seismic or volcanic activity in the LANL area, were taken into account and evaluated in the EIS as appropriate. The results of the evaluation were taken into consideration in identifying the preferred alternative presented in the Final EIS.

T98-3 Comment noted. The issue of ground water and surface water contamination was taken into consideration as part of the cumulative impacts analysis. The cumulative impacts at LANL from the proposed action are summarized in Section 8.4.2 of the EIS.

Concerned Citizens for Nuclear Safety, Commenter ID No. T98 (cont'd)

Capital Reporting Company

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Department of Energy, Los Alamos site office, or the National Nuclear Security Administration based in Los Alamos.

And so I want to contrast tonight that we have a court reporter. He's recording these events. There's an audio recording.

At the recent Chemistry and Metallurgy Research Replacement Project scoping meeting, we had no court reporter. We had no opportunity to hear one another speak. We were -- if you wanted to make a comment, you were shuffled off to a table on the side of the room with a microphone that may or may not work, or you could type the comments in.

At the first scoping meeting in White Rock we asked specifically for changes to be made at the Puwaukee scoping hearing, and changes were made. However, we had to rely on Cultural Energy to record the comments because there was no audio recording of what people said.

And in fact, unless you submitted a written comment, there was no one -- there was no transcription of what we created that day.

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Concerned Citizens for Nuclear Safety, Commenter ID No. T98 (cont'd)

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So with regard to the upcoming public hearings on the draft environmental impact statement for the Chemistry and Metallurgy Research Replacement Nuclear Facility, we demand that the Department of Energy tell us how many minutes do we have to make comments two weeks prior to the hearings. We have to understand if we're going to have three minutes or we're going to have five minutes because we can go back to the testimony that was provided to the Blue Ribbon Commission in Albuquerque where we were told that we would have five minutes, and when we got there, we had three minutes.

I spent a lot of time preparing comments for Concerned Citizens for Nuclear Safety, and when I got there I was told that my argument had to be limited to three minutes. Well, a lot of the meat of the argument was eliminated because I didn't have time because the rules changed.

So again --

MR. BROWN: I really hesitate to hold up the--

(Laughter.)

MS. ARENDS: Right, right.

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T98-4

T98-4 Even though it is beyond the scope of this GTCC EIS, the comment is noted. A copy of these comments has been provided to NNSS officials.

Concerned Citizens for Nuclear Safety, Commenter ID No. T98 (cont'd)

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MR. BROWN: -- the minute sign.

MS. ARENDS: Thank you.

MR. BROWN: But let me add that because some people spoke less than five minutes and some people canceled, I think we're going to have some time at the end --

MS. ARENDS: Okay.

MR. BROWN: -- for those who wanted to supplement their original statement. So please proceed.

MS. ARENDS: And I'm making these comments about the CMRR process to make sure that DOE Headquarters hears what we need in order to make informed comments about our concerns.

Now, I'm going to take Rebecca's advice and become very angry. At the March 10th, 2011, CMRR semi-annual meeting, I specifically asked the Department of Energy, the National Nuclear Security Administration, and Los Alamos National Laboratory to not release the draft environmental impact statement during Holy Week, and I want to ask the National Nuclear Security Administration, the Department of Energy, and Los

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Concerned Citizens for Nuclear Safety, Commenter ID No. T98 (cont'd)

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Alamos National Laboratory about what part of "do not release the draft environmental impact statement during Holy Week" does DOE not understand.

The amount of disrespect by releasing that document at 6:00 p.m., Eastern Standard Time, on the Internet is beyond the scope of disrespect. It goes to the heart of the relationship between DOE and these communities surrounding Los Alamos National Laboratory.

And this EIS process provides an opportunity to heal some of those wounds, and these agencies need to take that opportunity.

And I did talk to Roger Schneider ahead of this comment, and he said that we're going to talk about it. So I welcome that conversation.

Thank you.

Concerned Citizens of Wagon Mound and Mora County, Commenter ID No. E96

Concerned Citizens of Wagon Mound and Mora County
P.O. Box 318
Wagon Mound, New Mexico 87752
Phone: (505) 573-1904 - E-mail: ccwmmc@gmail.com

Arnold Edelman, Document Manager
DOE GTCC EIS
Cloverleaf Bldg., EM-43,
1000 Independence Avenue, SW.
Washington, DC 20585

June 22, 2011

RE: Greater than Class C (GTCC) Low-Level Radio Active Waste and GTCC-Like Waste

Dear Mr. Edelman:

Please add these comments to your file on the hearing process for the Draft Environmental Impact Statement (DEIS) for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste. Our organization and a majority of our community are opposed to GTCC waste being disposed of in New Mexico, whether it be at or near the WIPP site or in Los Alamos. We support the alternative position proposed by other groups in New Mexico of HOSS (Hardened On-site Storage). E96-1 E96-2

We firmly believe that New Mexico has already taken its share of the hazardous waste burden of the United States weapons and energy industries. We have in our state the only hazardous waste repository in the US and have already been receiving hazardous waste for over 12 years at WIPP. We have carried the risks of uranium mining and milling and nuclear weapons research and testing in this state for years in indigenous nations, Los Alamos, Sandia Labs and other areas of the state. Yet, other than the burden of risks , the majority of New Mexicans have seen little benefit. There has been little effort by our federal government and agencies such as DOE to push for health, water, air and soil studies, and provide for health services, especially in rural areas. E96-3

Rural communities such as ours are placed at risk with little information and security. As an example, in all the years that WIPP has accepted hazardous waste; there is little information and no public meetings have been held to talk to residents about the WIPP trucks and their cargo in Mora County.

Mora County, is one of the poorest counties in the nation as well as New Mexico. It is a very rural county with few health service options available. The closest Hazmat is 70

Concerned Citizens of Wagon Mound and Mora County – E96

E96-1 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

DOE also conducted a generic evaluation of commercial disposal facilities on nonfederal lands in the EIS to order to provide, to the extent possible, information regarding the potential long-term performance of other (nonfederal) locations for siting a GTCC waste land disposal facility.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

E96-2 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

E96-3 All relevant potential exposure pathways were considered in the analyses presented in the EIS. These analyses addressed a range of reasonable scenarios and estimated the potential impacts on all environmental resources, including environmental justice, consistent with NEPA requirements. Environmental justice impacts to residents of New Mexico were addressed in Sections 4.2.7, 8.2.7, and 11.2.7 in the EIS.

Concerned Citizens of Wagon Mound and Mora County, Commenter ID No. E96 (cont'd)

miles away and the only emergency response available in the village and county are volunteer fire departments. With all due respect to these individuals who go above the call of duty in providing support to their communities; they have little, if any, training in dealing with a hazardous waste accident.

We understand that there may be some trainings available however, They are not easily accessible and do not serve the volunteer emergency response folks. As volunteers, few are unable to get away from their jobs without losing pay. This does not make it easy for folks to want or try to go to training that costs them money they don't have. Trainings and protocols need to be developed for these populations providing work release justification and support as well as per diems. This is a responsibility that the DOE and the federal government have not addressed.

More importantly, the gratuitous consideration of environmental justice issues and disparate and cumulative impacts, public notice, language use, and a lack of information given to rural communities continues to be an issue. WIPP trucks pass through our community several times a day and few in our community know anything about WIPP or hazardous waste These trucks are not appropriately marked and should not be allowed to stop in populated areas.

E96-3 (Cont.)

Once again we wish to state our strong opposition to GTCC waste being designated for disposal in New Mexico. New Mexico as a poor majority minority state should not have to bear a disproportionate hazardous waste burden. It is time that this country face the real dangers of nuclear proliferation and reliance on old and dangerous energies. and the resulting major problem - radioactive waste . With the solar and wind possibilities in New Mexico, it does not make any sense to keep producing more and more hazardous waste.

E96-4

Sincerely,

Sofia Martinez, President
CCWMMC

E96-4 Stopping the generation of nuclear waste, ensuring the safety of nuclear power plants, and promoting alternative energy sources are outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

Conejos County Clean Water, Inc., Commenter ID No. E1

Picel, Mary H.

From:	Andrea Guajardo <andieguajardo@gmail.com>
Sent:	Sunday, June 26, 2011 6:30 PM
To:	gtcceis@anl.gov
Cc:	gail.schwartz.senate@gmail.com; edward.vigil.house@state.co.us; Minks, Erin (Mark Udall); brenda.felmlee@mail.house.gov; Bobicki, Charlotte (Bennet); rosalie@amigo.net; Mikey Trujillo
Subject:	Re: Public Comment GTCC
Attachments:	Public Comment GTCC.doc

Please accept this as a formal public comment from Conejos County Clean Water, Inc. ("CCCW") related to the Draft Environmental Impact Statement (DEIS) for the Disposal of Greater-Than Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste.

--
Andrea Guajardo
Conejos County Clean Water, Inc.
Board Member
www.conejoscountycleanwater.org

--
Andrea Guajardo
Conejos County Clean Water, Inc.
Board Member
www.conejoscountycleanwater.org

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Conejos County Clean Water, Inc., Commenter ID No. E1 (cont'd)

Conejos County
Clean Water Inc.

Arnold Edelman
Document Manager
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Cloverleaf Bld., EM-43, 1000
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Email: gtcceis@anl.gov

June 27, 2011

To Whom It May Concern:

Please accept this as a formal public comment from Conejos County Clean Water, Inc. ("CCCW") related to the Draft Environmental Impact Statement (DEIS) for the Disposal of Greater-Than Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste. CCCW is a 501(c)(3) non-profit citizens' group, based in Antonito, Colorado, that is incorporated under the laws in the State of Colorado.

Background of CCCW and relationship to the Affected Environment

In June of 2010, concerned citizens incorporated into a Colorado non-profit organization, called CCCW. CCCW incorporated to promote awareness around health and environmental issues that affect residents in Conejos County. In particular, to build awareness surrounding the transfer from truck to rail of radioactive, hazardous and toxic waste from Los Alamos National Laboratory (LANL) within 250 feet of the Rio San Antonio (River), a headwaters tributary to the Rio Grande (River).

1

Conejos County Clean Water, Inc., Commenter ID No. E1 (cont'd)

CCCW is comprised of ranchers, teachers, small business owners, and concerned citizens. CCCW has a thirteen board member steering committee, and 402 general members.

The San Luis Valley (SLV) in south central Colorado is one of the largest sub-alpine Valleys in the world, encompassing over 8,100 square miles. Hemmed in on the west by the San Juan Mountains, and on the east by the Sangre de Cristo Mountains, the SLV ranges in elevation from 7,000 to over 14,000 feet, and contains the headwaters of the Rio Grande River. The Rio Grande River rises in the San Juan Mountains to the west of the SLV, flows south into New Mexico and Texas and empties into the Gulf of Mexico.

The SLV has many unique biological features, including areas identified as Natural Heritage areas, and is home to six endemic insect species.

The SLV is 122 miles long and 74 miles wide. This largely agrarian and ranching community is a relatively stable population. Many of the residents are eighth-generation. The oldest parish in Colorado, Nuestra Señora de Guadalupe, Our Lady of Guadalupe, lies at the southern end of Conejos County. Conejos County is part of the Sangre de Cristo National Heritage Area. About sixty percent (60%) of Conejos County's population is minority, and pride in the Hispanic heritage is evident in everything from the names of the rivers, mountains, and towns, to the local Spanish/English radio station. The median household income is less than half the national average at $24,744, and 38 percent of the children live in poverty (US Census 2000).

The SLV is known for its potatoes and alfalfa, and also grows barley, lettuce, wheat, peas, and spring grains. It has been a farm and ranching community for over 150

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Conejos County Clean Water, Inc., Commenter ID No. E1 (cont'd)

years, and many of the residents work in agriculture, following in the footsteps of their parents and grandparents. Many of the farmers and ranchers still practice traditional methods. It is the highest irrigated mountain plateau in the world, with about 7000 high-capacity wells -- over half of which are irrigation wells.

The SLV contains over 5 million acres, of which 3.1 million acres -- about 59 percent -- are publicly owned (Forest Service, BLM, Fish & Wildlife Service, National Park Service, or state). Conejos County contains over 825,000 acres, of which 528,000 acres - about 64 percent -- are publicly owned (Forest Service, BLM, Fish & Wildlife Service, National Park Service, or state). This creates an important relationship between the public and private sectors in dealing with air and water quality issues in the SLV and Conejos County.

There are 18 incorporated towns in the SLV, many of which are located along the Rio Grande or its many tributaries. Six counties lie within this large geographical boundary. They are Alamosa, Rio Grande, Saguache, Mineral, Costilla, and Conejos. There are 21 villages and five incorporated towns in Conejos County. Conejos County is among the poorest counties in the country, and unemployment levels run above the state and national averages (Conejos County 10.5%; as of 2008-not including the chronically unemployed).

Conejos County is a populated area within the SLV where the proposed actions in the DEIS for the Disposal of GTCC Low-Level Radioactive Waste and GTCC-Like Waste could potentially be impacted by waste transportation.

3

Conejos County Clean Water, Inc., Commenter ID No. E1 (cont'd)

Draft DEIS Document

The Department of Energy (DOE) has released a DEIS for the Disposal of GTCC Low-Level Radioactive Waste and GTCC-Like Waste. Current regulations say that GTCC wastes should be disposed in a geologic repository. The only such site considered is the Waste Isolation Pilot Plant (WIPP), east of Carlsbad. Some other sites – including WIPP – Vicinity and LANL – are being considered for near-surface burial in "enhanced trenches," vaults, or intermediate-depth boreholes. Other sites are Nevada Test Site, Hanford (WA), Idaho National Laboratory, and the Savannah River Site (SC). The DEIS also states that some non-DOE sites might be considered, but no such site is identified.

CCCW understands from the DEIS that GTCC waste is dangerous to humans and the environment for hundreds of years and is not generally acceptable for near-surface disposal. Low-level radioactive waste has four classes – A, B, C, and more highly radioactive GTCC. The DEIS discusses three types of GTCC:

- Activated metals from decommissioning the 104 commercial reactors and any new plants. The DEIS states that activated metals are 2,000 cubic meters by volume and 160,000,000 curies of radioactivity.
- Seal sources are radioactive materials enclosed in metal containers that are used to find oil and gas, test equipment and structures, and diagnose and treat illnesses. The DEIS states that sealed sources are about 2,900 cubic meters by volume and 2,000,000 curies of radioactivity.

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Conejos County Clean Water, Inc., Commenter ID No. E1 (cont'd)

- Other waste includes radioactivity contaminated equipment and trash. The DEIS states that other waste is about 6,700 cubic meters by volume and 1,3000,000 curies of radioactivity.

CCCW understands the DEIS also includes DOE "GTCC-like" waste – about 2,800 cubic meters by volume and 1,000,000 curies of radioactivity.

Many of Conejos County members speak Spanish only or Spanish as their first language, and it would be helpful to provide project information to them in the regional colloquial Spanish. We respectfully request public meetings in Conejos County with a local Conejos County Spanish translator should the proposed action in the DEIS impact our environment via transportation or transfer of GTCC waste from truck to rail or rail to truck. The document was very large and expensive to print out. CCCW would like to respectfully request that a summary document be created, comparative tables summarizing proposal and impacts for SLV only be created and both documents be available for the public to review and understand at public meetings. Of our 402 members only 70 have access to email and Internet, so CCCW would like to respectfully request that project documents be placed in libraries and post offices in Conejos County. E1-1

Purpose and Need

WIPP's mission is limited by law to 175,564 cubic meters of transuranic waste from nuclear weapons. CCCW understands that is less than 5,000,000 curies of radioactivity. GTCC waste would be 30 times more radioactivity than planned for WIPP and would eliminate the ban on commercial waste. WIPP would then be the only E1-2

5

E1-1 DOE's goal with regard to its public participation process is to be able to disseminate the information to the public so that input from the interested public can be obtained to inform the Final EIS. To this end, nine public hearings at venues accessible to the interested public for the various sites evaluated in the EIS were conducted. Notices were placed in various local newspapers to announce the public hearings before and during the scheduled hearings. Should the preferred alternative have expected significant impacts on Conejos County, follow-on NEPA project documentation would be made available in a local library or post office. DOE notes the comment on the request for a Spanish translator.

E1-2 Disposal of GTCC LLRW and GTCC-like wastes at WIPP or the WIPP Vicinity site is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. In addition, site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal.

However, NEPA does not limit an EIS to proposing and evaluating alternatives that are currently authorized. Furthermore, the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: "The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., Public Law [P.L.] 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions."

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 10-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts for all resource areas evaluated, including human health and transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

Conejos County Clean Water, Inc., Commenter ID No. E1 (cont'd)

geologic disposal site and all GTCC waste would be transported through the SLV, Conejos County and New Mexico for many decades and buried at WIPP for an infinite time.

E1-2 (Cont.)

LANL buries its low-level radioactive waste in unlined trenches, pits and shafts at Area G. The final determination by DOE and the New Mexico Environment Department (NMED) of what happens to the hazardous and radioactive wastes at Area G has not yet been made and is a highly controversial issue. A decision to transport and bury GTCC waste would predetermine that other waste (which contain much less radioactivity) also could be buried there, posing a threat to groundwater for generations to come.

E1-3

Public Health

CCCW would like to request that any GTCC waste disposal adequately address the health impacts from exposure to radioactive, hazardous and toxic waste; including, materials incidents, and transportation.

E1-4

Array of Alternatives

The DEIS rejects the alternative that many people from around the country advocated for at DOE's GTCC scoping meetings in 2007. That alternative is "Hardened On-Site Storage" (HOSS) in which GTCC waste and irradiated spent fuel would remain at commercial nuclear power plants in long-term storage so that they can be monitored and are protected from aircraft crashes or terrorist attacks. Keeping the waste in HOSS would reduce the risk of accidents or a terrorist attach during transport. While HOSS is not a permanent solution, it would be more protective to human health and the environment than any of DOE's current dumping practices and the alternatives

E1-5

6

E1-3 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

DOE also conducted a generic evaluation of commercial disposal facilities on nonfederal lands in the EIS to order to provide, to the extent possible, information regarding the potential long-term performance of other (nonfederal) locations for siting a GTCC waste land disposal facility.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

E1-4 All relevant potential exposure pathways were considered in the analyses presented in the EIS. These analyses addressed a range of reasonable scenarios and estimated the potential impacts on all environmental resources consistent with NEPA requirements. The assessment of impacts from accidents occurring hundreds to thousands of years into the future was considered too speculative to include because of the large uncertainty associated with estimating future land use and population patterns. For the human health assessment, the focus was on the groundwater pathway, since this is the most likely manner in which someone could be exposed to the radioactive contaminants in the GTCC LLRW and GTCC-like wastes in the distant future. As discussed in Section 2.7.4.2, the hypothetical resident farmer scenario was only used to provide estimates for comparing the various sites evaluated; however, this scenario may not be consistent with the reasonably foreseeable future scenario at some of the sites evaluated. Site-specific NEPA reviews would be conducted as needed. This information could include sensitive subpopulations and specific pathways of exposure for American Indians. In a similar fashion, additional cumulative impacts analyses would be conducted by using additional site-specific information when the location selected for a GTCC LLRW and GTCC-like waste disposal facility was determined.

E1-5 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

Conejos County Clean Water, Inc., Commenter ID No. E1 (cont'd)

presented in the DEIS. HOSS would be a safe way of storing wastes until a scientifically sound, publicly acceptable solution is found. Part of that future solution, of course, should be drastically minimizing the generation of those wastes. DOE's reason for rejecting HOSS is that it is "not a permanent disposal facility."

E1-5 (Cont.)

But the DEIS also does not include consideration of any geologic disposal facility, except WIPP, even though for almost 30 years federal law (Nuclear Waste Policy Act of 1982) has required development of one or more other repositories. The Nuclear Regulatory Commission has determined that spent nuclear fuel can stay at commercial reactors for up to 100 years. So GTCC could also remain at those sites for at least that time period.

E1-6

Recommendations

"GTCC-like" waste is not subject to NRC requirements for geologic disposal. DOE should issue a supplement to its 1997 Final Waste Management Environmental Impact Statement to look at the reasonable alternatives for "GTCC-like" waste and other wastes for which long-term storage and disposal is not determined.

E1-7

CCCW would like to request that a representative from the Town of Antonito and the Conejos County Board of Commissioners be added as cooperating agency officials for further NEPA analysis for GTCC waste should the transportation impact Conejos County. Thank you for your careful consideration of CCCW's comments. Please keep us informed of any upcoming public meetings in the SLV and Conejos County. We can be reached via email at info@conejoscountycleanwater.org.

E1-8

7

E1-6 The EIS considered the range of reasonable alternatives for disposal of the inventory of GTCC LLRW and GTCC-like wastes identified for inclusion in these analyses. The Secretary of Energy has determined that a permanent repository for high-level waste and spent nuclear fuel at the Yucca Mountain site is not a workable option and will not be developed. Therefore, DOE concluded that co-disposal at a Yucca Mountain repository is not a reasonable alternative and has eliminated it from evaluation in this EIS, as described in Section 2.6 of the EIS. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

Treatment of the wastes prior to disposal was considered to be outside the scope of the EIS. Such treatment would be done prior to receipt of the GTCC LLRW and GTCC-like wastes at the disposal site. The waste characteristics and physical form would have to meet the waste acceptance criteria determined before implementation.

E1-7 DOE recognizes that including GTCC-like wastes within the scope of this EIS along with GTCC LLRW may complicate the implementation of GTCC LLRW disposal alternative(s). However, DOE determined that the most efficient approach was to address both types of waste, which have many similar physical and radioactive characteristics, in a single NEPA process. DOE's intent is to facilitate the overall process for addressing the disposal needs of both waste types. Issues associated with potential regulatory changes or NRC licensing would be addressed as necessary to enable implementation.

DOE explained in the WM PEIS (DOE, 1997, *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste*, DOE/EIS-0200-F, Office of Environmental Management, Washington, D.C.) that additional analyses would be prepared to implement DOE's programmatic decisions. The GTCC EIS analyzes the potential environmental impacts associated with the disposal of GTCC LLRW and GTCC-like (DOE) wastes. Since the WM PEIS relates only to DOE waste, the inclusion of commercial waste in the WM PEIS is premature until the GTCC EIS is finalized and a ROD is issued. Depending on the outcome of this ROD, DOE will evaluate whether additional programmatic or site-specific NEPA reviews or updates to previous decisions are needed, as appropriate. Any additional NEPA reviews or considerations will be conducted with full opportunity for public input, consistent with Council on Environmental Quality and DOE NEPA requirements.

E1-8 DOE welcomes input from the representatives of Conejos County Board of Commissioners regarding the alternatives discussed in the Final GTCC EIS. Once a final decision is made in a ROD, DOE will coordinate with the Western Governors' Association and other State Regional Groups, as appropriate, to develop specific plans and notification strategies that will ensure safe, secure transportation in accordance with DOE M 460.2-1A, Radioactive Material Practices Manual. The Manual establishes a standardized process and framework for interacting with State, Tribal, and local authorities.

Conejos County Clean Water, Inc., Commenter ID No. E1 (cont'd)

Respectfully submitted,

Mary Alice Trujillo, Chair

Andrea Guajardo, Board Member

Cc:
Gail Schwartz – State Senator
Ed Vigil – State Representative
Erin Minks – Representative for U.S. Senator Mark Udall
Brenda Felmlee – Representative for U.S. Congressman Scott Tipton
Charlotte Bobicki – Representative for U.S. Senator Michael Bennet
John Sandoval – Conejos County Commissioner
Mike Trujillo – Antonito Town Mayor

Conejos County Clean Water Inc.
P.O. Box 153
Antonito, CO 81120
www.conejoscountycleanwater.org

Conference of Radiation Control Program Directors, Inc., Commenter ID No. L303

L303

Conference of Radiation Control Program Directors, Inc.

Office of Executive Director ❖ 1030 Burlington Lane, Suite 4B ❖ Frankfort, KY 40601
Phone: 502/227-4543 ❖ Fax: 502/227-7862 ❖ Web Site: www.crcpd.org

June 3, 2011

Ines Triay, Ph.D.
Assistant Secretary for Environment Management
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Dear Dr. Triay:

On behalf of the Conference of Radiation Control Program Directors, Inc. (CRCPD), please find enclosed a resolution relating to the disposal of radioactive sources. As noted in the enclosed document, the resolution was adopted by the voting members of CRCPD. It directs the CRCPD Board of Directors to identify specific avenues and allocate resources and responsibilities to specific CRCPD parties in order to publicize these disposal issues, and to use the best efforts of the CRCPD and its member entities to facilitate and inform related activities. This resolution was approved by the CRCPD on April 22, 2010.

On behalf of the Board of Directors of CRCPD, we greatly appreciate the effort of the U.S. Department of Energy in identifying disused radioactive sources that pose a security threat and working with other federal agencies, CRCPD and the private sector to address disposal issues. We also offer our continued support of the Federal process of developing a Greater-than-Class C waste disposal facility.

Thank you for your consideration of this resolution and the information that has been provided. If you have any questions or if you need additional information regarding the resolution, do not hesitate to contact me at (502) 227-4543 or by e-mail at rmcburney@crcpd.org.

Sincerely,

Ruth E. McBurney

Ruth E. McBurney, CHP
Executive Director

Enclosure

cc: Arnie Edelman, DOE
Jamie Joyce, DOE

A Partnership Dedicated to Radiation Protection

Conference of Radiation Control Program Directors, Inc. – L303

Conference of Radiation Control Program Directors, Inc., Commenter ID No. L303 (cont'd)

CONFERENCE OF RADIATION CONTROL PROGRAM DIRECTORS, INC.

RESOLUTION

Relating to: Disposal of Radioactive Sources

WHEREAS: Despite the best efforts of many individuals and organizations, options for disposal of orphan, unwanted or disused radioactive sealed sources (sources) or other discrete radioactive material are severely limited in most parts of the country; and

WHEREAS: The potential loss of control of sources or discrete radioactive material may endanger the nation's security; and

WHEREAS: The withdrawal of disposal access and limitations on inter-Compact transfer of sources or discrete radioactive material has eliminated disposal options for most of the country; and

WHEREAS: Options for packaging of Type B (higher activity) quantities of material for transportation, necessary for disposition under any of the available disposal options, are severely limited despite the temporary accommodation by the U.S. Department of Transportation; and

WHEREAS: Recent events highlight the vulnerability of the U.S. medical community to interruptions in the supply of short half-life medical isotopes for which there is currently no domestic source of production; and

WHEREAS: State licensing programs may understandably be reluctant to license new sources or new production facilities in the absence of practical disposal options; and

WHEREAS: State and Federal programs have had to resort to complicated ad hoc arrangements to ensure the safe and secure disposition of large numbers of unwanted or disused radioactive sources; and

WHEREAS: The withdrawal of disposal access and limitations on inter-Compact transfer of unwanted or disused sources has frustrated the expectations of licensees who consigned their materials in good faith to disposal brokers who may not be able now to fulfill their contractual obligations; and

WM19

Conference of Radiation Control Program Directors, Inc., Commenter ID No. L303 (cont'd)

WHEREAS: Despite the current development of some new disposal facilities, it is not clear that these new facilities will provide a comprehensive solution under the current regulatory climate; and

WHEREAS: Federal agencies are severely limited in their ability to offer disposal access beyond the narrow limits of their statutory charters; and

WHEREAS: The aforementioned limitations and absences have the potential to threaten vital medical care, and academic pursuit and industrial innovation as well as the security of the United States.

NOW, THEREFORE, BE IT RESOLVED:
That the Conference of Radiation Control Program Directors (CRCPD) Board of Directors will identify specific avenues and allocate resources and responsibilities to specific CRCPD parties to publicize these issues and that the best efforts of the CRCPD and its member entities be used to facilitate and inform activities to include but not be limited to:

- Continuing the CRCPD effort to examine the scope and nature of the disposal dilemma faced by users, owners, and regulators of sources and discrete radioactive material while building on data accumulated by the Global Threat Reduction Initiative Off-site Source Recovery Project and CRCPD Source Collection and Threat Reduction Program;
- Examining and identifying existing statutory or regulatory limitations on disposal of sources and discrete radioactive material to provide additional disposal options;
- Encouraging the continued support of the Federal process of developing a Greater-than-Class C waste disposal facility; and
- Identifying current storage requirements and options and "recommending best practices" for safe, secure, long-term storage prior to eventual disposal of sources and discrete radioactive material.

L303-1

Approved by the CRCPD Membership April 22, 2010.

Adela Salame-Alfie
Adela Salame-Alfie, Ph.D.
CRCPD Chairperson

WM20

L303-1 Comment noted.

Conservation Voters of South Carolina, Commenter ID No. T8

MR. BROWN: Thank you. Debbie Parker, and Rick McLeod will be next.

MS. DEBBIE PARKER: Thank you for giving me this opportunity to speak. My name is Debbie Parker and I am the legislative director for Conservation Voters of South Carolina. We serve as a non partisan political voice of South Carolina's conservation community and we coordinate with over 40 organizations to promote a healthy, clean future for our state. Our coalition represents over 45,000 citizens in South Carolina. We deeply appreciate the important role that Savannah River Site has played in our nation's defense. Our own organization has developed strong and positive

Conservation Voters of South Carolina, Commenter ID No. T8 (cont'd)

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relationships with our state's military community in support of efforts to reduce our country's dependence on foreign oil and promote its national security. As you may know, the conservation community in South Carolina has played a constructive role in discussions about the future of nuclear energy in our state. We know that meeting our country's future energy needs will take a balanced approach and that we need to look openly and objectively at all of our energy options. However our community has also worked hard to establish consensus on nuclear waste as South Carolina has already carried more than its fair share of the national nuclear waste burden. In 2000 our community helped negotiate the Atlantic Compact which closed the Barnwell Nuclear Waste Site to all states but South Carolina and Connecticut and New Jersey. Efforts to undo the Atlantic Compact in 2007 led to a spirited and successful defense of the Compact. In short, South Carolina has spoken firmly and finally on the issue of importing nuclear waste to our state. We therefore strongly oppose any effort to consider SRS as a possible repository of greater-than-class C and GTCC-like waste. First there is the obvious geologic T8-1

environmental unsuitability of the site. SRS has sandy soils and a wet climate making it highly unsuitable for any kind of nuclear waste disposal near the surface. T8-2

T8-1 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

DOE also conducted a generic evaluation of commercial disposal facilities on nonfederal lands in the EIS to order to provide, to the extent possible, information regarding the potential long-term performance of other (nonfederal) locations for siting a GTCC waste land disposal facility.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

T8-2 The site-specific environmental factors identified by commenters, such as sandy soils and a wet climate at SRS, were evaluated in the EIS as appropriate. See Table E-11 in Appendix E for the site-specific parameters used in the analysis for SRS. The results of the evaluation were taken into consideration in identifying the preferred alternative presented in the Final EIS.

Conservation Voters of South Carolina, Commenter ID No. T8 (cont'd)

23

Two obvious and possible storage options being considered for GCC waste, surface vaults and trenches are especially incompatible for SRS. Second, any proposal to bring GCC waste to SRS actually violates the current stated of mission of the site which is to reduce the concentration and longevity of high-level waste currently onsite. The Department of Energy's own Office of Environmental Management, which is heading the SRS cleanup effort, has stated that footprint reduction is a major goal and our nation's taxpayers have devoted nearly $1.6 billion in Recovery Act Funds toward that goal. Opening SRS to GCC waste runs exactly counter to this effort. And finally, bringing GCC waste to SRS makes little sense considering how far behind the facility is in meeting its waste reduction mission. In its comments opposing GCC at Savannah River Site back in 2007 our South Carolina Department of Health and Environmental Control observed approximately 36 million gallons of high-level mixed wastes are stored in aging tanks with leak sites while there is no currently no operating treatment facility for the majority of that volume. A substantial volume of transuranic waste remains in storage at SRS awaiting appropriate disposition. Radioactive contamination remains in many areas slated for future cleanup decisions. Disposal of greater-than-class C and

T8-3

T8-3 DOE is performing environmental restoration activities at SRS. The ongoing cleanup efforts will continue.

Conservation Voters of South Carolina, Commenter ID No. T8 (cont'd)

24

GTCC-like waste is in appropriate at SRS given the current cleanup backlog. Thus the conservation voters of South Carolina has two immediate suggestions. As you know, during DOE's group of meetings in 2007 many Americans offered hardened on-site storage as the best storage alternative. All long-term solution is formulated. With hardened on-site storage GCC waste and irradiated spent fuel remains at commercial nuclear power plants in long-term storage so that it can be monitored and detected. While HOSS is not a permanent solution it provides a safe way of storing waste until a scientifically sound solution is found. Second, we recommend that DOE not proceed with the final EIS for greater-than-class C waste but rather develop a new Draft EIS that includes HOSS facilities as the best non-solution for GTCC waste and then seek a permanent geologic disposal site for GTCC waste disposal that reflects our best science, not politics. Thank you. T8-4

T8-4 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

Council of State Governments, Commenter ID No. W540

Abplanalp, Jennifer Marie

From:	gtcceiswebmaster@anl.gov
Sent:	Monday, June 27, 2011 3:20 PM
To:	mail_gtcceisarchives; gtcceiswebmaster@anl.gov; gtcceis@anl.gov
Subject:	Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10540
Attachments:	MidwestComments_Final_GTCC10540.pdf

Thank you for your comment, Lisa Janairo.

The comment tracking number that has been assigned to your comment is GTCC10540. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 27, 2011 03:19:54PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10540

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Privacy Preference: Don't withhold name or address from public record
Attachment: MidwestComments_Final.pdf

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

1

Council of State Governments – W540

Council of State Governments, Commenter ID No. W540 (cont'd)

CSG MIDWEST Sharing capitol ideas

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June 27, 2011

Arnold Edelman, EIS Document Manager
Office of Environmental Management
U.S. Department of Energy
Cloverleaf Building, EM-43
1000 Independence Avenue, SW
Washington, DC 20585

Re: Disposal of GTCC Low-Level Radioactive Waste and GTCC-Like Waste

Dear Mr. Edelman:

On behalf of the Council of State Governments' Midwestern Radioactive Materials Transportation Committee, we are writing to submit comments on the U.S. Department of Energy's (DOE) draft *Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste* (DOE/EIS-0375-D). The committee includes gubernatorial and legislative appointees from the 12 Midwestern states: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. Our comments reflect the input of the committee members; individual Midwestern states may provide additional comments separately.

We appreciate the opportunity to provide comments on DOE's preliminary and evolving plans for disposing of GTCC low-level radioactive waste and GTCC-like waste. If you have any questions regarding our comments, please contact Lisa Janairo at CSG Midwest at 920.458.5910.

Sincerely,

Paul Schmidt
Paul Schmidt
Co-Chair, CSG Midwestern Radioactive Materials Transportation Committee

Tim Runyon
Co-Chair, CSG Midwestern Radioactive Materials Transportation Committee

Enclosure

Council of State Governments, Commenter ID No. W540 (cont'd)

The Council of State Governments
Midwestern Radioactive Materials Transportation Committee

Comments on the U.S. Department of Energy's Draft *Environmental Impact Statement (EIS) for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste* (DOE/EIS-0375-D) (February 2011)

General Comments

Transportation Planning: The draft EIS does not provide details regarding the requirements that would apply to shipments of GTCC low-level radioactive waste (LLRW) and GTCC-like waste to one or more facilities for disposal. The Midwestern states expect shipments to follow the recommended practices in the region's *Planning Guide for Shipments of Radioactive Material through the Midwestern States.*

In addition, the states are concerned that DOE's "Radioactive Material Transportation Practices Manual" (DOE-M-460.2-1A) does not explicitly reference shipments of GTCC low-level radioactive waste. Much of the "GTCC-like" material is actually transuranic (TRU) waste and should be shipped according to the TRU waste transportation plan that the Carlsbad Field Office has developed. Other GTCC LLRW and GTCC-like waste shipments – many of which will be HRCQ shipments – should meet a higher standard than the manual's requirements for LLW shipments. At a minimum, the large number of shipments anticipated would point to a need for DOE to prepare a transportation plan and informational fact sheets; provide long-term planning information to affected states (e.g., through the Prospective Shipment Report); coordinate with states on mode and route selection; and assist states with training and conducting exercises. W540-1

Rail Shipments: Shipping by rail would have clear benefits stemming from the significant reduction in shipment numbers (a reduction by nearly two thirds, regardless of the alternative). The advantage of rail in terms of fewer shipments will have to be compared to the disadvantages of some sites not having rail access, rail operations being less flexible than is the case for truck shipments, and there being fewer options available for routing. Above all, as stated in the Midwest's *Planning Guide*, "safety must be the primary consideration in evaluating and, ultimately, selecting a mode." Regardless of the mode, the affected states should be consulted in the route-selection process. W540-2

The analysis assumes GTCC LLRW and GTCC-like waste would travel in a single car in general freight. Did DOE consider the use of dedicated trains from generator sites that have large inventories of waste? If so, the draft EIS should address the results of that analysis. If DOE did not consider the use of dedicated trains, it should do so. In the region's *Planning Guide*, the Midwestern states have expressed a preference for rail shipments to take place using dedicated trains instead of general freight service.

Generator Locations: It would be helpful to provide maps showing the locations of the major inventories of GTCC LLRW and GTCC-like waste in the U.S. The draft EIS does provide a map of nuclear power plant locations and a map of possible sites for locating disposal facilities. Facilities such as West Valley, Los Alamos, the Missouri University Research Reactor, and others should also be shown on the maps. In addition, is DOE anticipating consolidation of sealed sources or treatment of activated metals from nuclear power plants? Because sources will originate in "various states," there may be transportation efficiencies from consolidating sources at a few sites before shipping to the final disposal facility. Treatment of activated metals (e.g., recycling) may reduce the inventory of such material requiring disposal. W540-3

W540-1 Until a specific disposal site and waste acceptance criteria are determined, the final packaging and other shipment requirements (e.g., routing) will not be known. As project planning becomes better defined, DOE will be consulting with local and state transportation stakeholders.

W540-2 The transportation rail analysis, with the consideration of single railcar shipments, in the GTCC EIS bounds the impacts should the GTCC LLRW and GTCC-like waste be shipped via dedicated rail. While physical injuries and fatalities from potential accidents may be lower using dedicated train shipments (because most rail accidents involve only the lead locomotive), radiological impacts to workers and the public would remain about the same.

As the preferred alternative is implemented, DOE will take into consideration the use of dedicated trains for larger waste generators as appropriate.

W540-3 Due to the nature of a very diverse generator pool, it is not useful to identify all the major generators on a map. It is not practical to plan or locate consolidation locations at this time until the waste inventories (particularly those for sealed sources) are better defined. Efficiencies will be studied as the preferred alternative is implemented during follow-on project specific analysis. Treatment of activated metals, other than long-term storage, is not reasonable because of their highly radioactive nature, especially those from shutdown nuclear reactors.

Council of State Governments, Commenter ID No. W540 (cont'd)

CSG Midwestern Radioactive Materials Transportation Committee
Comments on DOE's draft EIS on Disposal of GTCC LLRW and GTCC-Like Waste
June 27, 2011

<u>Shipment Numbers</u>: The draft EIS mentions the use of the TRUPACT II, RH-72B, and 10-160B containers for shipments. Is the TRUPACT III an option for shipping large waste boxes containing GTCC LLRW or GTCC-like waste? If so, DOE should assess the impacts of using this new high-capacity container. W540-4

<u>Transportation Support Systems</u>: In an attempt to perform a preliminary analysis of possible shipping routes, the committee learned that DOE's TRAGIS routing system is offline as a result of the recent cyber attack involving the servers at Oak Ridge National Laboratory. There is no estimated date for restoring the system, which is the primary tool state agencies, carriers, and DOE personnel use for analyzing shipping routes. It is vital for DOE to maintain support systems such as TRAGIS, for pre-shipment routing analyses, and TRANSCOM, for tracking shipments while en route. These systems, like all information technology, are important assets that DOE should continually maintain and upgrade, when needed, for the benefit of the GTCC program, all other programs that ship or plan to ship radioactive waste and material, and transportation stakeholders. W540-5

<u>Preferred Alternative</u>: In the Draft EIS, DOE should identify a preferred alternative. If no such preferred alternative will be identified, DOE should seek public comment on a revised draft EIS or a supplemental EIS when the department is ready to identify a preferred alternative and justify the choice. W540-6

<u>Disposal Options</u>: Of the disposal options DOE considers in the draft EIS, the WIPP site appears to have a clear advantage in that it is an existing, operating disposal facility. WIPP also has a well-tested transportation program that the Midwestern states, among others, point to as a model for other large-scale shipping programs. Sites like Savannah River Site or the Barnwell commercial disposal facility do not compare favorably with expanding WIPP, given the high humidity, high ground water, and added costs of constructing new trench or vault disposal facilities. W540-7

Specific Comments

Page	Lines	Comment	
S-1	17-19	The description of stakeholders in the draft GTCC EIS should include transportation stakeholders – i.e., those that will be affected by shipments of GTCC LLRW or GTCC-like waste traveling to one or more facilities for disposal.	W540-8
S-1	21-22	The reference to "state agencies" should be revised to say "state agencies and elected officials."	W540-9
S-16	9-12	These lines list the activities that must be completed before a disposal facility is operational. It would be helpful to provide more detail on what is included in "other actions necessary." Also, what is the expected timeframe for obtaining an NRC license for a disposal facility and what steps will be necessary to complete that action?	W540-10
S-45	Table S-3	The Midwestern states agree that there will be a need for "further evaluation and analysis to optimize the waste shipment configuration…to minimize to the extent possible the number of shipments and potential transportation impacts."	W540-11

2

W540-4 The transportation analysis as presented in the EIS is conservative in that consideration of the TRUPACT III could reduce impacts. However, while this package is now a viable option for transport of the GTCC LLRW and GTCC-like wastes, consideration of its use as an option did not influence the identification of the preferred alternative in the EIS. Any of the conceptual land disposal designs could be modified to accommodate the larger package, but its use at WIPP would require further study.

W540-5 DOE is aware of the importance of systems such as TRAGIS to the radiological transportation community. The TRAGIS system is currently back on-line for use.

W540-6 A preferred alternative is not required to be included in a Draft EIS. The Council on Environmental Quality regulations in 40 CFR 1502.14(e) specify that the section on alternatives in an EIS shall identify the agency's preferred alternative or alternatives, if one or more exists, in the Draft EIS and identify such alternative(s) in the Final EIS unless another law prohibits the expression of such a preference; that is, a preferred alternative shall be identified in the Draft EIS if one exists. If no preferred alternative has been identified at the Draft EIS stage, a preferred alternative need not be included. By the time the Final EIS is filed, 40 CFR 1502.14(e) presumes the existence of a preferred alternative and requires its identification in the Final EIS unless another law prohibits the expression of such a preference.

DOE did not have a preferred alternative at the time of issuance of the Draft EIS because of the complex nature of the proposed action and the potential implications for disposal of GTCC LLRW and GTCC-like wastes. To seek public input on how to identify a preferred alternative for inclusion in the Final EIS, the Draft EIS presented considerations for developing a preferred alternative in the Summary (in Section S.6) and in Section 2.9. As required by 40 CFR 1502.14(e), the Final EIS contains a preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes (see Section 2.10). In developing the preferred alternative, DOE took into consideration public comments on the Draft EIS, public EIS scoping comments, and other factors identified in Sections S.6 and 2.9 of the EIS.

The publication by the EPA of a NOA of the Final EIS in the Federal Register initiated a 30-day public availability or "waiting" period. While the availability period is not a formal public comment period, the public can comment on the Final EIS, including the preferred alternative, prior to final agency action. Comments received will be addressed by DOE in a ROD. As required by the Energy Policy Act of 2005, DOE must submit a Report to Congress that includes the alternatives considered in the EIS and await Congressional action before making a final decision regarding which alternative(s) to implement. The Report to Congress will be made available to the public on the GTCC EIS website (http://www.gtcceis.anl.gov/).

W540-7 DOE agrees that WIPP is an existing, operating geologic, disposal facility and has a well-defined transportation program.

W540-8 Text was added to the description of stakeholders to include those affected by the transportation of GTCC LLRW and GTCC-like wastes.

W540-9 The additional text is not necessary. Elected officials are included as "representatives of Congress, federal agencies, American Indian tribes, state agencies, and local governments."

W540-10 Specific actions necessary will be defined once a facility location and methods have been selected in a ROD and site-specific NEPA review, as appropriate, is conducted.

W540-11 Comment noted.

Council of State Governments, Commenter ID No. W540 (cont'd)

CSG Midwestern Radioactive Materials Transportation Committee
Comments on DOE's draft EIS on Disposal of GTCC LLRW and GTCC-Like Waste
June 27, 2011

S-56	18-23	According to the Draft EIS, "Many of the sealed sources recovered by the DOE GTRI/OSRP for national security or public health and safety purposes meet the criteria for disposal at existing DOE facilities (when GTRI/OSRP recovers sealed sources, DOE typically takes ownership of the sources and may dispose of them at DOE facilities if they meet waste acceptance criteria for such facilities and manages them as DOE LLRW or TRU waste)." It would be helpful to explain why these sources are in need of a new GTCC disposal facility if DOE already has the ability to dispose of them at existing facilities.	W540-12
S-85	35-38	Is there an existing railcar that can be used to transport six loaded TRUPACT II containers?	W540-13
B-26	4-6	The TRUPACT III cask is now available and its possible use should be considered in the Draft EIS.	W540-14
B-30	Footnote b	It is understood why, for the purpose of analyzing impacts, "rail shipments are assumed to consist of one railcar as part of a general freight train." For the actual shipping campaigns, however, DOE should consider the use of dedicated trains, especially from generator sites that possess large inventories of GTCC LLRW or GTCC-like waste.	W540-15
C-33	30-31	This sentence states that "DOT has no railroad routing regulations specific to the transportation of radioactive materials." This statement is not entirely accurate. While there are no specific routing guidelines similar to 49 CFR Part 397, PHMSA regulations in 49 CFR 820(c) require each rail carrier annually to "analyze the safety and security risks for the transportation route(s)" it uses to transport shipments of HRCQ quantities of radioactive material, among other commodities. Carriers are then required to use these analyses to "select the practicable route posing the least overall safety and security risk." Carriers are to consider 27 factors when performing these safety and security risks analyses.	W540-16
C-33	36-38	It would be helpful to show the "representative routes" on a map, as has been done in other DOE environmental impact statements (e.g., the EIS for a geologic repository for spent fuel and high-level waste at Yucca Mountain).	W540-17
C-46	17-18	It would be helpful to provide a table in this section identifying the "generator sites and some disposal sites [that] do not have direct rail access."	W540-18

3

W540-12 Sealed sources recovered by DOE GMS/OSRP that meet the criteria for disposal at existing DOE facilities are not included in the GTCC LLRW inventory nor are they subject to the decisions being made under this EIS since they have a disposal pathway.

W540-13 With modifications for securing them to a flatcar, a large number of flatcars exist that could be used to transport 6 TRUPACT II containers. The maximum gross weight of 6 fully-loaded TRUPACT II containers is 115,500 lb (19,250 lbs each). Six of the containers set side-by-side would span 47 ft, although some spacing between containers would be required for handling and mounting. Many commercial railcars with lengths ranging from about 53 ft to 89 ft have load limits ranging from about 140,000 to over 200,000 lbs, well in excess of that needed for the containers.

W540-14 The transportation analysis as presented in the EIS is conservative in that consideration of the TRUPACT III could reduce impacts. However, while this package is now a viable option for transport of the GTCC LLRW and GTCC-like wastes, consideration of its use as an option did not influence the identification of the preferred alternative in the EIS. Any of the conceptual land disposal designs could be modified to accommodate the larger package, but its use at WIPP would require further study.

W540-15 For the rail option, the use of dedicated trains, if sufficient waste is available for transport at the same time, could reduce transportation risks and costs by minimizing transit times. The current rail analysis therefore bounds what might be expected if dedicated trains were used. Once an alternative is selected in a ROD for this EIS for implementation, site-specific NEPA reviews would be conducted as needed, including the potential use of dedicated trains and the potential for multiple railcar accidents if applicable.

W540-16 The text was revised to include a reference to the regulations in 49 CFR 172.820(c) regarding the transportation of an HRCQ of material by rail.

W540-17 The routes used in the analysis are considered representative routes (as discussed in Appendix C, Section C.9.4.1.1, because the actual routes used would be determined in the future. For each disposal site, the routes most affected would be the interstate highways that are in closest proximity to the site. Also, most routes from sealed source locations are unknown at this time.

W540-18 In addition to the 104 nuclear utilities, there are potentially hundreds of other generators that are yet to be specifically identified by name. Each chapter provided a discussion of rail access for each of the sites considered in our evaluation.

Decommissioning Plant Coalition, Commenter ID No. W524

Abplanalp, Jennifer Marie

From:	gtcceiswebmaster@anl.gov
Sent:	Monday, June 27, 2011 8:36 AM
To:	mail_gtcceisarchives; gtcceiswebmaster@anl.gov; gtcceis@anl.gov
Subject:	Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10524
Attachments:	DOEEIS_GTCC10524.pdf

Thank you for your comment, Michael Callahan.

The comment tracking number that has been assigned to your comment is GTCC10524. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 27, 2011 08:35:53AM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10524

First Name: Michael
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Privacy Preference: Don't withhold name or address from public record
Attachment: DOEEIS.pdf

Comment Submitted:
Comments are attached.

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

1

Decommissioning Plant Coalition, Commenter ID No. W524 (cont'd)

712 North Carolina Avenue, SE
Washington, DC 20003

Decommissioning Plant Coalition
DPC

Phone: 202.546.4258
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June 27, 2011

Arnold Edelman, EIS Document Manager
Office of Environmental Management
U.S. Department of Energy
Cloverleaf Building, EM-43
1000 Independence Avenue, SW
Washington, DC 20585

Dear Mr. Edelman:

On behalf of the Decommissioning Plant Coalition[1] (DPC), I am providing comments on the U.S. Department of Energy's (DOE) *Draft Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste* (DOE/EIS-0375-D), hereinafter noted as the "draft EIS."

The draft EIS was prepared to aid in the evaluation of the potential environmental impacts associated with the proposed development, operation, and long-term management of a disposal facility or facilities for the identified waste stream, which the document defines as those low level radioactive waste (LLRW) materials with radionuclide concentrations exceeding the limits for Class C LLRW established by the U.S. Nuclear Regulatory Commission (NRC). The draft EIS notes that this material is generated by activities licensed by the NRC or Agreement States and cannot be disposed of in currently licensed commercial LLRW disposal facilities.

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[1] The Decommissioning Plant Coalition was established in 2001 to highlight issues unique to nuclear power plants that have undergone or are undergoing decommissioning. The DPC is focused on addressing the needs of reactors at single-unit sites that are undergoing or have completed decommissioning activities. Members and participants of the Decommissioning Plant Coalition include the Connecticut Yankee (CT), LaCrosse (WI), Maine Yankee (ME), Rancho Seco (CA), Yankee Rowe (MA), and Big Rock (MI) facilities.

Decommissioning Plant Coalition, Commenter ID No. W524 (cont'd)

The DPC represents several single-unit decommissioned nuclear power reactor sites now operating as Independent Spent Fuel Storage Installation (ISFSI) sites under NRC licenses that are storing GTCC material required to be removed for disposal by the US DOE under their respective spent nuclear fuel contracts. The DPC provides the following comments on the Draft GTCC EIS.

The draft EIS Summary document indicates that while some GTCC wastes are currently in storage and available for disposal, many such wastes will not be generated for several decades. We certainly hope that this statement by DOE does not suggest that the Department believes there is no imperative for the federal government to define a near-term path forward for the removal and disposal of the GTCC material that is currently stored at decommissioned reactor sites. The GTCC LLRW waste stored at our sites is addressed under our spent fuel contracts with DOE and the Department is obligated to remove this material together with the spent nuclear fuel (SNF) stored at the sites. This position has been repeatedly affirmed in several U.S. Court decisions involving DPC member spent nuclear fuel and high-level radioactive waste contract lawsuits against the government.

The draft EIS also states that excess or unwanted radioactive sealed sources represent a national security concern, so their disposal is a high priority. We do not disagree and believe that there should be no schedule conflict or competition associated with the removal schedule for decommissioned reactor site GTCC LLRW with radioactive sealed sources. The DPC has long held that the GTCC LLRW and SNF stored at our sites should be promptly removed on a priority basis under the contracts we entered into with the Department and that further delay in the removal of this material only exacerbates the liability of the federal government and taxpayers and the adverse economic impact on ratepayers. Further delay in addressing the removal of the GTCC LLRW and SNF at our sites undermines the confidences that our stakeholders have that DOE can accomplish its management obligations under the Nuclear Waste Policy Act. Accordingly, the Department of Energy should integrate the removal of the stored GTCC LLRW with its program to remove the stored SNF at our decommissioned reactor sites and do so on an expedited basis. W524-1

While the draft EIS correctly notes that the GTCC LLRW resulting from the reactors that have already been decommissioned is currently being stored at the former reactor sites, it does not specifically cite the fact that this existing inventory of GTCC LLRW is currently, or soon will be, completely stored in dual-purpose canister systems licensed by the NRC for both storage and transportation. For completeness and accuracy, the draft EIS should specifically mention the decommissioned reactor ISFSI sites with dual-purpose canister systems containing GTCC LLRW. Specifically for the DPC facilities, the GTCC LLRW is stored at Maine Yankee in four (4) NAC UMS system canisters; Connecticut Yankee in three (3) NAC MPC system canisters; Yankee Rowe in one (1) NAC MPC system canister; Rancho Seco in one NUHOMS system canister; and Big Rock Point in one Fuel Solutions system W-150 canister. Accordingly, there is an existing volume of GTCC LLRW stored at decommissioned nuclear power reactor ISFSI sites that should be specifically addressed in the GTCC EIS as completely packaged, in W524-2

W524-1 DOE agrees that as a result of several court decisions, GTCC LLRW from decommissioned reactors is considered high-level waste for the purposes of the standard contract. Based on this determination, on July 23, 2012, DOE issued a survey (see Federal Register, Vol. 77, No. 141, page 43067) soliciting comments on the proposed reinstatement of the Nuclear Fuel Data Survey. This survey will collect both package and projected GTCC inventory information for activated metals and process waste. Based on information collected from the survey, DOE will be able to make a better-informed decision on the disposition of GTCC LLRW and GTCC-like wastes, subject to the standard contract.

W524-2 Additional information concerning dual purpose canister storage systems has been included in Section 3.2.1.

Decommissioning Plant Coalition, Commenter ID No. W524 (cont'd)

dual-purpose canisters licensed by the NRC for transportation and accordingly available for expedited DOE removal and disposal. W524-2 (Cont.)

We appreciate your consideration of our comments; please do not hesitate to contact me with any questions or should you desire any additional information.

Sincerely,

Michael S. Callahan
On behalf of the Decommissioning Plant Coalition

Department of the Air Force, Commenter ID No. L307

DEPARTMENT OF THE AIR FORCE
99TH CIVIL ENGINEER SQUADRON (ACC)
NELLIS AIR FORCE BASE, NEVADA

MAY 17 2011

Ms Deborah Stockdale
99 CES/CEA
4349 Duffer Dr., Suite 1601
Nellis AFB, NV 89191-7007

Nevada State Clearinghouse
Department of Administration
209 East Musser Street, Room 200
Carson City, NV 89701-4298

Mesdames, Gentlemen,

Thank you for including Nellis Air Force Base (AFB) in the Draft Environmental Impact Statement process for a Facility for Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste at the Nevada National Security Site (formerly known as the Nevada Test Site). Nellis AFB has reviewed the Department of Energy (DOE) Draft Environmental Impact Statement (DEIS), Nevada SAI #E2011-109, and offers the following comment:

> The disposal area is near R-4806W and there are ground parties that use that area for training. How will they be affected? Will overflight of aircraft be allowed for the disposal site? L307-1

Nellis AFB appreciates the DOE's efforts to address these issues. Should the DOE have any questions or require further assistance, my Action officer for this issue is Mr. Tod Oppenborn, (702) 652-9366.

Sincerely,

Deborah Stockdale

DEBORAH STOCKDALE
Chief, Asset Management Flight

Honor the Warfighter

Department of the Air Force – L307

L307-1 Construction and operation of a disposal facility for GTCC LLRW and GTCC-like wastes will be conducted in accordance with current procedures and agreements in existence at the respective sites. Any changes to these procedures and agreements will be developed in coordination among the agencies participating in the current agreement.

Eddy County Commissioner, Commenter ID No. T22

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So with that, by way of introduction, I would first like to call on Roxanne Lara to make our initial presentation, and she will be followed by Jack Volpato.

MS. LARA: Thank you. Good evening. My name is Roxanne Lara, and I stand here wearing a couple of different hats; one as an elected official from the community I serve as an Eddy County commissioner; and number two, as a business owner from living and working in my hometown of Carlsbad.

I want to welcome you to Carlsbad, since I get to speak first, and let you know that the local government, specifically the County of Eddy, is in support of this location being a future site to receive GTCC waste. I am very excited that you're here either doing the EIS and looking at WIPP or WIPP-adjacent properties for that waste.

The local government supports it, but so does the

T22-1

Eddy County Commissioner – T22

T22-1 Based on the GTCC EIS evaluation and WIPP's exemplary operating record, DOE believes that the WIPP repository would be a safe location for the disposal of GTCC LLRW and GTCC-like wastes, some of which include long-lived radionuclides. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require modification to existing law. In addition, it would be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit.

The State of New Mexico has indicated a willingness to accept GTCC LLRW and GTCC-like wastes for disposal at WIPP. Twenty-eight New Mexico State Senators signed a proclamation made in the Fiftieth Legislature, First Session, 2011, stating: "Be it resolved that we, the undersigned, support the opportunity for other potential missions in southeast New Mexico to adequately address the disposal of defense high-level waste, commercial high-level waste, Greater Than Class C LLRW and surplus plutonium waste, as well as the interim storage of spent nuclear fuel." In response to the Draft GTCC EIS, Secretary David Martin, Secretary of the New Mexico Environment Department, sent a letter to DOE on June 27, 2011, stating that "the Department encourages DOE to support the WIPP or WIPP Vicinity proposed locations as the preferred alternatives addressed in the Draft EIS. The geologic repository is the favored alternative being more effective for the enduring time frames for this waste type." In addition, the Governor of New Mexico, in a letter to DOE Secretary Steven Chu on September 1, 2011, stated that the State of New Mexico encourages DOE to support the proposed location of WIPP as the preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes.

Eddy County Commissioner, Commenter ID No. T22 (cont'd)

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community and so do the businesses in this community. And I'm excited to share that because I'm out there on a day-to-day basis, and I hear these comments from people.

The reason that the community is so supportive is because of the impressive track record that WIPP has had in our community over the past 12 years of receiving waste. And most of the people here know those numbers, and from the presentation we just heard, so I wanted to express that. Thank you.

T22-1 (Cont.)

MR. BROWN: Thanks very much.

Jack Volpato is next, and he will be followed by John Heaton.

MR. VOLPATO: Good evening. I'm Jack Volpato, Eddy County Commissioner, a long-time resident of Eddy County, also a local business owner.

To think about any other place to store Greater-Than-Class C, I think is a problem because we already have everything you need here to store it. We have land, we have existing infrastructure, we have a highly technical workforce already in place. We also have -- that would also decrease cost if it is stored here.

T22-2

Community willingness and understanding of WIPP. You won't find a better community that understands nuclear waste disposal and is accepting of it. You won't get a

T22-2 See response to T22-1.

Eddy County Commissioner, Commenter ID No. T22 (cont'd)

lot of disgruntled people protesting this. This is a community that truly understands the risks and understands the benefits of locating this here.

Basically, the WIPP -- the waste stream, everybody understands it. It's no different than what is being stored here -- similar radioactivity. We already have a deep geologic repository that is being used. And we are starting to run out of a waste stream for the TRU Waste. It makes logical sense and reasonable sense to just continue the mission at WIPP with using Greater-Than-Class C to augment the mission at WIPP.

We have an unparalleled safety record, as George mentioned. We've never had an accident in transportation. We have an emergency response system parallel to none. We wrote the book on these things, and there's no sense in trying to locate this anywhere else than right here. There's no reason to reinvent the wheel, so to speak.

You know, the alternatives, just looking on the slides, it was very simple to me that we're the safest alternative listed there as far as public exposure and exposure to humankind. A deep geologic repository is the way to go.

That's all. Thank you.

Energy*Solutions*, Commenter ID No. L78

ENERGYSOLUTIONS

June 27, 2011 CD11-0180

Arnold Edelman, EIS Document Manager
Office of Environmental Management
U.S. Department of Energy
Cloverleaf Building, EM-43
1000 Independence Avenue, NW
Washington, D.C. 20585

Subject: Comments on Draft Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D)

Dear Mr. Edelman:

Energy*Solutions* has reviewed the subject draft environmental impact statement (EIS). Our comments are attached for your consideration.

We appreciate the opportunity to comment on the draft EIS. Questions regarding these comments may be directed to me at (240) 565-6148 or temagette@energysolutions.com.

Sincerely,

Thomas E. Magette, P.E.
Senior Vice President
Nuclear Regulatory Strategy

6350 Stevens Forest Road, Suite 200 • Columbia, Maryland 21046
240.565.6200 • Fax: 410.290.8256 • www.energysolutions.com

Energy*Solutions* – L78

Energy*Solutions*, Commenter ID No. L78 (cont'd)

COMMENTS ON GTCC EIS

General Comments

1. One of the four action alternatives is for disposal of waste in a geologic repository. The other three alternatives involve the use of intermediate-depth borehole, enhanced near-surface trench, and above-grade vault facilities. Numerous other countries utilize or consider mined cavities for intermediate level waste disposal. For completeness the mined cavity alternative should be included. L78-1

2. The EIS should evaluate the impact for potential use of the GTCC repository for disposal of B and C sources with no available home to support safeguard concerns. We recognize that legislation is needed to include such sources in a GTCC repository; however it is in the public interest to facilitate disposal of stranded B and C sources. The EIS could provide useful information to Congress as it deliberates whether to include such sources. Under NEPA an EIS is an appropriate vehicle to develop legislative proposals. Presumably any site that is suitable for GTCC sources would be suitable for class B and C sealed sources. Having this analysis in the EIS would be an efficient use of government resources and provide useful information for Congress since "a common approach and/or facility could be used." (Line 6, page S-10). Since DOE is including GTCC-like sources while recognizing that legislation will be needed, DOE should also include B and C sources with the same caveat that legislation will be needed. L78-2

3. While NRC requirements for GTCC waste are unknown, it is likely to require a risk-informed, performance-based approach requiring at a minimum that the 10 CFR Part 61 performance objectives be met. Consequently, the EIS should evaluate the likelihood of each candidate site meeting the performance objectives. L78-3

4. It is not clear what the basis is for using the four NRC regions as a reference point (S-4). Nor is it clear what potential site "coincides" with region 1. Given the sizes of the four regions and the differences within in each region, the EIS should describe the characteristics for each regional site. For example, since both LANL and NNSS are both in Region 4, the site differences that account for the differing impacts should be specified. (See table S-4) L78-4

5. Although the GTCC Draft EIS Summary (page S-3) states clearly that GTCC LLRW that is designated as a federal responsibility under section 3(b)(1)(D) of the Low-level Radioactive Waste Policy Amendments Act of 1985 (LLRWPAA) is to be disposed of in a facility licensed by the NRC, DOE in Volume 2 implies that this statutory provision only applies if the facility is a non-DOE facility (see §13.3.2.2-page 13-9). As a result, DOE states at page 13-10 that "legislation may be needed to clarify whether a GTCC LLRW disposal facility owned or operated by or on behalf of DOE must be licensed by NRC and if so, to authorize NRC to license such a facility." L78-5

   The Atomic Energy Act (AEA) has long been viewed as not requiring NRC licensing for DOE facilities except those facilities listed in section 202 of the ERA (see for example 10 CFR 40.11). However, the source of licensing a GTCC disposal facility is not the AEA, it is

L78-1 DOE does not believe it is reasonable to dispose of GTCC waste in a new mined cavity (other than the existing WIPP facility) because of the potential cost and time it would take to develop such an alternative in comparison to the relatively small amount of waste. WIPP was the only mined cavity that was considered because it is already constructed.

L78-2 Class B and C wastes are not GTCC LLRW and are out of scope for the GTCC EIS.

L78-3 The NRC served as a commenting agency on the GTCC EIS and therefore did not actively participate in the preparation of the GTCC EIS. Issues associated with potential regulatory changes or NRC licensing would be addressed as necessary to enable implementation.

L78-4 The sites representative of the four NRC regions are discussed in more detail in Sections 1.4.3 and 1.4.3.8 with site characteristics used in the long-term human health analysis presented in Appendix E, Section E.4.

L78-5 The LLRWPAA (P.L. 99-240) assigns DOE responsibility for the disposal of GTCC LLRW generated by NRC and Agreement State licensees. The LLRWPAA (P.L. 99-240) specifies that GTCC LLRW, designated a federal responsibility under section 3(b)(1)(D) that results from activities licensed by the NRC, is to be disposed of in an NRC-licensed facility that has been determined to be adequate to protect public health and safety. However, unless specifically provided by law, the NRC does not have authority to license and regulate facilities operated by or on behalf of DOE. Further, the LLRWPAA does not limit DOE to using only non-DOE facilities or sites for GTCC LLRW disposal. Accordingly, if DOE selects a facility operated by or on behalf of DOE for disposal of GTCC LLRW for which it is responsible under section 3(b)(1)(D), clarification from Congress would be needed to determine NRC's role in licensing such a facility and related issues. In addition clarification from Congress may be needed on NRC's role if DOE selects a commercial GTCC LLRW disposal facility licensed by an Agreement State rather than by NRC.

Energy*Solutions*, Commenter ID No. L78 (cont'd)

the LLRWPAA. Section 202, which addresses licensing of DOE by NRC under the AEA, has no application to the question of licensing DOE for a GTCC facility. Consequently, it is not clear why DOE is questioning the requirement to have NRC license its GTCC disposal facility wherever it might be located.

We believe it would be good public policy to have the NRC regulate the disposal by DOE of GTCC waste. Part 61 provides that generally GTCC waste is not suitable for near surface disposal. Absent the approval of the Commission, GTCC waste requires geologic disposal. NRC oversight of GTCC disposal would add to public confidence. Disposals under section 3116 are a good example where NRC oversight of DOE has proven beneficial. In addition, NRC licensing will build on the efforts to have common federal standards for the disposal of LLW in the United States. L78-5 (Cont.)

Specific Comments

S.2-3-Page S-10; Line 32 – DOE should clarify whether Group 1 includes the waste that would arise out of the current fleet of plants being renewed for an additional 40 years.

S.2-3-Page S-13; Lines 1-20 – DOE should list the proposed actions or planned facilities not yet in operation that are included in Group 2 so that the readers can understand the sources for the GTCC waste that DOE is forecasting. Also DOE should clarify why waste from West Valley, an old facility, is included in Group 2 rather than Group 1. L78-6

S.2.5-Page S-18; Line 19 – The designs for the land disposal facilities that are evaluated in this EIS are conceptual and generic in nature to enable comparison of the performance of the sites with regard to the disposal methods considered in this EIS. It is difficult to follow the comparisons presented, and one logical disposal method (mined cavity) is not included. DOE has included options that clearly would fail (e.g., 820 mrem/yr, 2,100 mrem/yr and 2,300 mrem/yr) any reasonable safety standard. The EIS should clearly note that such options will not meet NRC performance objectives. L78-7

S.2.5.1-Page S-20; Line 5 – The long-term impacts are analyzed up to 10,000 years. Impacts should be analyzed up to the peak dose consistent with NRC standards and DOE guidance. L78-8

S.2-7-Page S-37; Lines 19-27 – DOE rejected the Oak Ridge Reservation (ORR) site as unsuitable because of concern about high concentrations of long-lived radionuclides with high mobility rates. The EIS does not adequately address why the same concern would not result in the disqualification of the Savannah River Site (SRS). L78-9

S.3-Page S-38; Lines 17-19 – Although it is part of the proposed action, DOE did not consider the impact of decommissioning the sites. While we appreciate the difficulty of such an analysis given the long time-frames involved, it is important to consider decommissioning in the EIS. Some sites and designs may be better suited for decommissioning and such impacts are relevant in choosing the appropriate site. That lesson was learned from cleaning up the DOE complex and West Valley. Based on similar lessons learned, NRC requires the consideration of decommissioning as part of licensing new plants (10 CFR 20.1406). L78-10

L78-6 The Summary has been revised to clarify the discussion on potential sources of waste. More complete and detailed information on the Group 1 and Group 2 wastes is given in Section 1.4.1 and Appendix B of the GTCC EIS.

L78-7 The EIS analysis is used to assess the viability of an alternative as well as its relative performance compared to the other alternatives. Exclusion of a reasonable alternative from the EIS without first evaluating the site is contrary to a thorough NEPA analysis. All alternatives are retained in the Final EIS because such evaluations are needed to support selection of the preferred alternative. In addition, as discussed in Section 1.4.2, the conceptual disposal facility designs analyzed in the EIS could be modified to perform better in specific locations. Thus, poor performance in the EIS analysis does not necessarily exclude an alternative from consideration. Once an alternative is selected for implementation, the facility will be designed to meet applicable requirements.

Regarding the use of mined cavities, DOE does not believe it is reasonable to dispose of GTCC LLRW and GTCC like waste in a new mined cavity (other than the existing WIPP facility) because of the potential cost and time it would take to develop such an alternative in comparison to the relatively small amount of waste. With regard to existing mines, no specific mine has been identified as having the proper characteristics for disposal of GTCC LLRW and GTCC-like wastes.

L78-8 Estimated radiation doses and LCFs were calculated for each site and disposal concept for 10,000 years, and if the peak impact did not occur during this time frame, the analysis was extended out to 100,000 years. See Appendix E, Section E.1 of the GTCC EIS for further details.

L78-9 Disposal of radioactive waste at ORR is currently limited to only CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) waste. Based on reviews conducted by the Low-Level Waste Disposal Facility Federal Review Group, DOE determined the site is not appropriate for disposal of LLRW containing high concentrations of long-lived radionuclides (such as those found in GTCC LLRW and GTCC-like wastes), especially those with high mobility in the subsurface environment. For this reason, DOE concluded that the ORR is not a reasonable disposal site alternative and eliminated it from detailed evaluation.

L78-10 The EIS notes that the decommissioning of a GTCC waste disposal facility is part of the proposed action, but because the facility would not be closed and decommissioned until far into the future (after 2083), the impact analysis for the decommissioning phase would be conducted at that time. It is not possible at this time to evaluate with any degree of confidence the environmental impacts from decommissioning a facility that has not yet been selected.

The GTCC waste disposal facility would be designed to facilitate future decommissioning consistent with applicable law, guidance, and policies. Site-specific NEPA reviews would be conducted as needed in the future as part of the decommissioning plan.

Energy*Solutions*, Commenter ID No. L78 (cont'd)

S-3- Page S-39 – It is not clear whether the No Action evaluation considered the potential for theft or diversion over the 10,000-year storage period. If not, this consideration should be included in the analysis of the No Action alternative. L78-11

S-3- Page S-42 – DOE should specify the scenarios that were considered to calculate the intruder dose. There is little information provided to allow public comment on DOE's analysis of intrusion. The factors discussed in S-6.3.1 should be considered for each potential site and how the packaging, barriers, and controls are impacted over the 10,000-year performance period to protect against the inadvertent intruder. L78-12

S-3-Page S-45 – DOE should include an explanation of why there are fewer rail and truck shipments for Alternative 2 since the same waste is being shipped to each alternative site. Total rail and truck miles should be listed as that is a more important factor than the number of shipments. In addition, the EIS should explain why Alternative 2 only considers CH waste and why the other alternatives consider primarily RH waste. L78-13

L78-11 The No Action Alternative is evaluated in Chapter 3 of the EIS, and under this alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue. These practices are described in Sections 3.2 (GTCC LLRW) and 3.3 (GTCC-like wastes) in the Final EIS. It was necessary to make a number of simplifying assumptions to address the long-term impacts of this alternative, and these are described in Section 3.5. As part of this assessment, it was assumed that these wastes would remain in long-term storage indefinitely, including wastes from the West Valley Site as discussed in Section 3.5.3, and that no maintenance of either the storage facility or waste packages would occur after 100 years. These results indicate that very high radiation doses and cancer risks could occur under this alternative in the long term.

The No Action Alternative is evaluated in sufficient detail in the EIS as required by NEPA. Comparatively high potential radiation doses and cancer risks could occur should this alternative be selected. While a more detailed analysis could reduce the uncertainties associated with estimating these doses and risks, the conclusion of comparatively high impacts would not change for this alternative.

Impacts from accidents or theft/intrusion were not performed for the No Action Alternative because of the large number of potential locations, and in many cases (sealed sources), the current locations of the waste are not known. In general, these impacts would be comparable to those in the accident consequence analyses conducted for facilities and transportation but possibly occur at a higher frequency because of a lower overall level of security.

L78-12 On the basis of the depth of waste disposal, DOE believes that the only reasonable potential for intrusion is from a future drilling event, such as drilling for a well. The likelihood of inadvertent intrusion from a drilling event would be very low for a GTCC waste trench disposal facility because of (1) the narrow width of the trench, (2) the use of intruder barriers, (3) the remoteness of the sites, (4) DOE's commitment to long-term institutional control, (5) site conditions such as the general lack of easily accessible resources and the great depth to groundwater, and (6) waste form stability. On the basis of these considerations, DOE did not include a quantitative analysis of inadvertent human intruder in the EIS as discussed in Section 5.5. Site-specific NEPA reviews would be conducted as needed.

Potential inadvertent human intrusion into WIPP is addressed in the documentation supporting its current operations. Inclusion of GTCC LLRW and GTCC-like wastes with the wastes already planned for disposal in this repository would not be expected to change the results associated with this hypothetical intrusion event.

L78-13 As discussed in Table S-3, "The number of estimated shipments to the WIPP repository is larger than the number associated with the other three action alternatives, primarily due to the assumption that activated metals and remote-handled wastes with higher external dose rates would be packaged in shielded canisters for disposal at WIPP prior to being loaded onto the transport vehicles." Appendix B, Section B.5.2 has more information on the assumptions used for packaging waste for disposal at WIPP.

Evergreen State College, Commenter ID No. W217

Abplanalp, Jennifer Marie

From: gtcceiswebmaster@anl.gov
Sent: Thursday, June 16, 2011 9:57 AM
To: gtcceiswebmaster@anl.gov
Subject: Receipt: Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10217

Thank you for your comment, Camille Euritt.

The comment tracking number that has been assigned to your comment is GTCC10217. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 16, 2011 09:56:28AM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10217

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City: Austin
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Comment Submitted:
Highly radioactive wastes, which include GTCC and remotehandled Plutonium TRU, belong in a deep geologic repository, in geologically stable formations below the depth of usable groundwater. Radioactive and chemical wastes, especially long lived and extremely radioactive wastes, do not belong in shallow landfills or boreholes along the Columbia River. W217-1

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

1

Evergreen State College – W217

W217-1 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

Haddad Drugan LLC, Commenter ID No. W392

Abplanalp, Jennifer Marie

From: gtcceiswebmaster@anl.gov
Sent: Thursday, June 23, 2011 5:50 PM
To: gtcceiswebmaster@anl.gov
Subject: Receipt: Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10392

Thank you for your comment, Laura Haddad.

The comment tracking number that has been assigned to your comment is GTCC10392. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 23, 2011 05:49:25PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10392

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Privacy Preference: Don't withhold name or address from public record

Comment Submitted:
Please do not consider adding more waste to Hanford before a solid plan for cleaning up what is there is established AND implemented. W392-1 The water of the Columbia River is too degraded already, and putting at greater risk of contamination is unconscionable. That risk doesn't even take into account the risks at stake in transporting the radioactive material on public roadways. Please, put the effort into CLEANING. W392-2

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

1

Haddad Drugan LLC – W392

W392-1 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup effort will continue.

W392-2 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

If DOE decides to implement its preferred alternative for the TC&WM EIS, GTCC LLRW and GTCC-like wastes would not be shipped through the Columbia River Gorge for disposal at the Hanford Site until the waste treatment plant is operational. However, regardless of where the GTCC waste disposal facility is ultimately located, a relatively small amount of GTCC LLRW and GTCC-like wastes may be transported through the Columbia River Gorge on their way to the disposal facility. The waste would be generated within the states of Oregon and Washington and would include actinide sealed sources and Cs-137 irradiators from local medical institutions, research facilities, universities, and other NRC and Agreement State licensees.

The transportation of radioactive waste will meet or exceed DOT and NRC regulatory requirements that promote the protection of human health and the environment. These regulations include requirements for radioactive materials packaging, marking, labeling, placarding, shipping papers, and highway routing. The waste shipments would be on preferred routes, which are interstate highways or alternative routes designated by a state routing agency in accordance with DOT regulations (49 CFR Part 397, Subpart D). The GTCC LLRW and GTCC-like wastes would be shipped in approved waste packages and transportation casks. The robust nature of these casks limits the potential release of radioactive and chemically hazardous material under the severest of accident conditions. It is unlikely that the transportation of GTCC LLRW and GTCC-like wastes to any of the alternative sites evaluated in the EIS would cause an additional fatality as a result of radiation from either incident-free transportation or postulated transportation accidents.

The EIS evaluated the transportation impacts from the shipments that would be required to dispose of all of the GTCC LLRW and GTCC-like wastes at the various disposal sites. The EIS addressed the collective population risks during routine conditions and accidents, the radiological risks to the highest exposed individuals during routine conditions, and the consequences to individuals and populations as a result of transportation accidents, including those that could release radioactive or hazardous chemical materials. About 12,600 shipments would be required to transport all of the GTCC LLRW and GTCC-like wastes to the Hanford Site for disposal. This would result in about 50 million km (30 million mi) of highway travel, with no expected LCFs. One fatality directly related to an accident might occur (see Section 6.2.9.1).

DOE's standard operating procedure for transportation of radioactive waste is developed and continually revised to ensure that the utmost protection of public health and the environment is achieved and that the risk of a traffic accident is minimized. For example, DOE has established a comprehensive emergency management program (Transportation Emergency Preparedness Program or TEPP) that provides detailed, hazard specific planning and preparedness measures to minimize the health impacts from accidents involving loss of control over radioactive material or toxic chemicals. DOE's TEPP was established to ensure that its contractors and state, tribal, and local emergency responders are prepared to respond promptly, efficiently, and effectively to accidents involving DOE shipments of radioactive materials.

If an accident that involved a release of radioactive material to the environment occurred, it would be remediated promptly in accordance with these procedures. These measures would help DOE minimize and mitigate any impacts on the environment.

Hanford Advisory Board, Commenter ID No. L280

HANFORD ADVISORY BOARD

A Site Specific Advisory Board, Chartered under the Federal Advisory Committee Act

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June 3, 2011

received
JUN 1 6 2011

Inés Triay
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Arnold Edelman
Greater-Than-Class C Low-Level Radioactive Waste EIS
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Re: Draft Greater Than Class C Waste Environmental Impact Statement

Dear Ms.Triay and Mr. Edelmann,

Background

The draft Greater-than-Class C (GTCC) Environmental Impact Statement (EIS) responds to a need from the Office of the Secretary of Energy, as required by the Low Level Radioactive Waste Policy Amendments Act of 1985, to find a solution for disposal of GTCC wastes from the commercial sector and GTCC-like Low-Level Wastes from the U.S. Department of Energy (DOE) system, and for the civilian industry. By law, GTCC wastes must be disposed in a deep geological repository, or in such other DOE facility as approved by the Nuclear Regulatory Commission. The only operating deep geological repository in the U.S. is the Waste Isolation Pilot Plant (WIPP), which is constrained to accept only defense-originated Transuranic wastes (TRU). Were the GTCC and GTCC-like waste to be disposed of at Hanford, it would be in addition to the 62,000 m^3 and 20,000 m^3 limits for off-site waste established in the Hanford Solid Waste EIS Record of Decision (ROD)[1].

The alternatives considered in the draft GTCC EIS are: no action, deep geological waste disposal in WIPP, or disposal elsewhere in above-grade vaults, in shallow landfill trenches, or in somewhat deeper large diameter boreholes (30-40 meters deep). Near-surface disposal of long-lived radioactive wastes is considerably less protective of human health and the environment than deep geological disposal and poses higher risks. Hanford remains one of L280-1

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L280-1 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

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the leading disposal location alternatives in the draft GTCC EIS as one of six federal sites being considered for the disposal of GTCC and GTCC-like waste. L280-1 (Cont.)

The Hanford Advisory Board (Board) has consistently advised against the disposal of additional off-site wastes, including GTCC waste, at Hanford[1]. The Board has provided previous advice[1] that concluded that modeling in the draft Tank Closure and Waste Management (TC&WM) EIS clearly showed that Hanford is not suitable for disposal of additional waste. Hanford is not suitable because it is at or over acceptable limits for several radionuclides, including technetium-99, iodine-129, and a number of uranium isotopes[2]. The Board believes the estimated peak annual risk to human health and the environment from trench and vault GTCC disposal, in combination with the risk already coming from Hanford, is unacceptably high (48 and 49 mrem/year, respectively).[2] The borehole disposal risk estimates seem to be too low for a similar type of disposal (4.8 mrem/year).[2] For uranium, the Board believes that the peak estimated groundwater dose for vaults and trenches (approximately 600 mrem/year)[2] and for boreholes (approximately 200 mrem/year)[2] is unacceptably high. L280-2

As the draft TC&WM EIS illuminates, under current proposals for disposing of existing Hanford wastes, groundwater standards at Hanford will be exceeded for thousands of years[2]. Acceptance of additional wastes from offsite would greatly increase and compound those already identified impacts.

The Board submits this advice as its comments on the draft GTCC EIS, in addition to being formal advice to DOE.

Advice:

- The Board advises DOE remove Hanford from the list of alternative locations for GTCC disposal. L280-3
- The Board reiterates prior Board advice that no additional off-site waste, including GTCC or GTCC-like waste, should be disposed at Hanford2. L280-4
- The Board advises DOE to recognize that the additional risk from disposing GTCC and GTCC-like waste, in combination with waste already at Hanford, exceeds risk levels acceptable for human health and the environment. L280-5
- The Board advises that a subsequent 2022 decision to import any off-site wastes to Hanford should require a new National Environmental Policy Act (NEPA) analysis and EIS, with a full NEPA public involvement process. L280-6

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L280-2 DOE has considered cumulative impacts at the Hanford Site in this GTCC EIS. The disposal of GTCC LLRW and GTCC-like waste at the Hanford Site could result in environmental impacts that may warrant mitigation for Tc-99 and I-129 through limiting receipt of these waste streams (see Table 6.2.4.2 and Figure 6.2.4.1 in this EIS).

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

L280-3 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

DOE also conducted a generic evaluation of commercial disposal facilities on nonfederal lands in the EIS to order to provide, to the extent possible, information regarding the potential long-term performance of other (nonfederal) locations for siting a GTCC waste land disposal facility.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

L280-4 Refer to the discussion in the second paragraph of the response to L280-2 regarding the importation of waste from other DOE sites.

L280-5 See response to L280-2.

L280-6 The scope of this EIS is adequate to inform decision-making for the disposal of GTCC LLRW and GTCC-like waste. Sufficient information is available to support the current decision-making process to identify (an) appropriate site(s) and method(s) to dispose of the limited amount of GTCC LLRW and GTCC-like waste identified in the EIS.

DOE believes that this EIS process is not premature and is in compliance with NEPA. On the basis of an assumed starting date of 2019 for disposal operations, more than half (about 6,700 m^3 [240,000 ft^3] of the total GTCC LLRW and GTCC-like waste inventory of 12,000 m^3 [420,000 ft^3]) is projected to be available for disposal between 2019 and 2030. An additional 2,000 m^3 (71,000 ft^3) would become available for disposal between 2031 and 2035. This information is presented in Figure 3.4.2-1. DOE believes this EIS is timely, especially given the length of time necessary to develop a GTCC waste disposal facility.

DOE developed this EIS to support a decision on selecting a disposal facility or facilities for GTCC LLRW and GTCC-like waste, to address legislative requirements, to address national security concerns (especially for sealed sources), and to protect public health and safety. The purpose and need for the proposed action, as discussed above, is stated in the EIS (Section 1.1). The scope of the EIS is focused on addressing the need for developing a disposal capability for the identified inventory of GTCC LLRW and GTCC-like wastes. DOE plans a tiered decision-making process, in which DOE would conduct further site-specific NEPA reviews before implementing an alternative ultimately selected on the basis of this EIS.

Hanford Advisory Board, Commenter ID No. L280 (cont'd)

- The Board advises that DOE include all Remote-Handled TRU, GTCC and GTCC-like wastes in the analysis for an alternative deep geological disposal site (in the case where WIPP is found to be unavailable) documented in the GTCC EIS. The Board advises that any disposal alternative other than deep geological disposal for GTCC wastes will not be protective. L280-7
- The Board advises that the draft GTCC EIS should include the improved modeling analyses from the draft TC&WM EIS that describe both the impacts from existing Hanford wastes and imported wastes under DOE's proposed alternatives. The Board recommends that the GTCC EIS should include cumulative impacts from both of the pending draft TC&WM and GTCC EIS proposals to import and bury additional wastes at Hanford. The Board advises that DOE should be including the draft TC&WM EIS modeling for migration and doses, because it appears to be significantly more sophisticated than the modeling used in the GTCC EIS. The public should have the opportunity to review and comment on a revised draft EIS showing these cumulative impacts if DOE continues to consider Hanford for disposal. L280-8
- The Board advises DOE to analyze transportation impacts along the actual routes which waste would be transported, and that this information should be added into the draft EIS. L280-9 DOE should consider the cumulative transportation-related impacts from waste from the pending TC&WM EIS and GTCC EIS proposals. The public should have the opportunity to review and comment on these impacts. L280-10
- The Board advises that DOE, as a part of the decision to dispose of the GTCC wastes, should include examination of appropriate treatment methods for immobilizing long-lived radionuclides, such as technetium-99 and iodine-129, prior to waste disposition in any proposed disposal facility. L280-11

Sincerely,

Susan Leckband

Susan Leckband, Chair
Hanford Advisory Board

This advice represents Board consensus for this specific topic. It should not be taken out of context to extrapolate Board agreement on other subject matters.

cc: Matt McCormick, Manger, U. S. Department of Energy, Richland Operations
Scott Samuelson, Manager, U. S. Department of Energy, Office of River Protection

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L280-7 See response to L280-1.

L280-8 A more sophisticated modeling approach would not provide any appreciable difference in the overall modeling results for the GTCC EIS. The specific locations that would be used at each potential site for development of a disposal facility for GTCC LLRW and GTCC-like wastes are not known at this time. The use of "reference locations" was used in the EIS to allow for a quantitative assessment of the impacts that could occur at each site. While some parameters could change within a short distance, most would not. For consistency across potential disposal sites, the RESRAD-OFFSITE computer code was used to model the migration of radionuclides from the GTCC LLRW and GTCC-like wastes placed into the conceptual disposal facility designs for the three land disposal methods (not all three methods were evaluated for each site). Site-specific information provided by technical staff from various sites that were evaluated was used in these modeling analyses to the extent it was available, and conservative assumptions were used to fill any remaining data gaps. While the computer model was largely developed to support environmental restoration activities, it has a number of features that make it a good choice for use in this EIS.

The RESRAD-OFFSITE code, like all codes, has limitations. This code was selected for the GTCC EIS analysis because of its manageable number of input parameters, its comprehensive transport analysis for radionuclides in the unsaturated zones and saturated zone, and its flexibility in accepting radionuclide release rates calculated outside the RESRAD-OFFSITE framework. Furthermore, the RESRAD-OFFSITE code has been benchmarked with other computer codes. The results obtained from the code are considered to be technically sound estimates.

The analysis presented in the EIS is adequate for the comparison of the disposal alternatives evaluated. Fate and transport parameters utilized in the estimations were based on site-specific (e.g., specific to the reference location to the extent available) information and, as such, are considered reasonable for the purpose of the comparison made in the EIS. However, DOE recognizes that additional project and site-specific information and modeling could be used to inform the implementation of a disposal facility at a given location. This additional information is expected to reduce the uncertainty associated with these types of evaluations to the extent possible. Site-specific information would be evaluated in any site-specific NEPA review that would be conducted based on a ROD for this EIS.

DOE has considered cumulative impacts at the Hanford Site in this GTCC EIS. The disposal of GTCC LLRW and GTCC-like waste at the Hanford Site could result in environmental impacts that may warrant mitigation for Tc-99 and I-129 through limiting receipt of these waste streams (see Table 6.2.4.2 and Figure 6.2.4.1 in this EIS).

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

L280-9 The primary radiological transportation risk to the public for any alternative is from the low level of radiation emanating from the transport vehicle. As discussed in Section 5.3.9.1, the collective population risk is a measure of the total risk posed to society as a whole. A comparison of the collective population risk provides a meaningful evaluation of the relative risks between disposal locations, as provided in Tables 2.7 5 and 2.7 6. The magnitude of the collective population risk is primarily determined by the number of routes, the length of each route, the number of shipments along each route, the external dose rate of each shipment, and the population density along a given route. The primary differences between alternatives from the standpoint of transportation are the lengths of the routes as determined by the location of the disposal sites (destination of the shipments). Thus, higher collective population risks are associated with alternatives that require transportation over longer distances. All alternatives

Hanford Advisory Board, Commenter ID No. L280 (cont'd)

Stacy Charboneau, Co-Deputy Designated Official, U.S. Department of Energy, Office of River Protection
Nick Ceto, Co-Deputy Designated Official, U.S. Department of Energy, Richland Operations Office
Dennis Faulk, U. S. Environmental Protection Agency
Jane Hedges, Washington State Department of Ecology
Catherine Brennan, U.S. Department of Energy, Headquarters
The Oregon and Washington Delegations

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[1]Draft Environmental Impact Statement for the Disposal of Greater-than-Class C Low-Level Waste and GTCC-Like Waste (DOE/EIS-0375-D; Volume 1, Section 6.5, Settlement Agreements and Consent Orders for the Hanford Site, p. 6-111, lines 37-39, speaking about the Final Hanford Site Solid Waste Program Environmental Impact Statement, Richland WA (HSW EIS), January 2004.

[2]HAB Advice #229 – Tank Closure and Waste Management EIS, #157 – Final Hanford Solid Waste EIS, #153 – Need for Site-Wide Cumulative Impact Analyses Relative to Hanford Solid Waste EIS and Decisions to Add Waste from Offsite, #142 – Offsite TRU Waste, #136 - Draft Hanford Solid Waste EIS, #133 – Draft Hanford Solid Waste EIS, #94 – Hanford Cleanup Priorities, and #84 – FY2000 Budget Advice.

HAB Consensus Advice # 248
Subject: Great than Class C Waste
Adopted: June 3, 2011
Page 4

involve routes that have similar characteristics, with no significant differences for comparison among alternatives, requiring transportation through a range of rural and urban areas. In addition, the routes used in the analysis are considered representative routes (as discussed in Appendix C, Section C.9.4.1.1, because the actual routes used would be determined in the future. For each disposal site, the routes most affected would be the interstate highways that are in closest proximity to the site.

L280-10 DOE believes that the analyses presented in the EIS are sufficient to compare the potential cumulative impacts of GTCC LLRW and GTCC-like waste disposal for the sites that were evaluated. While up to 12,600 truck shipments were assessed for transport of the GTCC LLRW and GTCC-like wastes to a proposed disposal facility, these shipments would be spread out over a 60 year time period, with the result that only about one to two shipments a day might be expected at the facility in addition to current traffic. Additional cumulative impact analyses would be conducted in site-specific NEPA reviews, if needed, for the alternative selected in a ROD. Such follow-on analyses would be based on additional site-specific information.

L280-11 Information on waste forms and waste packages and containers is provided in the EIS to allow for a comparative analysis of alternatives for transportation and waste disposal. Treatment of the wastes prior to disposal is outside the scope of the EIS. Such treatment is assumed to be addressed prior to receipt of the waste at the GTCC LLRW and GTCC-like waste disposal facility. DOE agrees that it is important to immobilize long-lived radionuclides such as Tc-99 and I -129 prior to disposal. Solidification techniques (e.g., use of grout) are expected to immobilize certain wastes in the GTCC LLRW and GTCC-like waste inventory. If needed, the actual stabilization methods used will depend, in part, on the waste stream, packaging, and final disposal facility design. DOE considers the assumptions used for waste form stability (see Appendix B) to be reasonable for purposes of the comparative analysis provided in the EIS.

The waste characteristics and physical form would have to meet the disposal facility waste acceptance criteria. It is expected that these waste acceptance criteria would identify requirements (such as allowable concentrations) for individual radionuclides, including Tc-99 and I-129. The specific waste forms and packages used to dispose of GTCC LLRW and GTCC-like wastes would be determined in the future as part of the waste acceptance criteria and packaging requirements developed. See the discussion in Section B.5 and C.9.4.2 of the EIS for more information on packaging requirements. All GTCC LLRW and GTCC-like wastes would be packaged and transported in accordance with all applicable federal and state requirements, and waste disposal activities would be conducted in accordance with appropriate requirements.

HEAL Utah, Commenter ID No. E61

Picel, Mary H.

From:	Matt Pacenza <matt@healutah.org>
Sent:	Friday, June 24, 2011 6:03 PM
To:	gtcceis@anl.gov
Subject:	GTCC EIS comments from HEAL Utah
Attachments:	HEAL Utah Comments on DOE GTCC EIS.docx

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Matt Pacenza
Policy Director
HEAL Utah
matt@healutah.org
(801) 864-0264 (cell)

****HEAL Utah has recently moved to ArtSpace Commons. Our new address is: 824 South 400 West, Suite B111, Salt Lake City, Utah 84101.**

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HEAL Utah, Commenter ID No. E61 (cont'd)

HEAL Utah
Healthy Environment ALliance of Utah
www.healutah.org

June 23, 2011

To Whom It May Concern:

Below are our comments on the DOE's Draft Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D).

As always, we appreciate the opportunity to offer input in this important rulemaking process. We are hopeful that the Department will strongly take into account the perspectives of impacted communities, like Utah, which for decades have borne the brunt of nuclear weapons testing and nuclear waste disposal in the United States. It is critical that we are treated as full stakeholders, not just as peripheral parties whose input can ultimately be ignored. E61-1

Recommendation: The DOE should include depleted uranium in its analysis of how to dispose of GTCC-like wastes. This should include existing DU at DOE sites and DU anticipated from the centrifuge enrichment plant in New Mexico and the one planned for Idaho.

We believe that the depleted uranium fits squarely within the DOE's definition of GTCC. Allow us to quote from several sections of the draft EIS:

- "GTCC LLRW refers to LLRW that has radionuclide concentrations that exceed the limits for Class C LLRW given in 10 CFR 61.55. GTCC-like waste refers to radioactive waste that is owned or generated by DOE and has characteristics sufficiently similar to those of GTCC LLRW such that a common disposal approach may be appropriate." E61-2
- "The concentrations of radionuclides in Classes A, B, and C LLRW limit the length of time that these wastes are generally considered to be hazardous to about 500 to 1,000 years. 10 CFR 61.7(b) notes that near-surface disposal site characteristics for these wastes should be considered in terms of the indefinite future and under 10 CFR 61.7(a)(2), evaluated for a time frame of at least 500 years. Radioactive decay and the slow migration of radionuclides from the disposal units should reduce the hazard from the radionuclides to safe levels at that time."

E61-1 All comments, both written and those received during the public hearing are considered equally in our review.

E61-2 Depleted uranium (DU) is not included in the GTCC LLRW waste inventory because this material is not GTCC LLRW.

HEAL Utah, Commenter ID No. E61 (cont'd)

- "GTCC LLRW is waste that is not generally acceptable for near-surface disposal and for which the waste form and disposal methods must be different and, in general, more stringent than those specified for Class C LLRW."

We believe depleted uranium meets each of the above criteria for the following reasons:

1. Depleted uranium "has radionuclide concentrations that exceed the limits for Class C LLRW given in 10 CFR 61.55." Here, we quote our colleagues from the Institute for Energy and Environmental Research (IEER), who note "For instance, its long-lived alpha-emitting specific activity is well over 100 nanocuries per gram, which is the threshold for GTCC in 10 CFR 61.55." Other research, from the Oak Ridge National Laboratory, says that depleted uranium will be as dangerous as Class C in about 200,000 years and will eventually be more than three times more dangerous than Class C waste.[1]
2. Depleted uranium is certainly "owned or generated by DOE." In addition to the 3,577 metric tons, (5,408 drums) of Savannah River Site material currently in temporary storage at EnergySolutions' Clive Facility, "The vast majority of DU from the three gaseous diffusion plants was generated by the DOE and is owned by it," according to our IEER colleagues.
3. As already noted, depleted uranium certainly remains hazardous for more than "500 to 1,000 years" and its hazard is certainly not reduced "to safe levels at that time." In fact, it doesn't even reach its peak radioactivity for up to 2 million years.
4. Lastly, depleted uranium is certainly "not generally acceptable for near-surface disposal." With EnergySolutions proposing to dispose of up to 700,000 tons of depleted uranium at its near-surface Clive facility just 85 miles west of Salt Lake, we are certainly deeply familiar with this issue and the science around it. Robust intrusion scenarios, which require licensees to model what would happen if future humans seek to engage in agriculture, mining or settlement near or at a closed site, suggest that it would be far too easy for future generations to come into direct contact with depleted uranium stored near the surface. In addition, models of climactic conditions over tens of thousands of years – necessary for protecting public health and the environment from material which remains radioactive for hundreds of thousands of years – suggest that the earth's surface and near surface are subject to dramatic change over such periods: Precipitation and temperatures change. Dry areas become flooded. Glaciers grow and shrink. It is very likely that under such conditions many if not most near-surface sites would be destroyed, resulting in the widespread dispersal of radioactivity across the landscape.

E61-2 (Cont.)

[1] EVALUATION OF THE ACCEPTABILITY OF POTENTIAL DEPLETED URANIUM HEXAFLUORIDE CONVERSION PRODUCTS AT THE ENVIROCARE DISPOSAL SITE. Prepared by the OAK RIDGE NATIONAL LABORATORY. Allen G. Croff, J. Robert Hightower, and Nancy L. Ranek. December, 2000.

HEAL Utah, Commenter ID No. E61 (cont'd)

We believe the above analysis makes a strong case that depleted uranium should be considered as GTCC. We urge the Department to re-do its draft EIS, incorporating depleted uranium. We also believe that depleted uranium is appropriate only for deep geologic disposal. Finally, we believe that the DOE – which owns and created much of this material – has a responsibility to ensure that depleted uranium is disposed of safely, rather than standing by and allowing it to be dumped in inadequate near-surface facilities such as EnergySolutions' Clive site in Utah. E61-2 (Cont.)

Again, we appreciate your attention to our comments.

Sincerely,

Matt Pacenza
Policy Director
HEAL Utah
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Suite B111
Salt Lake City, Utah 84101

Heart of America Northwest, Commenter ID No. T132

MR. BROWN: Gerry is next, and Ellen Leatham will follow Gerry.

MR. POLLET: He will get a PowerPoint on the projector. While he's doing that, Gerry Pollet with Heart of America Northwest, a citizens watchdog group for Hanford cleanup.

I want to thank you all for being here tonight. The only way we're going to stop the Department of Energy's repeated efforts to try to use Hanford as a radioactive waste dump again --

(PowerPoint presentation projected on large screen.)

MR. POLLET: -- the only way we stop Hanford from being used as a national radioactive waste dump once again is by your being here, speaking up tonight. And so even if you haven't signed up, at the end, speak, say something from your heart, and then take 20 minutes every month in the next couple of months -- until we've stopped this -- to write a letter to the editor, thank your Senators, write your Congressman, thank the mayor, write another letter to the editor, and come out to hearings next fall.

If the Energy Department chooses Hanford, it will send 12,000 truckloads of highly radioactive waste to Hanford. They will be coming through our

Heart of America Northwest, Commenter ID No. T132 (cont'd)

Capital Reporting Company 14

communities, and they are extremely radioactive. This is on top of the Energy Department's other proposal, which it insists it is sticking with, to use Hanford as a national radioactive waste dump for another three million cubic feet of radioactive waste with 17,000 truckloads of waste. We urge you tonight to tell them, you cannot be credible in your claims that you want to clean up Hanford when you refuse to withdraw your decision to use Hanford as a national waste dump from 2004, and you keep trying to add more waste on top of the incredible levels of contamination that exist today.

There are 40 miles of unlined ditches at Hanford like this (indicating), 40 miles into which radioactive and chemical wastes were dumped. And instead of trying to remove those wastes, the Energy Department says, let's just put dirt on top of them and let's add another massive quantity of radioactive waste to the soil. The amount of radioactive waste they would propose to add tonight is nearly as much as in all the high-level waste tanks that we're spending billions of dollars to empty. But the Energy Department refuses to look at this logical alternative of deep geologic disposal in the granite shield of North America. Instead, it limits its

T132-1

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T132-1 The EIS considered the range of reasonable alternatives for the disposal of the GTCC waste inventory, including disposal in a deep geologic repository. DOE did not evaluate developing a geologic repository, such as in the granite shield, exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

DOE recognizes that disposal of GTCC LLRW and GTCC-like wastes in the WIPP geologic repository would require modification to existing law. In addition, it may be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with the EPA, and the WIPP Hazardous Waste Facility Permit.

Heart of America Northwest, Commenter ID No. T132 (cont'd)

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search to cheap surface disposal. And the one repository it already owns, in New Mexico, but where it is illegal to add this waste.

T132-1 (Cont.)

Three years ago the Energy Department did another EIS, had hearings right here, and said, if we use Hanford for spent nuclear fuel, because the casks cannot stop the radiation from going through, over 800 adults along the truck routes will die of cancer, even if there is no accident and no terrorist attack. Those high-level waste trucks are no hotter than the greater-than-class C waste, same levels of radiation.

If they move these wastes, people die. Don't believe it when they say no one dies, because they've refused to include in this impact statement anything about the specific truck routes they'll use or how they've calculated this or why they say no one dies now, but three years ago, 800 people would die.

T132-2

AUDIENCE MEMBER: Adults.

MR. POLLET: Eight hundred adults. They said, we can't study children, we can't model them. But we're more concerned about the children because they are more susceptible to get cancer from a given dose of radioactive. If there was an accident at the intersection of 205 and 84, over 300 square miles of Portland would have to be evacuated. And the U.S.

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T132-2 The primary radiological transportation risk to the public for any alternative is from the low level of radiation emanating from the transport vehicle. As discussed in Section 5.3.9.1, the collective population risk is a measure of the total risk posed to society as a whole. A comparison of the collective population risk provides a meaningful evaluation of the relative risks between disposal locations, as provided in Tables 2.7 5 and 2.7 6. The magnitude of the collective population risk is primarily determined by the number of routes, the length of each route, the number of shipments along each route, the external dose rate of each shipment, and the population density along a given route. The primary differences between alternatives from the standpoint of transportation are the lengths of the routes as determined by the location of the disposal sites (destination of the shipments). Thus, higher collective population risks are associated with alternatives that require transportation over longer distances. All alternatives involve routes that have similar characteristics, with no significant differences for comparison among alternatives, requiring transportation through a range of rural and urban areas. In addition, the routes used in the analysis are considered representative routes (as discussed in Appendix C, Section C.9.4.1.1, because the actual routes used would be determined in the future. For each disposal site, the routes most affected would be the interstate highways that are in closest proximity to the site.

A number of commenters indicated they believed shipping offsite waste would result in 800 LCFs. This value for transportation risk does not exist in this GTCC EIS. DOE believes that the value of approximately 800 LCFs, cited in the public comments, is from the results provided in the *Draft Global Nuclear Energy Partnership Programmatic Environmental Impact Statement* (GNEP PEIS) regarding transportation of spent nuclear fuel (SNF) and HLW. This value represents the maximum impacts associated with 50 years of transportation activities supporting the operations of all existing U.S. commercial light-water reactors if they all were replaced with high-temperature, gas-cooled reactors. The GNEP PEIS was canceled by DOE on June 29, 2009 (74 FR 31017).

The GNEP PEIS involved many more shipments than those for disposal of GTCC LLRW and GTCC-like wastes. Because of this, the resulting estimated impacts for that program (now terminated) were much greater than those given in this EIS (i.e., 1,730,000 vs. 12,600 truck shipments). The same types of analyses were done in both the GNEP PEIS and this EIS, but no LCFs are expected to result from transportation of the GTCC LLRW or GTCC-like wastes to the potential disposal sites considered in the GTCC EIS due to the much lower shipment numbers.

Heart of America Northwest, Commenter ID No. T132 (cont'd)

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government would likely do the same as the Japanese government has just done: Raise the radiation limits instead of trying to clean up what cannot be cleaned up.

T132-3

If that waste is added to Hanford, the groundwater will be contaminated, the river will be contaminated, and the three Native American tribes with treaty rights to live along and fish the Columbia River and live in that area and use the groundwater will suffer cancer rates, from using the groundwater for their children, of between two and four percent.

T132-4

The Department of Energy proposes tonight to use a landfill right next door to the other landfill that they want to use as a national radioactive waste dump, right next door to the other landfill that's leaking unlined trenches used for commericial radioactive wastes. Those two trenches alone --

MR. BROWN: Just about a minute left.

T132-5

MR. POLLET: Those two landfills alone add 70 millirems of radiation per year to a child drinking the groundwater. We're trying to clean up Hanford to meet a standard that no one gets any more than 15 millirems of radioactive a year. That's the EPA standard. At that level, eight adults out of 10,000

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T132-3 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

Disposition of the GTCC LLRW and GTCC-like wastes will be handled in a manner that is protective of human health and the environment and in compliance with applicable requirements and regulations. Doses to workers and the public will be minimized to the extent practical. The methodology used to estimate the radiological human health impacts in the EIS is based on standard practices that are subject to revision as our understanding of the effects of radiation on humans evolves. The same methodology is used in the evaluation of all alternatives; thus, any modification of this methodology would not affect the comparisons among alternatives and the identification of the preferred alternative. All relevant potential exposure pathways were considered in the analyses presented in the EIS. Site-specific NEPA reviews would be conducted as needed. This information could include sensitive subpopulations and specific pathways of exposure for American Indians.

T132-4 DOE has considered cumulative impacts at the Hanford Site in this GTCC EIS. The disposal of GTCC LLRW and GTCC-like waste at the Hanford Site could result in environmental impacts that may warrant mitigation for Tc-99 and I-129 through limiting receipt of these waste streams (see Table 6.2.4.2 and Figure 6.2.4.1 in this EIS).

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

T132-5 Disposition of the GTCC LLRW and GTCC-like wastes will be handled in a manner that is protective of human health and the environment and in compliance with applicable requirements and regulations. Doses to workers and the public will be minimized to the extent practical. The methodology used to estimate the radiological human health impacts in the EIS is based on standard practices that are subject to revision as our understanding of the effects of radiation on humans evolves (e.g., effects on children vs. adults). The same methodology is used in the evaluation of all alternatives; thus, any modification of this methodology would not affect the comparisons among alternatives and the identification of the preferred alternative.

Heart of America Northwest, Commenter ID No. T132 (cont'd)

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who drink the groundwater every day die of cancer. Children are believed to be ten times more susceptible to die of cancer from the same dose.

T132-5 (Cont.)

They're saying if we use GTC -- Hanford as a national radioactive waste dump for GTCC waste, we're tripling above the allowable dose we're trying to clean up Hanford. And then you add in the commercial leaking radioactive waste dump, and we're more than quadrupling it.

That's not cleaning up. You can't clean up until you stop dumping more. And unless the Energy Department says, We're committed to cleaning up and we withdraw our 2004 decision to use Hanford as a national waste dump and we withdraw this scheme, you'll have no credibility whatsoever in saying that you're committed to cleaning up Hanford.

T132-6

Please speak up, not just tonight. Keep it going. In the fall, there will be hearings -- probably in Vancouver. So come across the river -- over the Hanford Hazardous Waste Permit. That's how we can stop this, using the state of Washington's authority to say no more until you've shown you can clean up. So be there, join us on Facebook, come to our Web site, stay involved. Thank you all for getting here tonight.

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T132-6 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup efforts will continue.

Heart of America Northwest, Commenter ID No. W554

Abplanalp, Jennifer Marie

From: gtcceiswebmaster@anl.gov
Sent: Monday, June 27, 2011 7:40 PM
To: gtcceiswebmaster@anl.gov
Subject: Receipt: Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10554

Thank you for your comment, Kevin Carlson.

The comment tracking number that has been assigned to your comment is GTCC10554. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 27, 2011 07:40:21PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10554

First Name: Kevin
Middle Initial: J
Last Name: Carlson
Address: 2233 NE 56th St, #106
City: Seattle
State: WA
Zip: 98105
Country: USA
Email: kevin@hoanw.org
Privacy Preference: Don't withhold name or address from public record

Comment Submitted:
Hanford is not a suitable site for the storage of additional radioactive waste. The site is currently not in compliance with environmental laws and should be taken off the table regarding any additional waste shipments. It is also unacceptable that the DOE is considering burying the GTCC waste in trenches and boreholes. Waste this highly radioactive belongs in a deep geological repository which is suitable for long term storage, not in shallow holes or trenches above the groundwater near a major river. W554-1 W554-2

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

1

Heart of America Northwest – W554

W554-1 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

W554-2 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

Heart of America Northwest, Commenter ID No. T14

Capital Reporting Company 9

MR. BROWN: Thanks very much.

Sean's brief statement caught me by surprise. So I didn't get to our speaker after Ron, but it's Jerry Pollet, who I think is always ready to speak. So Jerry is next, and Amy Harwood will follow Jerry.

MR. POLLET: Thank you. My name is Jerry Pollet, P-o-l-l-e-t, representing Heart of America Northwest and Heart of America Northwest Research Center, with 16,000 members across Washington and Oregon, and we have been leading the citizen efforts to advocate for the cleanup of Hanford since 1987.

I want to start our comments by thanking Mr. Arnie Edelman for taking the step that many of us in the -- on the Hanford Advisory Board and public community

T14-1

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T14-1 DOE's goal with regard to its public participation process is to be able to disseminate the information to the public so that input from the interested public can be obtained to inform the Final EIS. To this end, nine public hearings at venues accessible to the interested public for the various disposal sites evaluated in the EIS were conducted. Notices were placed in various local newspapers to announce the public hearings before and during the scheduled hearings. In that spirit, the existing list for a related EIS was also used to disseminate information to the Hanford community with regard to the Final EIS.

Heart of America Northwest, Commenter ID No. T14 (cont'd)

Capital Reporting Company 10

working for improving public notices for DOE headquarter's Environmental Impact Statements when he used the existing site lists and the lists from the prior related Environmental Impact Statement to put out notice for this hearing and the Portland hearing on Thursday night.

For several years, the advisory board and citizen groups have urged that when DOE headquarters does a NEPA EIS instead of the site, it should use the site's cleanup lists because the public believes that, when they sign up on one list with the Department of Energy, they will get all notices about all related issues and not be told that, well, that EIS is in a different administrative drawer out of a different office; and, therefore, you didn't get notice of it. So thank you very much for doing that. That was the good news.

MR. BROWN: Sorry. Your time is up.

MR. POLLET: Great. Okay. So let's start where the state left off on cumulative impacts. We are very disturbed at the lack of coordination between the Hanford Tank Closure/Waste Management Environmental Impact Statement and the Greater-Than-Class C EIS.

A year ago at this time, in providing the Department of Energy comments on the Tank Closure and Waste Management EIS, hundreds of people noted that the Department had a currently pending proposal to dispose of

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T14-1 (Cont.)

T14-2

T14-2 DOE has considered cumulative impacts at the Hanford Site in this GTCC EIS. The disposal of GTCC LLRW and GTCC-like waste at the Hanford Site could result in environmental impacts that may warrant mitigation for Tc-99 and I-129 through limiting receipt of these waste streams (see Table 6.2.4.2 and Figure 6.2.4.1 in this EIS).

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

The GTCC EIS evaluates the transportation impacts from the shipments that would be required to dispose of the entire inventory of GTCC LLRW and GTCC-like wastes at the Hanford Site and all the other sites being evaluated. The EIS evaluates collective population risks during routine conditions and accidents, radiological risks to the highest exposed individuals during routine conditions, and consequences to individuals and populations as a result of transportation accidents, including the release of radioactive or hazardous chemical materials. For the truck option, it is estimated that about 12,600 shipments resulting in about 50 million km (30 million mi) of travel would be required. This transport of GTCC LLRW and GTCC-like wastes would not result in any LCFs, although one fatality directly related to an accident might occur (see Section 6.2.9.1).

Heart of America Northwest, Commenter ID No. T14 (cont'd)

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3 million cubic feet of low-level and mixed radioactive chemical wastes at Hanford and another proposal in a different EIS that was coming out this year to dispose of highly radioactive Greater-Than-Class C and Greater-Than-Class C-Like Wastes, which we just call, really, radioactive waste; and that the public deserved to see all of the cumulative impacts, all of the risks -- for instance, all the truck route risks -- in one document and comment on them at one time.

T14-2 (Cont.)

It will not do for the Department of Energy to say, Well, we'll combine them in a final EIS, but you won't ever get to see them to comment on them. No? Because you didn't listen, you're going to need to come back out to the public and disclose all the impacts at one time.

Let's talk about the impacts at Hanford to the groundwater and the future generations, both Native Americans who have treaty rights to live along and fish the Columbia River and live on the site and use the groundwater and others who will be using the groundwater over the next 10,000 years.

In the Tank Closure/Waste Management EIS, the Department of Energy estimates that iodine will be -- radioactive iodine will be 50 times the drinking water standard at the edge of the Central Plateau Core Zone,

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essentially the same location where the Greater-Than-Class C EIS says, We hypothesize that someone will be using the groundwater, and that's the place where we're considering what the radioactive dose will be.

So iodine, 50 times the drinking water standard; plutonium-239, 175 times the drinking water standard; chromium, 25 times the drinking water standard.

For these extremely radioactive wastes that the Department of Energy wants to bury at the edge of the 200 East Area, if they use Hanford, they estimate that the dose for using landfill trenches will be 48 millirem per year, just from the extremely radioactive GTCC wastes in tonight's impact statement. That works out to be, using the "Biological Effects of Ionizing Radiation" BEIR-7 report from 2005, which the Department of Energy should be utilizing for dose and risk estimates, but it refuses to do so -- it's the National Academy of Sciences' consensus report, and DOE is supposed to be using it -- works out to be a childhood fatal cancer rate of 2 percent.

That is genocidal. If the Department of Energy says it's okay to put more waste here, and we view this knowing -- we do this knowing that there are treaty rights to live along and use the groundwater as recognized by court decisions and 2 percent of the children will die, it's genocidal.

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T14-3

T14-3 Disposition of the GTCC LLRW and GTCC-like wastes will be handled in a manner that is protective of human health and the environment and in compliance with applicable requirements and regulations. Doses to workers and the public will be minimized to the extent practical. The methodology used to estimate the radiological human health impacts in the EIS is based on standard practices that are subject to revision as our understanding of the effects of radiation on humans evolves. The same methodology is used in the evaluation of all alternatives; thus, any modification of this methodology (e.g., the use of BEIR-7) would not affect the comparisons among alternatives and the identification of the preferred alternative.

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But wait. That's only part of the picture because the so-called reference location for the GTCC waste happens to be immediately adjacent to the other landfill that DOE has already built and is also proposing to put an additional 3 million cubic feet of radioactive and radioactive chemical wastes, some of which are quite radioactive and which will be highly mobile with the chemicals co-disposed.

But wait. Immediately to the west of that site upgradient is the commercial radioactive waste dump in the center of Hanford, leaking unlined soil trenches; and the State of Washington which operates that site estimates that, under its proposed plan to just put dirt over the top of it instead of removing Greater-Than-Class C and remote-handle transuranics and uranium wastes and chemical wastes, all of which are there in large quantities, that the Department of Ecology and Department of Health estimate that the groundwater dose from that burial ground alone is an additional 22 millirem.

So if we add up just two of the landfills, we get a dose of essentially 70 millirem to the child in the same location.

And the Department of Energy is totally misleading and not providing an analysis based on realistic science and disclosure when it says, But there

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T14-4

T14-4 Refer to the response for T14-2 for a discussion on cumulative impacts.

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T14-5

are no latent cancer fatalities. The number of latent cancer fatalities they present in their charts for the landfill trench at Hanford is .0003. And you have to read the footnote to see that that's per year. Over 10,000 years, actually, some people are going to die from that.

T14-6

But then you have to say, How did they get that? Oh, they ignored the fact that there are treaty rights to live along; and that the Department of Energy has done studies and Battelle did a study and other people have done studies saying, in fact, there are likely to be thousands of people using the groundwater; and, in fact, any future residents will be using the groundwater because withdrawing water from the Columbia River is not allowed and will not be allowed, but anyone can put in a groundwater well in the State of Washington, without a permit, for a home and is likely to be able to do so a hundred years from now.

And what's going to stop those people from putting in those groundwater wells, drinking that water, and having 2 to 4 percent of their children die? We are.

T14-7

That's what's going to stop it because we can't let you do this. You need to say, Hanford's mission is cleanup.

T14-8

And it was unacceptable to hear tonight and in reading the Notice of Intent and the Federal Register Notice and the EIS that the Department of Energy says it

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T14-5 The column heading for the LCF risk (Table 6.2.4-3) clearly states that it is the "Peak Annual LCF Risk from Entire Inventory." Since it is the peak annual LCF risk, it is inappropriate to multiply the risk of 0.00003 by 10,000 to get the risk over 10,000 years since the peak value is only valid for a much shorter period of time. See for example, the annual dose curves in Figures E-3 and E-4 in Appendix E. Thus, the potential for 3 LCFs over a 10,000 year period is not expected.

T14-6 All relevant potential exposure pathways were considered in the analyses presented in the EIS. These analyses addressed a range of reasonable scenarios and estimated the potential impacts on all environmental resources consistent with NEPA requirements. The assessment of impacts from accidents occurring hundreds to thousands of years into the future was considered too speculative to include because of the large uncertainty associated with estimating future land use and population patterns. For the human health assessment, the focus was on the groundwater pathway, since this is the most likely manner in which someone could be exposed to the radioactive contaminants in the GTCC LLRW and GTCC-like wastes in the distant future. Locations closer than the 100 m (330 ft.) evaluated would result in higher dose and cancer risk estimates. The 100 m (30 ft.) distance was used to be consistent with the minimum buffer zone distance surrounding a DOE LLRW disposal site identified in DOE Manual 435.1-1. As discussed in Section 2.7.4.2, the hypothetical resident farmer scenario was only used to provide estimates for comparing the various sites evaluated; however, this scenario may not be consistent with the reasonably foreseeable future scenario at some of the sites evaluated. Site-specific NEPA reviews would be conducted as needed. This information could include sensitive subpopulations and specific pathways of exposure for American Indians. In a similar fashion, additional cumulative impacts analyses would be conducted by using additional site-specific information when the location selected for a GTCC LLRW and GTCC-like waste disposal facility was determined.

T14-7 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup efforts will continue.

T14-8 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup efforts will continue.

Heart of America Northwest, Commenter ID No. T14 (cont'd)

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T14-8 (Cont.)

chose Hanford as one of the sites to study because one of its missions is disposal.

Every DOE official visits Hanford and says, Your mission is just cleanup; but when it's convenient for us, we're adding in disposal.

Hanford cannot be viewed as a disposal site. The mission needs to be cleanup. Nowhere in your GTCC EIS is there a single mention of the fact that the cleanup standard, which DOE says it is striving to meet at Hanford, set by EPA, is 15 millirem dose from all sources for any individual at any time in the future.

15 millirem from all sources. Okay? That equals eight fatal cancers in every 10,000 adults, and DOE says, We're going to try to meet that. That's acceptable, except then the Department of Energy comes along and says, Now we're going to add highly radioactive waste and put it above the groundwater, and the dose will be more than three times what we say we're allowing from all sources. After we spend, as the state just noted, tens and tens of billions of dollars cleaning up Hanford, we'll be adding something that increases the dose three times above what we say we're cleaning up Hanford to do.

T14-9

Highly radioactive wastes belong in a deep underground geologic repository. They do not belong in near-surface landfills, boreholes or trenches or vaults.

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T14-9 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

Heart of America Northwest, Commenter ID No. T14 (cont'd)

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In 1970, the old Atomic Energy Commission, which was broken up to be the Department of Energy and Nuclear Regulatory Commission, made a decision that all transuranic wastes, long-lived wastes like plutonium, would be disposed in a deep geologic repository. That's where they belong.

There is a lot of that waste buried before 1970 sitting in Hanford soil. In fact, there is more of it sitting in Hanford soil than the Department of Energy plans to dispose in the WIPP repository. It needs a deep geologic repository. And then we have no national deep geologic repository for high-level nuclear wastes, spent fuel.

T14-9 Cont.

So the logical thing for the Department of Energy to be doing here, and what is required by the National Environmental Policy Act, which says you must consider all reasonable alternatives, is to say the most reasonable alternative is that we are going to start over a national search for a deep geologic repository; or, two, we will look in the granite shield of North America, which the National Academy and scientists have said is the preferred location for keeping radioactive waste out of groundwater for tens of thousands of years, and we will include both the spent fuel, high-level nuclear waste, and these wastes in that search for a repository.

T14-10

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T14-10 The EIS considered the range of reasonable alternatives for the disposal of the GTCC waste inventory, including disposal in a deep geologic repository. DOE did not evaluate developing a geologic repository, such as in the granite shield, exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

Heart of America Northwest, Commenter ID No. T14 (cont'd)

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That's where the waste belongs, not near the surface, and that's what we urge you to do and to remove Hanford from further consideration as a national radioactive waste dump.

Thank you.

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Heart of America Northwest, Commenter ID No. W552

Abplanalp, Jennifer Marie

From: gtcceiswebmaster@anl.gov
Sent: Monday, June 27, 2011 7:07 PM
To: mail_gtcceisarchives; gtcceiswebmaster@anl.gov; gtcceis@anl.gov
Subject: Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10552
Attachments: GTCC_EIS_comments_of_Heart_of_America_NW_and_HoANWRC_submitted_6-27-11_GTCC10552.pdf

Thank you for your comment, Gerry Pollet.

The comment tracking number that has been assigned to your comment is GTCC10552. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 27, 2011 07:06:47PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10552

First Name: Gerry
Last Name: Pollet
Organization: Heart of America Northwest; Heart of America Northwest Research Center
Address: 1314 NE 56th St. #100
City: Seattle
State: WA
Zip: 98105
Country: USA
Email: gerry@hoanw.org
Privacy Preference: Don't withhold name or address from public record
Attachment: C:\fakepath\GTCC EIS comments of Heart of America NW and HoANWRC submitted 6-27-11.pdf

Comment Submitted:
Attached are the formal comments of Heart of America Northwest and Heart of America Northwest Research Center in the form of a pdf version of a Powerpoint presentation to make it easier for USDOE officials to consider our comments and for the public (or other agencies' officials) to view and utilize our comments and supporting information. This submission is intended to supplement our oral comments provided at public hearings.
Please send responses to office@hoanw.org or contact:
Gerry Pollet, J.D.,
Executive Director,
Heart of America Northwest,
Heart of America Northwest Research Center "The Public's Voice for Hanford Cleanup"
www.hoanw.org
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(206)382-1014

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

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Heart of America Northwest, Commenter ID No. W552 (cont'd)

Protect the Northwest from plans to use Hanford as a National Radioactive Waste Dump… &
Risks from Trucking Wastes to Hanford

Presentation Comments Submitted on USDOE's EIS for Very Radioactive "GTCC" Waste (GTCC EIS)*
by Heart of America Northwest
"The Public's Voice for Hanford Clean-Up"
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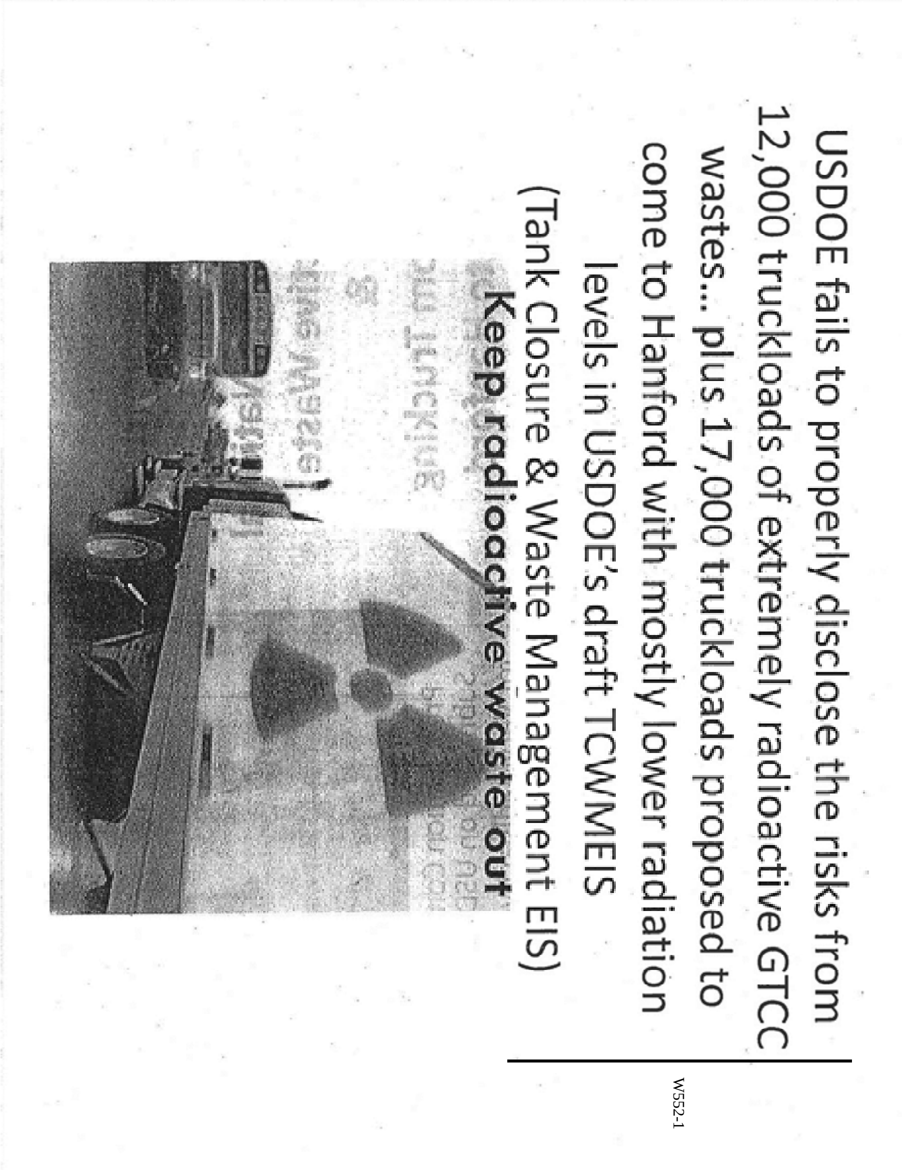
* DOE/EIS-0375-D

Heart of America Northwest, Commenter ID No. W552 (cont'd)



W552-1

W552-1 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

If DOE decides to implement its preferred alternative for the TC&WM EIS, GTCC LLRW and GTCC-like wastes would not be shipped through the Columbia River Gorge for disposal at the Hanford Site until the waste treatment plant is operational. However, regardless of where the GTCC waste disposal facility is ultimately located, a relatively small amount of GTCC LLRW and GTCC-like wastes may be transported through the Columbia River Gorge on their way to the disposal facility. The waste would be generated within the states of Oregon and Washington and would include actinide sealed sources and Cs-137 irradiators from local medical institutions, research facilities, universities, and other NRC and Agreement State licensees.

The transportation of radioactive waste will meet or exceed DOT and NRC regulatory requirements that promote the protection of human health and the environment. These regulations include requirements for radioactive materials packaging, marking, labeling, placarding, shipping papers, and highway routing. The waste shipments would be on preferred routes, which are interstate highways or alternative routes designated by a state routing agency in accordance with DOT regulations (49 CFR Part 397, Subpart D). The GTCC LLRW and GTCC-like wastes would be shipped in approved waste packages and transportation casks. The robust nature of these casks limits the potential release of radioactive and chemically hazardous material under the severest of accident conditions. It is unlikely that the transportation of GTCC LLRW and GTCC-like wastes to any of the alternative sites evaluated in the EIS would cause an additional fatality as a result of radiation from either incident-free transportation or postulated transportation accidents.

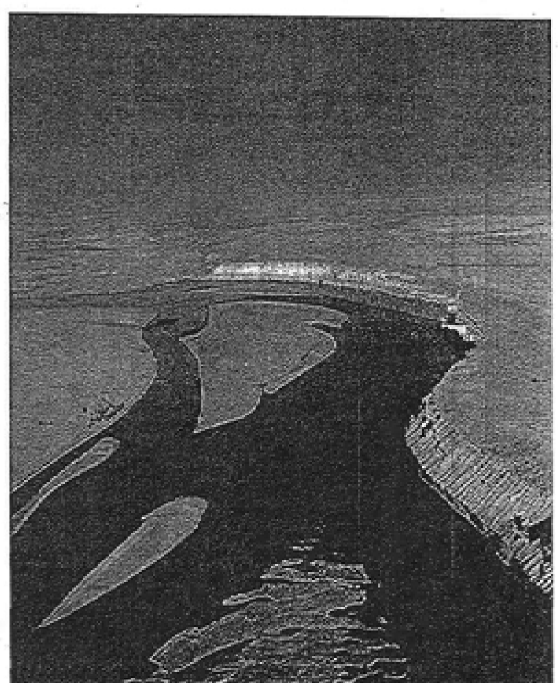
The EIS evaluated the transportation impacts from the shipments that would be required to dispose of all of the GTCC LLRW and GTCC-like wastes at the various disposal sites. The EIS addressed the collective population risks during routine conditions and accidents, the radiological risks to the highest exposed individuals during routine conditions, and the consequences to individuals and populations as a result of transportation accidents, including those that could release radioactive or hazardous chemical materials. About 12,600 shipments would be required to transport all of the GTCC LLRW and GTCC-like wastes to the Hanford Site for disposal. This would result in about 50 million km (30 million mi) of highway travel, with no expected LCFs. One fatality directly related to an accident might occur (see Section 6.2.9.1).

The EIS also evaluated the impact of intentional destructive acts that could occur during waste handling, transportation, and disposal (see Section 2.7.4.3 of the EIS). The potential for such destructive acts is low. DOE sites considered in the EIS are secured, and the packaging for the GTCC LLRW and GTCC-like wastes would be robust. The GTCC LLRW and GTCC-like wastes are not readily dispersible, and the impacts from any attempts to disperse these materials during transportation (such as the impacts from an explosive blast) would be greater than the impacts from any potential release of radioactivity. Impacts from severe natural phenomena, such as earthquakes and tornados, would not be expected to be significant, given that the GTCC LLRW and GTCC-like wastes are largely not dispersible and given the robust nature of the waste packages and containers.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Columbia River at Risk

- Hanford Reach of the Columbia flows through Hanford for over 50 miles, past nine full scale nuclear reactors, hundreds of liquid waste and burial sites.
- Hanford Reach National Monument, last natural salmon spawning grounds on River in US.
- Contaminants entering River along shore at levels >1,500 times Drinking Water Standard (e.g., Sr 90)



DOE's standard operating procedure for transportation of radioactive waste is developed and continually revised to ensure that the utmost protection of public health and the environment is achieved and that the risk of a traffic accident is minimized. For example, DOE has established a comprehensive emergency management program (Transportation Emergency Preparedness Program or TEPP) that provides detailed, hazard specific planning and preparedness measures to minimize the health impacts from accidents involving loss of control over radioactive material or toxic chemicals. DOE's TEPP was established to ensure that its contractors and state, tribal, and local emergency responders are prepared to respond promptly, efficiently, and effectively to accidents involving DOE shipments of radioactive materials.

If an accident that involved a release of radioactive material to the environment occurred, it would be remediated promptly in accordance with these procedures. These measures would help DOE minimize and mitigate any impacts on the environment.

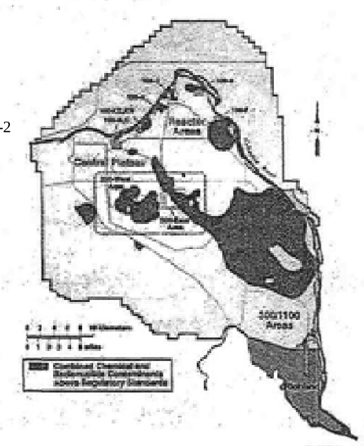
Heart of America Northwest, Commenter ID No. W552 (cont'd)

USDOE Would Add GTCC Wastes On Top of All of These Hazards:

- 53 million gallons of waste in Hanford's High-Level Nuclear Waste Tanks; 35 million gallons remain in Single Shell Tanks.
- USDOE admits that over one million gallons of waste has leaked from tanks... Spreading faster towards the River than USDOE said was possible. Will anything be done?
  - USDOE & WA State agreed in 2010 to let USDOE take until 2040 to empty Single Shell Tanks.
- Over 200 square miles of contaminated groundwater (80+ sq. miles above Drinking Water Standards)... Contamination already entering River at levels >1,500 times Drinking Water Standard for Strontium...

W552-2

Combined Distribution of All Contaminants in Groundwater on the Hanford Site



W552-2 This comment is outside the scope of this EIS. The scope of this EIS is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

USDOE's Plans to Use Hanford as a National Radioactive Waste Dump (again)

- 12,600 truckloads of EXTREMELY radioactive (GTCC) wastes proposed to be buried
  - This submittal is in addition to our comments at hearings May 17 and 19 in Pasco and Portland
- This would be on top of USDOE's 2004 decision to dump 3 million cubic feet of radioactive and chemical radioactive waste in adjoining landfill – 17,000 truckloads proposed in separate pending EIS (TCWMEIS) to be buried in an adjoining landfill (called "IDF").

Heart of America Northwest, Commenter ID No. W552 (cont'd)

USDOE Dumped Radioactive Waste in Unlined Burial Grounds till mid 2004 – now, USDOE objects to having to investigate what is in the trenches and removing wastes

W552-3

W552-3 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational. DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup efforts will continue.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

What is "GTCC" Waste?:

- "Greater Than Class C"
- As radioactive or hotter at surface than High-Level Nuclear Waste
- But, not Fuel Rods, so USDOE calls it "low-level" waste
- Reactor innards, industrial sources
- Includes highly radioactive Plutonium wastes from USDOE sites, which USDOE tried to send to Hanford as "Remote Handled TRU" waste until blocked by Heart of America NW and WA lawsuit in 2003 – now, just changing the name to "GTCC-like"

W552-4

W552-4 As stated in the introduction to the EIS, GTCC-like waste has characteristics similar to those of GTCC low-level radioactive waste (LLRW) such that a common disposal approach may be appropriate.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Nearly as much Radioactivity as in all of Hanford's High-Level Nuclear Waste Tanks

- The amount of radioactivity in the GTCC wastes, which USDOE wants to bury, is nearly as much radioactivity as in all of the High-Level Nuclear Waste tanks at Hanford.
- 160 million Curies of highly radioactive wastes
- While USDOE says the volume is small, the radiation is incredibly high – and, 12,600 truckloads of waste or, 420,000 cubic feet, is NOT a small volume.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Why is USDOE looking to dispose of GTCC Waste now?

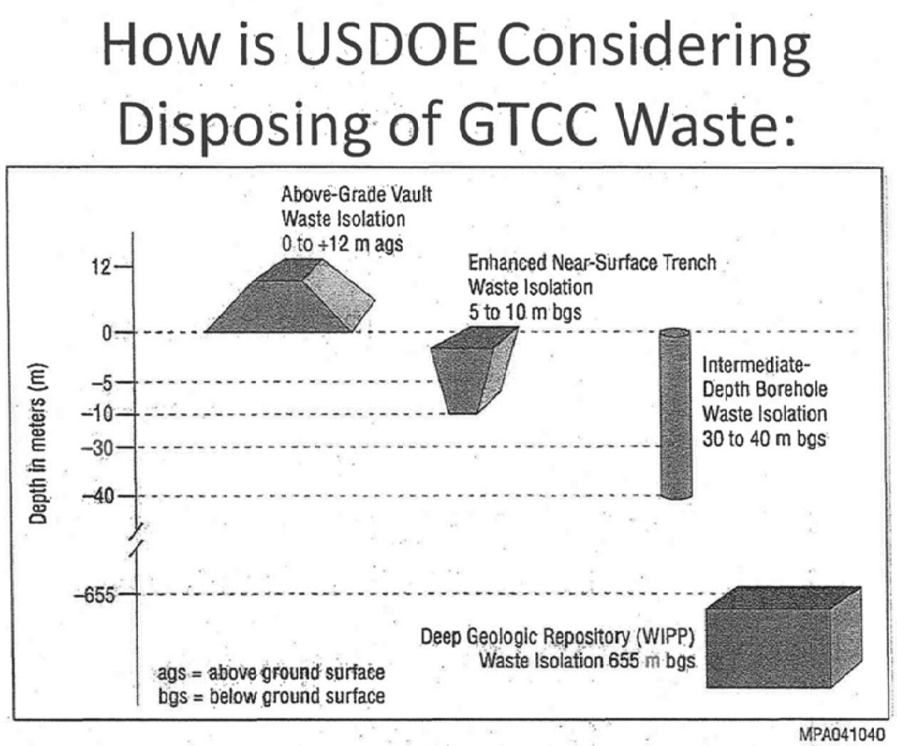
- Federal court said reactor innards had to be disposed in deep geologic repository as if High-Level Waste unless USDOE undertook process to decide otherwise. EIS required.
- Greatly increases reactor dismantlement, USDOE and industry costs if have to dispose in deep geologic repository – some states may block new reactors without disposal path.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

How is USDOE Considering Disposing of GTCC Waste:

- Landfill Trenches
- Boreholes – down to about 130 feet and above groundwater if at Hanford
- Above ground soil covered "vaults"
- The underground salt mine used by USDOE to dispose of very long-lived Plutonium "Transuranic" wastes (TRU) in New Mexico, called "WIPP" near Carlsbad

Heart of America Northwest, Commenter ID No. W552 (cont'd)

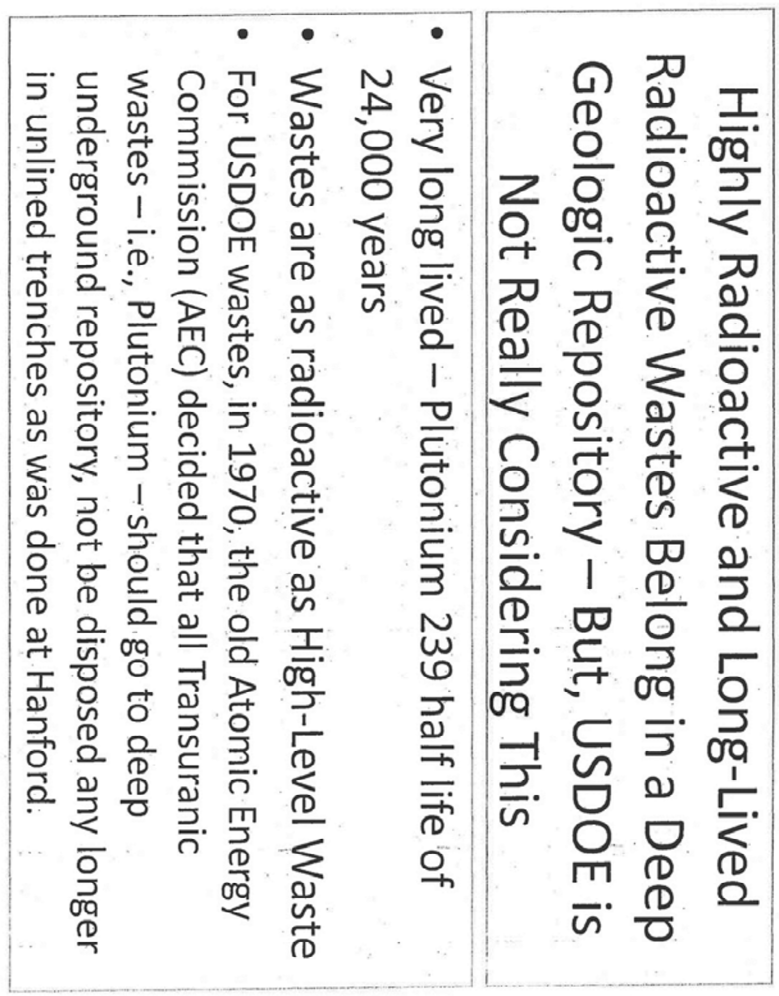


Heart of America Northwest, Commenter ID No. W552 (cont'd)

Where is USDOE Considering Disposing of GTCC Waste:

- Surface disposal sites considered in the EIS include these USDOE sites and a "generic" commercial site:
- Hanford
- Idaho National Lab
- Savannah River Site, South Carolina
- Nevada Test Site (now called Nevada National Security Site)
- Los Alamos National Lab, New Mexico
- Vicinity of WIPP underground site in NM

Heart of America Northwest, Commenter ID No. W552 (cont'd)

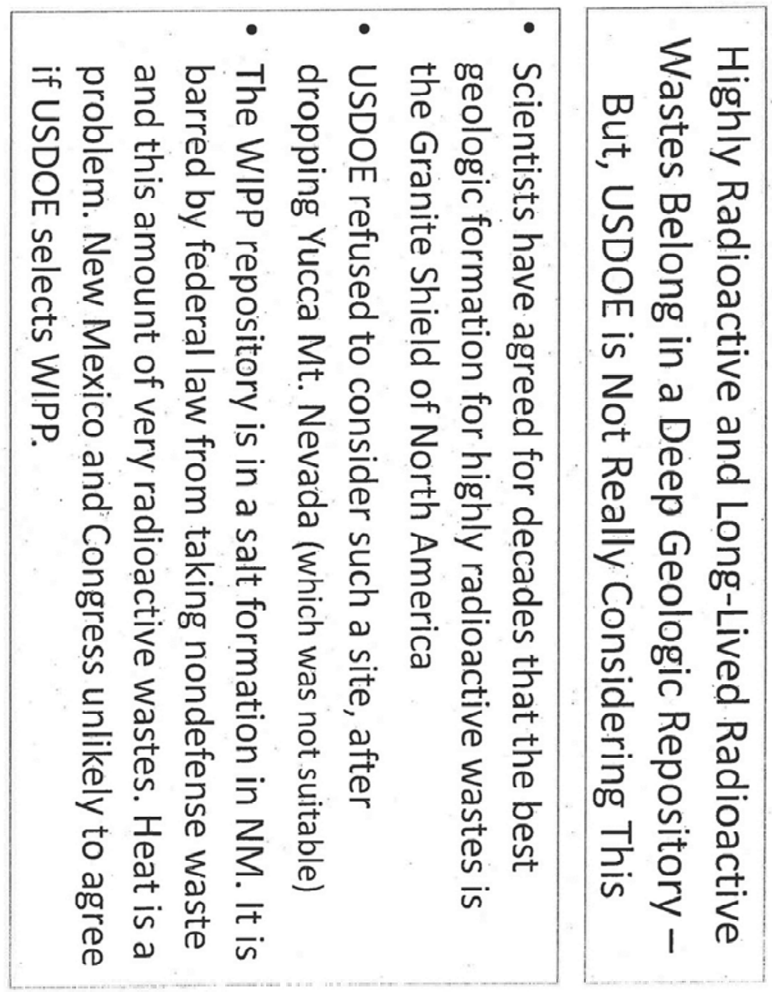


W552-5

W552-5 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

Heart of America Northwest, Commenter ID No. W552 (cont'd)


Highly Radioactive and Long-Lived Radioactive Wastes Belong in a Deep Geologic Repository – But, USDOE is Not Really Considering This

- Scientists have agreed for decades that the best geologic formation for highly radioactive wastes is the Granite Shield of North America
- USDOE refused to consider such a site, after dropping Yucca Mt. Nevada (which was not suitable)
- The WIPP repository is in a salt formation in NM. It is barred by federal law from taking nondefense waste and this amount of very radioactive wastes. Heat is a problem. New Mexico and Congress unlikely to agree if USDOE selects WIPP.

W552-6

W552-7

W552-6 The EIS considered the range of reasonable alternatives for the disposal of the GTCC waste inventory, including disposal in a deep geologic repository. DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes, such as in the granite shield, because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

The degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

W552-7 Disposal of GTCC LLRW and GTCC-like wastes at WIPP or the WIPP Vicinity site is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. In addition, site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal.

However, NEPA does not limit an EIS to proposing and evaluating alternatives that are currently authorized. Furthermore, the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: "The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., Public Law [P.L.] 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions."

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts for all resource areas evaluated, including human health and

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Why Worry About USDOE Choosing Hanford?

- USDOE would have to get Congress to change law to use WIPP repository in New Mexico, which has major political and technical obstacles.
- Surface disposal much cheaper – which is what is driving this in first place so industry has cheaper disposal path for reactor innards and other wastes
- USDOE insists it already made binding decisions in 2000 and 2004 to use Hanford and Nevada Test Site to split disposal of offsite radioactive wastes
  - USDOE refuses to withdraw 2004 decision to use Hanford to dispose of 3 million cubic feet of radioactive and chemical wastes, while claiming to do new analysis.

transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

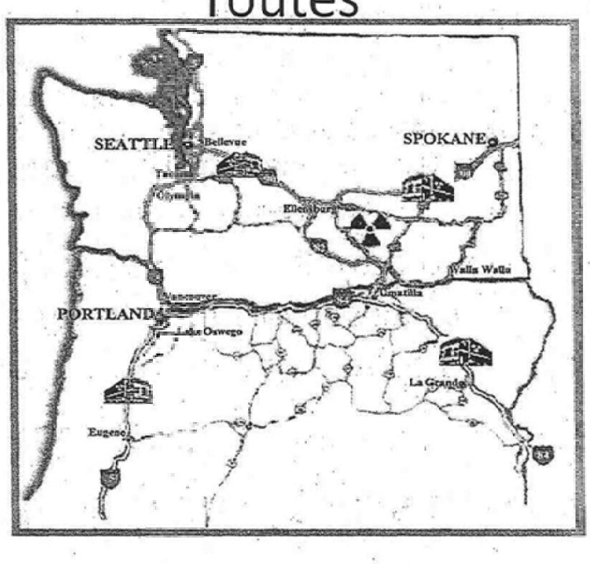
Heart of America Northwest, Commenter ID No. W552 (cont'd)

Why Worry About USDOE Choosing Hanford from its 6 sites or commercial site?

- USDOE acknowledges Savannah River groundwater too close to surface, and rain infiltration too high
- Los Alamos threatens the Rio Grande and USDOE facing State permit barring more disposal and ending unlined disposal
- At Idaho National Lab, USDOE admits Snake River aquifer would be threatened – water supply for much of ID; and, State won agreement to remove similar wastes from ground
- USDOE insists on keeping 2000 and 2004 decisions saying all offsite radioactive wastes would be split between Hanford and NTS – despite 2004 EIS for Hanford being invalid.
- Of 2 commercial radioactive waste landfills in US licensed for more than mild radioactive waste, one uses unlined, leaky trenches at Hanford adjacent to same site USDOE says it will use for GTCC and other offsite waste.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Even without an accident or terror attack, our communities are at risk from radiation exposure along the truck routes



Heart of America Northwest, Commenter ID No. W552 (cont'd)

Cancer Risk from Trucks Even Without an Accident or Terrorist Attack:

- USDOE estimated 816 fatal cancers in ADULTS along truck routes from routine exposure to Spent Fuel trucked to Hanford for storage/reprocessing under GNEP (Table S. 4-10, page S-52 in GNEP draft PEIS 12-2008). W552-8
  - USDOE ignored children and NAS data (BEIR VII) which would increase the estimated cancer risks. GTCC EIS fails to show real risks along actual truck routes or cancer estimate as in GNEP draft EIS. W552-9
- GTCC wastes are as radioactive as Spent Fuel, but USDOE failed to disclose that it is considering shipping GTCC and highly radioactive Plutonium to Hanford in the TCWMEIS.
- For 3 million cubic feet of offsite LLW and MW, TCWMEIS fails to disclose sources from new production to be disposed at Hanford. The TCWMEIS claims treatment for offsite waste that is not planned. W552-10
- GTCC EIS fails to disclose and consider the additional 17,000 truckloads which USDOE proposes to ship to Hanford in the TCWMEIS. W552-11

W552-8 The reference made to an estimate of 816 LCFs in the *Draft Global Nuclear Energy Partnership Programmatic Environmental Impact Statement* (GNEP PEIS, DOE/EIS 0396) is not relevant to the proposed action in the GTCC EIS. This value represents the maximum impacts associated with 50 years of transportation activities supporting the operations of all existing domestic commercial light-water reactors if all of them were replaced with high temperature, gas-cooled reactors. DOE cancelled the GNEP PEIS process on June 29, 2009 (74 FR 31017).

The GNEP PEIS involved many more shipments than those for disposal of GTCC LLRW and GTCC-like wastes. Because of this, the resulting estimated impacts for that program (now terminated) were much greater than those given in this EIS (i.e., 1,730,000 vs. 12,600 truck shipments). The same types of analyses were done in both the GNEP PEIS and this EIS, but no LCFs are expected to result from transportation of the GTCC LLRW or GTCC-like wastes to the potential disposal sites considered in the GTCC EIS due to the much lower shipment numbers (see Section 6.2.9.1).

W552-9 Disposition of the GTCC LLRW and GTCC-like wastes will be handled in a manner that is protective of human health and the environment and in compliance with applicable requirements and regulations. Doses to workers and the public will be minimized to the extent practical. The methodology used to estimate the radiological human health impacts in the EIS is based on standard practices that are subject to revision as our understanding of the effects of radiation on humans evolves. The same methodology is used in the evaluation of all alternatives; thus, any modification of this methodology (e.g., with a basis from BEIR VII and/or attempting to use risk factors for children) would not affect the comparisons among alternatives and the identification of the preferred alternative.

W552-10 The GTCC EIS evaluates the transportation impacts from the shipments that would be required to dispose of the entire inventory of GTCC LLRW and GTCC-like wastes at the Hanford Site and all the other sites being evaluated.

The GTCC EIS evaluates collective population risks during routine conditions and accidents, radiological risks to the highest exposed individuals during routine conditions, and consequences to individuals and populations as a result of transportation accidents, including the release of radioactive or hazardous chemical materials. For the truck option, it is estimated that about 12,600 shipments resulting in about 50 million km (30 million mi) of travel would be required. This transport of GTCC LLRW and GTCC-like wastes would not result in any LCFs, although one fatality directly related to an accident might occur (see Section 6.2.9.1).

In addition, Chapter 6 of the TC&WM EIS also has evaluated cumulative impacts addressing disposal of potential future wastes (including GTCC LLRW and GTCC-like waste) at the Hanford site.

W552-11 DOE has considered cumulative impacts at the Hanford Site in this GTCC EIS. The disposal of GTCC LLRW and GTCC-like waste at the Hanford Site could result in environmental impacts that may warrant mitigation for Tc-99 and I-129 through limiting receipt of these waste streams (see Table 6.2.4.2 and Figure 6.2.4.1 in this EIS).

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Cancer Risk from Trucks Even Without an Accident or Terrorist Attack continued:

- Radiation doses one meter away from shipments of GTCC, Remote Handled TRU or other GTCC Like wastes are grossly understated in the GTCC EIS.
  - GTCC EIS calculates risk from dose = 2.5 mrem 1 meter from R-H cask truck (pg S-45)
- This results in false presentation of total LCF (Latent Cancer Fatalities).
- The GTCC EIS estimate is based on 50 years of repeated exposure resulting in .5 to 1.0 mrem total dose for the most exposed individual – a truck inspector. Page 5-83

W552-12

W552-12 Calculation of the collective population risk (under routine and accident conditions) is provided in the EIS. While these estimates are conservative, the calculations used expected values where practical (e.g., external shipment dose rates) and provide a reasonable measure for comparison among alternatives, as summarized in Tables 2.7 5 and 2.7 6.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Cancer Risk from Trucks Even Without an Accident or Terrorist Attack continued:

- Radiation doses one meter away from shipments of GTCC, Remote Handled TRU or other GTCC Like wastes are grossly understated in the GTCC EIS.
  - GTCC EIS calculates risk from dose = 2.5 mrem 1 meter from R-H cask truck (pg S-45)
- This results in false presentation of total LCF (Latent Cancer Fatalities).

W552-12 (Cont.)

- "On a site-specific basis, if someone was living or working near the Hanford Site entrance and present for all 12,600 truck or 5,010 rail shipments projected, that individual's estimated dose would be approximately 0.5 or 1.0 mrem, respectively. The individual's associated lifetime LCF risk would then be 3 x 10-7 or 6 x 10-7 for truck or rail shipments, respectively." Page 6-102
- This assertion is ridiculous: It ignores the likelihood that people may be repeatedly in traffic next to such shipments (600/yr for 20 years), at stop lights with the shipments, that the population around and on what is now the Hanford site will grow significantly, the reality of routes through Portland and Spokane and driving off of interstate highways. E.g., 12 minutes of exposure at 3 meters = 2 mrem (Radiation Exposures From Spent Nuclear Fuel and High-Level Nuclear Waste Transportation to a Geologic Repository or Interim Storage Facility in Nevada, Nevada Nuclear Projects Office – GTCC and RH-TRU may exceed limits and averages for Spent Fuel trucks presented in NV report).

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Realistic Radiation Exposure and Cancer Risks from 12,000 truckloads of GTCC Waste:

Your distance from cask center:	6 m/20 ft	10 m/33 ft	15 m/49 ft	40 m/131 ft
Dose Rate(microrem/min.)	70	40	20	6
Maximum Dose,				
6 min. exposure(mrem)	0.4	0.2	0.1	0.04
2 min. exposure(mrem)	0.14	0.08	0.04	0.01
Maximum Annual Individual Dose (in mrem)				
600 trucks	84-240	48-120	24-60	6-24

Thus, even at 40 meters, your child and your annual radiation doses based on potential for being in traffic and routing past schools, off interstate and past homes (remember Lewis and Clark HS front door is under 25 meters from I-90 traffic in Spokane), may be 6 to 24 mrem/year. 600 trucks is based on 12,000 truck total with extremely hot "Remote Handled" trucks forecast in GTCC EIS over 20 years – actual # may be higher). W552-13

Your total (nonfatal)cancer risk (for adult male) from annual exposures at 40 meters: 2.4 in every one thousand and *7.2 to 24 per thousand children*.

(source for exposure and dose: Radiation Exposures From Spent Nuclear Fuel and High-Level Nuclear Waste Transportation to a Geologic Repository or Interim Storage Facility in Nevada, Nevada Nuclear Projects Office

W552-13 The transportation of radioactive waste will meet or exceed DOT and NRC regulatory requirements that promote the protection of human health and the environment. These regulations include requirements for radioactive materials packaging, marking, labeling, placarding, shipping papers, and highway routing. The waste shipments would be on preferred routes, which are interstate highways or alternative routes designated by a state routing agency in accordance with DOT regulations (49 CFR Part 397, Subpart D). The GTCC LLRW and GTCC-like wastes would be shipped in approved waste packages and transportation casks. The robust nature of these casks limits the potential release of radioactive and chemically hazardous material under the severest of accident conditions. It is unlikely that the transportation of GTCC LLRW and GTCC-like wastes to any of the alternative sites evaluated in the EIS would cause an additional fatality as a result of radiation from either incident-free transportation or postulated transportation accidents.

The EIS evaluated the transportation impacts from the shipments that would be required to dispose of all of the GTCC LLRW and GTCC-like wastes at the various disposal sites. The EIS addressed the collective population risks during routine conditions and accidents, the radiological risks to the highest exposed individuals during routine conditions, and the consequences to individuals and populations as a result of transportation accidents, including those that could release radioactive or hazardous chemical materials. About 12,600 shipments would be required to transport all of the GTCC LLRW and GTCC-like wastes to the Hanford Site for disposal. This would result in about 50 million km (30 million mi) of highway travel, with no expected LCFs. One fatality directly related to an accident might occur (see Section 6.2.9.1).

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Exposures to Occupants of Vehicles Trapped in Traffic Gridlock Near Highly Radioactive Waste Shipment Truck:

"Drivers and passengers of vehicles in traffic gridlock incidents could receive potentially significant radiation doses as a result of being trapped next to or near an undamaged truck cask for an extended period of time. Sandquist evaluated such events, and concluded that occupants of stopped vehicles in lanes adjacent to the cask vehicle could receive a maximum dose of 3 mrem, assuming a distance of 5 meters from the cask center and an exposure time of 30 minutes. In response to inquiries from the U.S. Nuclear Waste Technical Review Board(NWTRB), DOE personnel in 1990 prepared an analysis which concluded that the maximum dose from a gridlock incident could be as high as 40 mrem." (Id. NV Nuclear Waste Projects Office, Halstead)

- USDOE ignores its own prior analyses and correspondences with the State of Nevada in GTCC EIS (and also TCWMEIS) in falsely projecting maximum public doses along truck routes to Hanford of .5 mrem.

W552-14

W552-14 The GTCC EIS provides a reasonable estimate of impacts to individuals potentially exposed to GTCC LLRW and GTCC-like waste shipments as directed by NEPA. The EIS provides, in Section 5.3.9.2, potential impacts for those individuals that could be expected to receive the highest exposures during transport of the waste. However, it is not claimed that these exposures represent maximum values.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Exposures to Occupants of Vehicles Trapped in Traffic Gridlock Near Highly Radioactive Waste Shipment Truck:

- Reasonably foreseeable (not maximum) doses under likely scenarios with actual routes include being in traffic at lights or on interstate next to 1 truck per week for 6 minutes at 6 meters and adjacent in traffic at 5 meters once per month = 56.8 mrem/year.
- This is a potential fatal cancer risk for adult males of 3.2 per thousand exposed annually; and, fatal cancer risks to children of up to 3.2%.
- *In good conscience, how can USDOE call these radiation exposures and risks "small"???*

W552-15

W552-15 See response to W552-13.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

USDOE ignores its legal duty – and prior Court decisions – to consider the impacts along the actual routes

USDOE plans to truck these wastes to Hanford:

- The US District Court for E WA previously enjoined USDOE from shipping RH-TRU to Hanford without an adequate Environmental Impact Statement (EIS) in an action brought by Heart of America Northwest and the State of Washington. *See Washington vs. Abraham*, 354 F.Supp.2d 1178 (2005). The RH-TRU wastes included wastes that USDOE has now re-designated at GTCC-like wastes. Use of conceptual, instead of actual truck routes, was found improper for USDOE to rely upon in making a decision to truck these wastes to Hanford prior to release of a FinalEIS with acutal truck routes and up to date route data. See Order in CT-03-5044 and 5018 at 22
- The Court's preliminary injunction was expanded because the Final HSW EIS was inadequate in that it failed to consider the new construction and census data surrounding the actual transportation routes to Hanford. *Bodman*, 2005 WL 1130294, at 19-20. USDOE must provide an updated route-specific environmental analysis, not one based on conceptual routes without consideration of actual exposures (e.g., traffic, routing through cities and past schools, or over the Blue Mts. , Emigrant Pass or the Columbia Gorge in Oregon)..

W552-16

W552-16 As stated in the introduction to the EIS, GTCC-like waste has characteristics similar to those of GTCC low-level radioactive waste (LLRW) such that a common disposal approach may be appropriate.

The primary radiological transportation risk to the public for any alternative is from the low level of radiation emanating from the transport vehicle. As discussed in Section 5.3.9.1, the collective population risk is a measure of the total risk posed to society as a whole. A comparison of the collective population risk provides a meaningful evaluation of the relative risks between disposal locations, as provided in Tables 2.7 5 and 2.7 6. The magnitude of the collective population risk is primarily determined by the number of routes, the length of each route, the number of shipments along each route, the external dose rate of each shipment, and the population density along a given route. The primary differences between alternatives from the standpoint of transportation are the lengths of the routes as determined by the location of the disposal sites (destination of the shipments). Thus, higher collective population risks are associated with alternatives that require transportation over longer distances. All alternatives involve routes that have similar characteristics, with no significant differences for comparison among alternatives, requiring transportation through a range of rural and urban areas. In addition, the routes used in the analysis are considered representative routes (as discussed in Appendix C, Section C.9.4.1.1, because the actual routes used would be determined in the future. For each disposal site, the routes most affected would be the interstate highways that are in closest proximity to the site.

Once an alternative is selected in a ROD for this EIS for implementation, site-specific NEPA reviews would be conducted as needed, including an assessment of specific routing. This process will include planning that involves transportation stakeholders.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Cancer Risk from Trucks Even Without an Accident or Terrorist Attack continued:

- GTCC EIS falsely presents total Latent Cancer Fatalities
- In the Hanford Solid Waste EIS (2004) USDOE estimated 9-10 fatal cancers in adults due to routine exposure from projected truck shipments to Hanford, mostly due to a small number of RH-TRU shipments, which USDOE has now included in GTCC EIS as GTCC like waste. Yet, USDOE, in GTCC EIS, fails to acknowledge the prior estimate of fatal cancers from the same wastes over the same routes. Final Hanford Solid Waste Disposal EIS, USDOE, Feb. 2004, page S.35: "...9 to 10 LCFs were estimated for the Upper Bound waste volume."

W552-17

W552-17 Information from the GTCC EIS on the disposal of GTCC LLRW and GTCC-like waste at the Hanford Site was reflected in the Final TC&WM EIS cumulative impacts analysis.

The GTCC EIS evaluates the transportation impacts from the shipments that would be required to dispose of the entire inventory of GTCC LLRW and GTCC-like wastes at the Hanford Site and all the other sites being evaluated. The EIS evaluates collective population risks during routine conditions and accidents, radiological risks to the highest exposed individuals during routine conditions, and consequences to individuals and populations as a result of transportation accidents, including the release of radioactive or hazardous chemical materials. For the truck option, it is estimated that about 12,600 shipments resulting in about 50 million km (30 million mi) of travel would be required. This transport of GTCC LLRW and GTCC-like wastes would not result in any LCFs, although one fatality directly related to an accident might occur (see Section 6.2.9.1).

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Cancer Risk from Trucks Even Without an Accident or Terrorist Attack continued:

- Radiation doses one meter away from shipments of GTCC, Remote Handled TRU or other GTCC Like wastes are grossly understated in the GTCC EIS. This results in false presentation of total LCF (Latent Cancer Fatalities). The GTCC EIS estimate is based on 50 years of repeated exposure resulting in .5 to 1.0 mrem total dose. Page 5-83
- GTCC EIS fails to base dose on limit of radiation dose allowed which is 10 mrem / hour 2 meters away from the cask – e.g., next lane in traffic . (This criticism applies to inspectors and parking lots, etc... where GTCC EIS says total dose it projects is .5 to 1 mrem. One inspection is likely to result in dose of 7.5 mrem , which is 7.5 to 15 times higher than GTCC EIS projects for lifetime dose to inspector. See Nevada Agency for Nuclear Projects
- GTCC EIS

W552-18

W552-18 As stated in the EIS, Appendix C, Section C.9.4.4 - DOE used a complex-wide average of radionuclide profile of similar waste in developing the dose rate used in the EIS. DOE acknowledges that for specific shipments this dose rate may be lower than the actual. However, DOE believes this estimate is more realistic than a bounding estimate.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Cancer Risk from Trucks Even Without an Accident or Terrorist Attack continued:

- Lewis and Clark HS in Spokane and student exposure is approximately 15 meters from trucks in traffic on I-90. Scores of libraries, community centers and schools are within 15 meters of alternate routes which will be used when trucks are overweight or subject to detours from interstate – a realistic scenario as seen with very fist RH-TRU truck USDOE sent through Oregon to Hanford in 2002.
- At 15 meters from truck for 6 minutes typical exposure for Spent Fuel – likely not as radioactive as most of 12,000 of the GTCC truckloads – radiation level for analysis should be .1 mrem. Radiation Exposures From Spent Nuclear Fuel and High-Level Nuclear Waste Transportation to a Geologic Repository or Interim Storage Facility in Nevada, Nevada Agency For Nuclear Projects, R.J. Halstead (http://www.state.nv.us/nucwaste/trans/radexp.htm#notes) citing Sandquist, G.M., et al., Exposures and Health Effects from Spent Fuel Transportation, RAE-8339/12-1, Prepared for U.S. DOE, Office of Civilian Radioactive Waste Management, Salt Lake City: Rogers and Associates Engineering Corporation, November 29, 1985.

W552-19

W552-19 The GTCC EIS provides a reasonable estimate of impacts to individuals potentially exposed to GTCC LLRW and GTCC-like waste shipments as directed by NEPA. The EIS provides, in Section 5.3.9.2, potential impacts for those individuals that could be expected to receive the highest exposures during transport of the waste.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Cancer Risk from Trucks Even Without an Accident or Terrorist Attack continued:

- "Inspections of truck casks entering Nevada will likely require 45 - 75 minutes, based on actual experience in other western states with the more rigorous inspection protocols developed by the Commercial Vehicle Safety Alliance(CVSA), and may also involve swipe sampling inside the personnel barrier to determine cask surface contamination levels. Rigorous mechanical and radiological safety inspections at Nevada ports of entry could very well result in an average dose of 10 mrem per person per truck cask arrival. An inspector who conducted two truck inspections per week could receive a cumulative annual dose ranging from 200 to 1,000 mrem. At one inspection per day, 5 days a week, an inspector could receive an annual dose of up to 2,500 mrem."
- **Radiation Exposures From Spent Nuclear Fuel and High-Level Nuclear Waste Transportation to a Geologic Repository or Interim Storage Facility in Nevada, Nevada Agency For Nuclear Projects, R.J. Halstead (http://www.state.nv.us/nucwaste/trans/radexp.htm#notes) citing** Sandquist, G.M., et al., Exposures and Health Effects from Spent Fuel Transportation, RAE-8339/12-1, Prepared for U.S. DOE, Office of Civilian Radioactive Waste Management, Salt Lake City: Rogers and Associates Engineering Corporation, November 29, 1985.
- But, GTCC EIS uses unrealistically low dose and time

W552-20

W552-20 The GTCC EIS provides a reasonable estimate of impacts to individuals potentially exposed to GTCC LLRW and GTCC-like waste shipments as directed by NEPA. The EIS provides, in Section 5.3.9.2, potential impacts for those individuals that could be expected to receive the highest exposures during transport of the waste. It is not expected that GTCC LLRW and GTCC-like shipments would be subjected to the same types of inspections as spent nuclear fuel.

Once an alternative is selected in a ROD for this EIS for implementation, site-specific NEPA reviews would be conducted as needed, including a more detailed transportation risk assessment. This process will include planning that involves transportation stakeholders.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

What if there is an accident or terrorist attack?

- HoA commissioned physicists to model impact of reasonably foreseeable accident with fire or terrorist attack on a truck at I-84 and I-205 in Portland, and on I-90 in Spokane. The report is based on truck with same wastes that USDOE proposes to ship as part of GTCC EIS (RH-TRU which USDOE had previously sought to ship to Hanford in 2003/2004). Uses NRC model. Incorporated in comments by reference and Viewable at http://www.hoanw.org/uploads/hoanw/Hanford%20Pdf%20Report%20RS.pdf
- Result: Over a thousand cancer deaths, hundreds of square miles contaminated and require evacuation. Decontamination in a city on this scale has never been attempted.

W552-21

W552-21 DOE agrees that some cancer fatalities could occur as the result of an accident or terrorist act. A generic accident consequence assessment was performed because there is no way to predict the exact location and conditions of an accident, as discussed in C.9.3.3 of the EIS. For all alternatives, potential accidents, even those at the same location, could have impacts that range from negligible to significant depending on the waste involved, the accident severity, and weather conditions. Such an analysis would not help distinguish between alternatives because all alternatives involve routes through or near major population centers.

The analysis of intentional destructive acts is given in Section 2.7.4.3 of the EIS. This analysis provides a perspective on the risks that the GTCC LLRW and GTCC-like wastes could pose should such an act occur. In general, the risk presented from an intentional destructive act is similar to that from a high-severity transportation accident. The accident consequence assessment (given in Section 5.3.9.3 of the Final EIS) presents the results for transportation accidents that fall into the highest severity category. The severe environment that occurs under such conditions can be considered to be similar to that which could be initially instigated by an act of sabotage. In highly populated areas, where the highest exposures would be anticipated, a rapid response would be expected, minimizing the amount of time available to fully breach a Type B package. Should such shipments be diverted and the radioactive material removed for dispersion, higher exposures could be achieved, and potential impacts could be significant. The economic impact could reach several billions of dollars. The extent of the impacts would depend on the exact location of the release, density of the surrounding population, local meteorology, and emergency response capabilities in the affected area. In addition, the final transportation routes will not be selected until a ROD for the EIS is issued and site-specific NEPA review is conducted as needed.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

If there were an accident or terror attack on a truckload of extremely radioactive waste in a US city,

- US Government would likely do the same as Japan…

Raise "allowable" radiation dose rather than attempt to evacuate and cleanup

Dept of Homeland Security already did this for response to dirty bomb at end of Bush Admin.

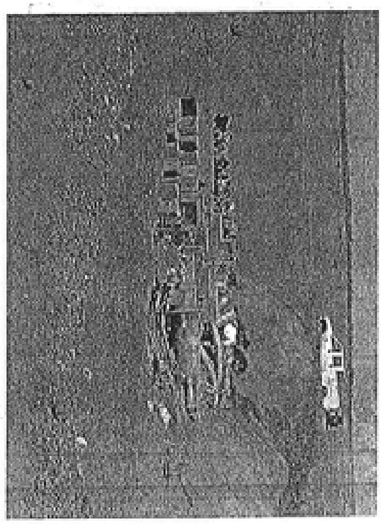
W552-22

W552-22 Comment noted.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

WA Voters Said Do Not Add More Waste to Hanford's Contamination, but USDOE blocked in court

- Initiative 297 2004 "Clean up contamination before adding more"
- Forced USDOE to Stop Dumping in Unlined Trenches, despite federal courts deciding I-297 pre-empted. Courts did say State could adopt standard of "Cleanup First" in state hazardous waste law or permit... Waiting to see if State permit will include



W552-23

W552-23 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup efforts will continue.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

What Are the Risks of Cancer and Impacts to Water from Burying Extremely Radioactive GTCC Wastes at Hanford?

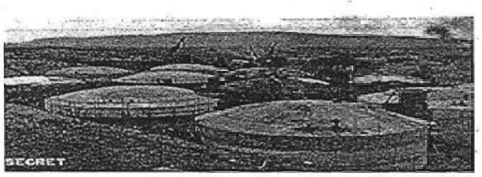
- The Groundwater will be contaminated
- The groundwater flows into the Columbia River
- People will be using the groundwater
- How can USDOE justify adding nearly as much radioactivity as in all of Hanford's High-Level Nuclear Waste tanks, which we are fighting with USDOE to remove and cleanup?

W552-23 (Cont.)

Heart of America Northwest, Commenter ID No. W552 (cont'd)

TCWMEIS – Tank Closure Waste Management Environmental Impact Statement

- TCWMEIS was required due to legal and scientific errors in the 2004 Hanford Site Solid Waste EIS, which USDOE sought to rely on to use Hanford as national waste dump
- "Preferred alternative" proposes to use Hanford as national mixed radioactive hazardous and low level waste dump – once vitrification plant is "operational"
  - But, USDOE could start importing and disposing waste sooner, including **extremely radioactive GTCC waste with Plutonium. Impact analysis missing from this EIS for adding GTCC wastes**.
- "Closure" of Hanford's High-Level Waste Tank Farms – USDOE prefers leaving contamination in tank bottoms and in soil.



W552-24

W552-24 Comment noted.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Key Decisions USDOE Proposes to Issue Using TCWMEIS:

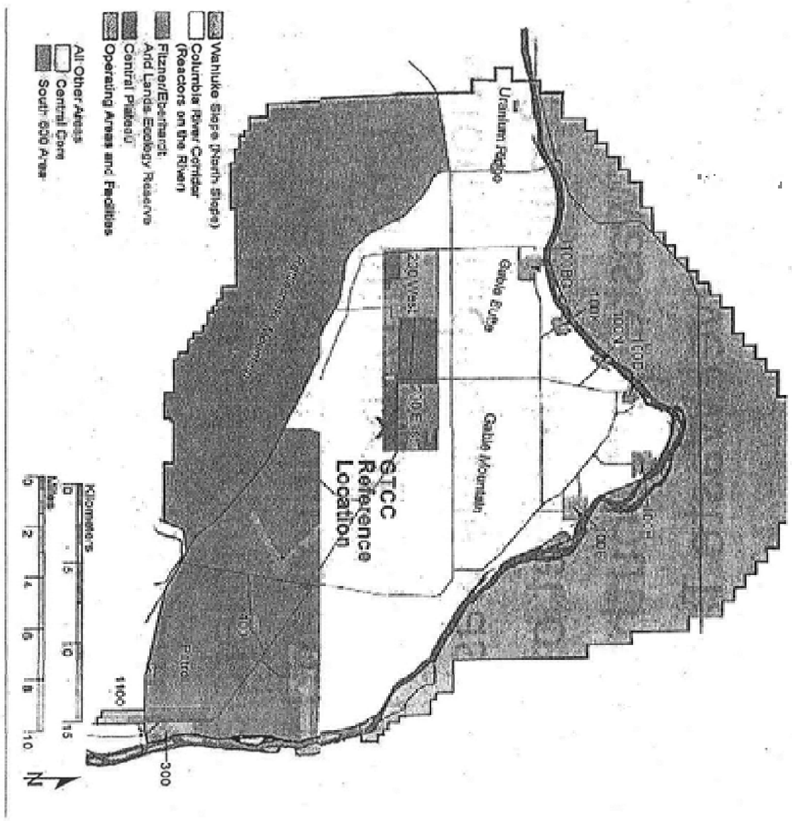
- Where to bury offsite waste at Hanford:
  - Fails to include an alternative of not using Hanford as a national radioactive and mixed radioactive hazardous waste dump!
  - Whether to use landfills in both 200 East and 200 West areas, or just 200 East
  - USDOE proposes to add approximately 3 million cubic feet of waste to Hanford's contamination and compliance problems... approximately 17,500 truckloads of waste
  - USDOE improperly left out of EIS a disclosure that it is also considering sending highly radioactive GTCC waste to be buried in Hanford landfill(s). Includes Plutonium.

W552-24
(Cont.)

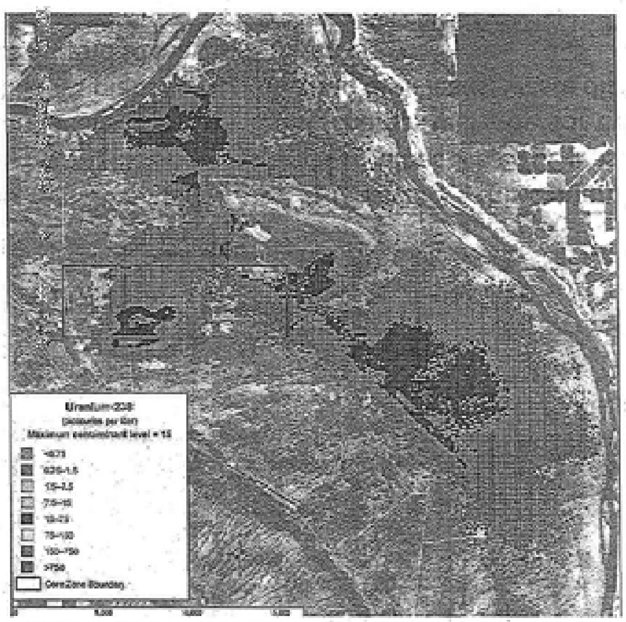
Heart of America Northwest, Commenter ID No. W552 (cont'd)

USDOE proposes to bury GTCC wastes at Hanford adjacent to the leaky unlined commercial radioactive waste dump and to the lined landfill USDOE wants to use as national radioactive waste dump for 3 million cubic feet of other offsite waste, just South of East Area High-Level Waste Tank Farms

Heart of America Northwest, Commenter ID No. W552 (cont'd)



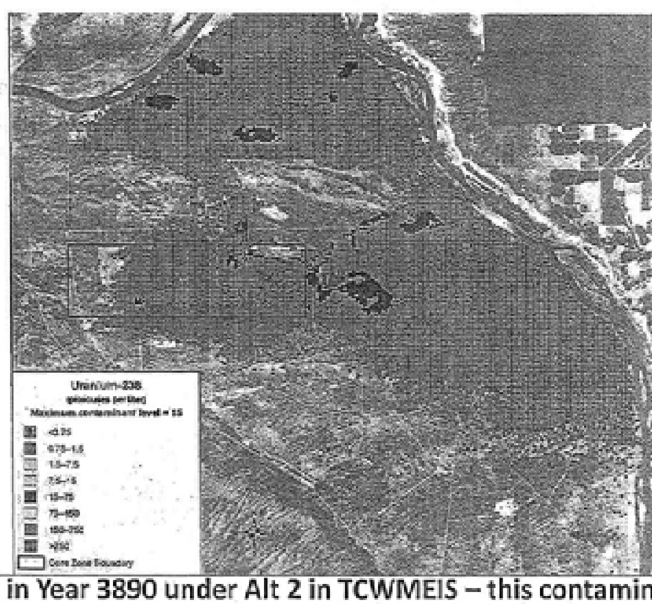
Heart of America Northwest, Commenter ID No. W552 (cont'd)



Uranium 238 in Groundwater in Year 2135 - without adding offsite wastes – from USDOE's Draft TCWMEIS
Dark red >50x Drinking Water Standard

Figure 6-65. Alternative Combination 2 Spatial Distribution of Cumulative Groundwater Concentration for Uranium-238 During Calendar Year 2135

Heart of America Northwest, Commenter ID No. W552 (cont'd)



Uranium 238 in Year 3890 under Alt 2 in TCWMEIS – this contamination is without adding offsite LLW and extremely radioactive GTCC wastes. New plumes from tank leaks, residues and discharges will grow for thousands of years under USDOE's plans to NOT cleanup tank leaks, waste discharge trenches and cribs, and to leave 1% in tanks.

Figure 6-66. Alternative [illegible]

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Cumulative Impacts Without Adding More Waste or Considering Tank Wastes

Maximum Peak Year Concentrations of the COPCs from Non–*TC & WM EIS* Sources at the Core Zone Boundary and the Columbia River Nearshore

- Table U-2 TCWMEIS

Plutonium 283 x standard at River

Contaminant	Max concentration Central Plateau Inner (year)	Max concentration River shore (year)	DW Standard or benchmark
Pu (inc 239, 240)	2,660 (11,848)	4,250 (2983)	15 pCi/L
I-129	50.9 (4043)	9.1 (4540)	1. pCi/L
Chromium	2540 (2216)	16,100 (1978)	100

Heart of America Northwest, Commenter ID No. W552 (cont'd)

In the Draft TCWMEIS, USDOE Only Considers Using Hanford landfill(s) as national radioactive waste dump - adding 3 million cubic feet of radioactive and radioactive toxic waste

Mostly from new nuclear weapons production

What's missing from this choice?

Alternative 2:
Landfills in 200 East and 200 West used as national waste dump

Alternative 3:
IDF landfill in 200 East used as national waste dump

W552-25

W552-25 See response to W552-11.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Using Hanford as a national radioactive waste dump for 3 million cubic feet of radioactive waste

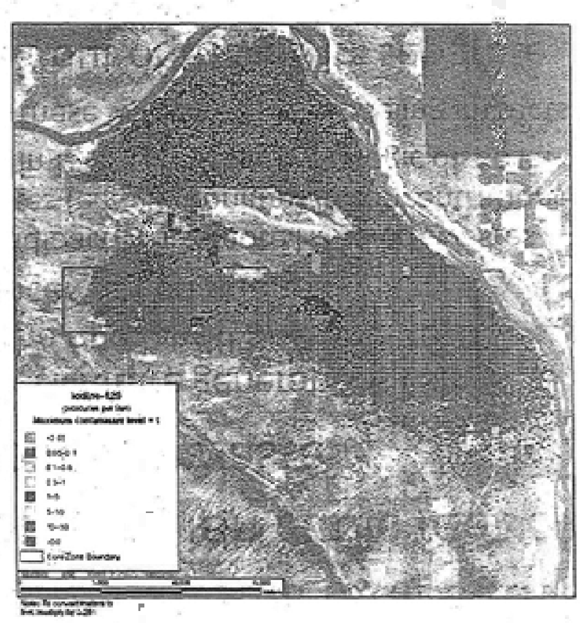
- Increases cancer risk to future generations using the groundwater, from the one landfill, tenfold to 100 times WA State's cancer risk standard
  - Will include highly radioactive (Remote Handled) wastes and Transuranic wastes (e.g., Plutonium) in concentrations just below the legal limit requiring deep geologic disposal
  - Appears to have left these wastes out of modeling impacts
- USDOE illegally left out of the EIS its separate pending plan to import and bury highly radioactive "GTCC" wastes – as hot as High-Level Nuclear Waste.

W552-25 (Cont.)

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Impacts of USDOE's Plans (Combo Alt 2) – Radioactive Iodine 129

- Iodine in Groundwater in Year 3890
- **Tank residues and leaks are not cleaned up (landfill closure);** 200 East IDF landfill only
- Darkest red is >50x DWS
- Table 6-45



Heart of America Northwest, Commenter ID No. W552 (cont'd)

What Happens if USDOE also buries GTCC wastes at Hanford?

- Adds nearly as much radioactivity to soil above groundwater as in all of Hanford's High-Level Nuclear Waste tanks!!!
- Groundwater will be used and flows to Columbia River
- USDOE's own GTCC EIS says burying in landfill trenches adds 48 mrem / year dose – USDOE calls all the projected radiation doses "small" (GTCC EIS page 6-86)
- the fatal cancer risk to children using the groundwater, including Native Americans exercising their Treaty rights to live and use the resources at Hanford, would be over 2%.

W552-26

W552-26 Disposition of the GTCC LLRW and GTCC-like wastes will be handled in a manner that is protective of human health and the environment and in compliance with applicable requirements and regulations. Doses to workers and the public will be minimized to the extent practical. The methodology used to estimate the radiological human health impacts in the EIS is based on standard practices that are subject to revision as our understanding of the effects of radiation on humans evolves (e.g., effects on children vs. adults). The same methodology is used in the evaluation of all alternatives; thus, any modification of this methodology would not affect the comparisons among alternatives and the identification of the preferred alternative.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

The Significance of the TCWMEIS groundwater contamination maps and projected peak concentrations:

- The impacts from existing waste sources plus the IDF landfill to groundwater are shown in these maps and table from the TCWMEIS. USDOE fails to meet NEPA's requirements to disclose cumulative impacts and impacts of related proposals in the GTCC EIS.

W552-27

W552-27 See response to W552-11.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

The Significance of the TCWMEIS groundwater contamination maps and projected peak concentrations continued…:

- Because it uses a discredited groundwater model, and not the more appropriate model from the TCWMEIS, the GTCC EIS wrongly projects peak Uranium contamination in groundwater at core zone boundary in over 22,000 years at 660 mrem/year. As TCWMEIS projections for nearby waste sites illustrates, the peak will likely occur thousands of years sooner, before 10,000 years.
- GTCC EIS then fails to present the risk from 660 mrem/year dose in summary tables of risk. (should be compared to cleanup standard of 15 mrem/year).

W552-28

W552-29

W552-28 The RESRAD-OFFSITE code, like all codes, has limitations. This code was selected for the GTCC EIS analysis because of its manageable number of input parameters, its comprehensive transport analysis for radionuclides in the unsaturated zones and saturated zone, and its flexibility in accepting radionuclide release rates calculated outside the RESRAD-OFFSITE framework. Furthermore, the RESRAD-OFFSITE code has been benchmarked with other computer codes. The results obtained from the code are considered to be technically sound estimates.

DOE believes that the analyses presented in the EIS are sufficient to compare the potential cumulative impacts of GTCC LLRW and GTCC-like waste disposal for the sites that were evaluated. In particular, existing concentrations of various radionuclides in contaminated soil and groundwater at the candidate sites were taken into consideration in the selection of the preferred alternative. Additional cumulative impact analyses would be conducted in site-specific NEPA reviews, if needed, for the alternative selected in a ROD. Such follow-on analyses would be based on additional site-specific information.

W552-29 The summary tables presented in Section 2.7 tabulate the potential impacts for up to 10,000 years (potential impacts for peak years are given in Appendix E); the 660 mrem/year value stated in the comment is not a value that is presented in the EIS. The primary objective of the EIS is to compare the impacts between alternatives. Comparison of impacts against appropriate standards would be considered during the actual design and implementation of a disposal facility.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

The Significance of the TCWMEIS groundwater contamination maps and projected peak concentrations continued:

- The excerpts from TCWMEIS also illustrate how releases from adjacent and nearby sites are projected to have peak contamination at the Central Plateau Core Zone Boundary thousands of years earlier than in the GTCC EIS. This is because the TCWMEIS utilizes a more sophisticated groundwater model than GTCC EIS does, which USDOE spent tens of millions to develop and committed to use in all related NEPA and other documents.

W552-30

W552-30 The modeling with the RESRAD-OFFSITE code utilized a specific feature of the code. That is, the leach rates of radionuclides were calculated separately and entered as input values to the code for subsequent transport modeling through the unsaturated zones and the groundwater aquifer. In the process of calculating leach rates to input into the RESRAD-OFFSITE code, the influence of the waste forms was considered. For activated metals, a constant release fraction was assumed, reflecting that the imbedded radionuclides in the metal would not dissolve in water until the metal was corroded. For Other Wastes, the release rates were calculated by considering the retardation provided by grouting; therefore, measured Kd values of radionuclides in cementitious materials as available in published literature were used for the release calculations. For sealed sources, because the waste forms can vary greatly, the release rates were calculated by assuming the waste forms would behave like soils and would not provide extra protection against leaching. The consideration for releases from activated metals was similar to a dissolution mechanism. The consideration for releases from sealed sources was similar to a surface rinse mechanism. The consideration for releases from Other Waste was similar to a surface rinse mechanism, but with non-zero Kds for the waste form.

The integrity of waste packages, waste containers, and barrier materials over time was not specifically modeled in the RESRAD-OFFSITE code. Their performance over time depends on the engineering designs of the disposal facility. Compared with the analysis time frame that extends to 10,000 (or possibly up to 100,000) years into the future, the integrity periods of the waste packages, waste containers, and barrier materials are relatively short. Therefore, in the GTCC EIS, the integrity periods are evaluated as one single parameter, which is assumed to be 500 years in the analysis. To study the influence of this assumption, a sensitivity analysis was conducted. This approach provides a perspective on performance for the long term.

The RESRAD-OFFSITE computer code was used to model the migration of radionuclides from the GTCC LLRW and GTCC-like wastes placed into the conceptual disposal facility designs for the three land disposal methods. Site-specific information provided by technical staff from various sites that were evaluated was used in these modeling analyses to the extent it was available, and conservative assumptions were used to fill any remaining data gaps. While the computer model was largely developed to support environmental restoration activities, it has a number of features that make it a good choice for use in this EIS. The analysis presented in the EIS is adequate for the comparison of the disposal alternatives evaluated. Fate and transport parameters utilized in the estimations were based on site-specific (e.g., specific to the reference location to the extent available) information and, as such, are considered reasonable for the purpose of the comparison made in the EIS. However, DOE recognizes that additional project- and site-specific information, such as the actual depth to groundwater over the entire disposal area, could be used to inform the implementation of a disposal facility at a given location. This additional information is expected to reduce the uncertainty associated with these types of evaluations to the extent possible. Site-specific NEPA reviews would be conducted as needed based on a ROD for this EIS.

The RESRAD-OFFSITE code, like all codes, has limitations. This code was selected for the GTCC EIS analysis because of its manageable number of input parameters, its comprehensive transport analysis for radionuclides in the unsaturated zones and saturated zone, and its flexibility in accepting radionuclide release rates calculated outside the RESRAD-OFFSITE framework. Furthermore, the RESRAD-OFFSITE code has been benchmarked with other computer codes. The results obtained from the code are considered to be technically sound estimates.

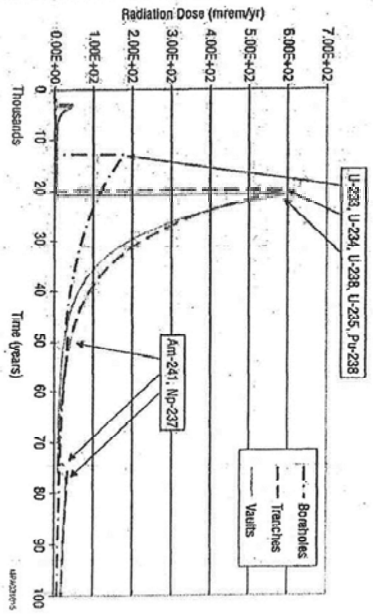
Heart of America Northwest, Commenter ID No. W552 (cont'd)

Uranium, Plutonium and other Transuranics (TRU) will contaminated groundwater with far higher risks than shown in Summary

FIGURE 6.2.4-2 Temporal Plot of Radiation Doses Associated with the Use of Contaminated Groundwater within 100,000 Years of Disposal for the Three Land Disposal Methods at the Hanford Site

USDOE claims maximum cancer risk is "small" and shows in Summary total dose from disposal via borehole, trench or vault at Hanford is = 49 mrem per year, primarily due to Tc 99 and Iodine.

This chart shows how those claims misrepresent USDOE's own data. Uranium, Pu and other TRU wastes will result in doses (on top of the Tc99 and Iodine) of nearly 50 mrem/year in the first 5,000 years and then reach peaks at incredibly high levels of 600 mrem per year. This 600 mrem dose should be presented as posing a risk of fatal cancer in 3.42% of exposed adult males (SEE National Research Council, National Academy of Science, June, 2005, BEIR VII at page 500, Table 12-9)



W552-31

W552-31 DOE has considered cumulative impacts at the Hanford Site in this GTCC EIS. The disposal of GTCC LLRW and GTCC-like waste at the Hanford Site could result in environmental impacts that may warrant mitigation for Tc-99 and I-129 through limiting receipt of these waste streams (see Table 6.2.4.2 and Figure 6.2.4.1 in this EIS).

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

Disposition of the GTCC LLRW and GTCC-like wastes will be handled in a manner that is protective of human health and the environment and in compliance with applicable requirements and regulations. Doses to workers and the public will be minimized to the extent practical. The methodology used to estimate the radiological human health impacts in the EIS is based on standard practices that are subject to revision as our understanding of the effects of radiation on humans evolves. The same methodology is used in the evaluation of all alternatives; thus, any modification of this methodology (e.g., with a basis from BEIR VII and/or attempting to use risk factors for children) would not affect the comparisons among alternatives and the identification of the preferred alternative.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

The Significance of the TCWMEIS groundwater contamination maps and projected peak concentrations continued:

- Chapter 6 of the GTCC EIS projects peak Uranium, Plutonium and Transuranic Waste contamination levels around 600 mrem per year. The GTCC EIS fails to utilize these massively high doses in presenting projected Latent Cancer Fatalities (LCFs) by claiming they occur beyond 10,000 years. Yet, the first peak for these appears to be approximately 50 mrem per year in the next 5,000 years.
- As we present on other slides, TCWMEIS and other projections using more sophisticated groundwater models for Hanford project releases from adjacent landfills and facilities to reach groundwater and the people who will use the groundwater thousands of years sooner – long before 10,000 years. TCWMEIS also shows peak contamination of groundwater and dose for Plutonium, Uranium and other contaminants far above DWS levels within 10,000 years, yet, GTCC EIS fails to address these cumulative impacts.

W552-32

W552-32 The modeling with the RESRAD-OFFSITE code utilized a specific feature of the code. That is, the leach rates of radionuclides were calculated separately and entered as input values to the code for subsequent transport modeling through the unsaturated zones and the groundwater aquifer. In the process of calculating leach rates to input into the RESRAD-OFFSITE code, the influence of the waste forms was considered. For activated metals, a constant release fraction was assumed, reflecting that the imbedded radionuclides in the metal would not dissolve in water until the metal was corroded. For Other Wastes, the release rates were calculated by considering the retardation provided by grouting; therefore, measured Kd values of radionuclides in cementitious materials as available in published literature were used for the release calculations. For sealed sources, because the waste forms can vary greatly, the release rates were calculated by assuming the waste forms would behave like soils and would not provide extra protection against leaching. The consideration for releases from activated metals was similar to a dissolution mechanism. The consideration for releases from sealed sources was similar to a surface rinse mechanism. The consideration for releases from Other Waste was similar to a surface rinse mechanism, but with non-zero Kds for the waste form.

The integrity of waste packages, waste containers, and barrier materials over time was not specifically modeled in the RESRAD-OFFSITE code. Their performance over time depends on the engineering designs of the disposal facility. Compared with the analysis time frame that extends to 10,000 (or possibly up to 100,000) years into the future, the integrity periods of the waste packages, waste containers, and barrier materials are relatively short. Therefore, in the GTCC EIS, the integrity periods are evaluated as one single parameter, which is assumed to be 500 years in the analysis. To study the influence of this assumption, a sensitivity analysis was conducted. This approach provides a perspective on performance for the long term.

The RESRAD-OFFSITE code, like all codes, has limitations. This code was selected for the GTCC EIS analysis because of its manageable number of input parameters, its comprehensive transport analysis for radionuclides in the unsaturated zones and saturated zone, and its flexibility in accepting radionuclide release rates calculated outside the RESRAD-OFFSITE framework. Furthermore, the RESRAD-OFFSITE code has been benchmarked with other computer codes.

DOE has considered cumulative impacts at the Hanford Site in this GTCC EIS. The disposal of GTCC LLRW and GTCC-like waste at the Hanford Site could result in environmental impacts that may warrant mitigation for Tc-99 and I-129 through limiting receipt of these waste streams (see Table 6.2.4.2 and Figure 6.2.4.1 in this EIS).

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

What Happens if USDOE also buries GTCC wastes at Hanford?

- USDOE misrepresents cancer risks
- 48 millirem dose just from GTCC waste to the people who will use groundwater
- PLUS the 22 millirem dose from the state's unlined leaking commercial radioactive waste dump just to the West of where USDOE proposes to put both GTCC and 3 million cubic feet of other offsite radioactive and hazardous chemical (mixed) radioactive wastes.
- PLUS the dose if USDOE leaves tank leaks in soil and if USDOE dumps the other waste next door

W552-33

W552-33 See response to W552-11.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Cancer Risk

- USDOE is supposed to cleanup to limit dose from all sources to below 15 millirem and 4 millirem in groundwater.
  – Even that is too high = 8 fatal cancers in every 10,000 adults exposed (BEIR VII data)
- GTCC alone adds 48 millirem dose to thousands who may use the groundwater for drinking, irrigation, etc….
- Children are 3 to 10 x more likely to get cancer from the same dose as an adult male
- USDOE misrepresents risk - saying only .00003 latent cancer fatalities. (Table S-4) Fine print: per year. Should show total cancers. GTCC EIS fails to consider high number of people who will use water under reasonable maximum exposure scenarios (e.g., Treaty use) and risk of intrusion.

W552-34

W552-34 All relevant potential exposure pathways were considered in the analyses presented in the EIS. These analyses addressed a range of reasonable scenarios and estimated the potential impacts on all environmental resources consistent with NEPA requirements. For the human health assessment, the focus was on the groundwater pathway, since this is the most likely manner in which someone could be exposed to the radioactive contaminants in the GTCC LLRW and GTCC-like wastes in the distant future. Locations closer than the 100 m (330 ft.) evaluated would result in higher dose and cancer risk estimates. The 100 m (30 ft.) distance was used to be consistent with the minimum buffer zone distance surrounding a DOE LLRW disposal site identified in DOE Manual 435.1-1. As discussed in Section 2.7.4.2, the hypothetical resident farmer scenario was only used to provide estimates for comparing the various sites evaluated; however, this scenario may not be consistent with the reasonably foreseeable future scenario at some of the sites evaluated. Site-specific NEPA reviews would be conducted as needed. This information could include sensitive subpopulations and specific pathways of exposure for American Indians. In a similar fashion, additional cumulative impacts analyses would be conducted by using additional site-specific information when the location selected for a GTCC LLRW and GTCC-like waste disposal facility was determined.

On the basis of the depth of waste disposal, DOE believes that the only reasonable potential for intrusion is from a future drilling event, such as drilling for a well. The likelihood of inadvertent intrusion from a drilling event would be very low for a GTCC waste trench disposal facility because of (1) the narrow width of the trench, (2) the use of intruder barriers, (3) the remoteness of the sites, (4) DOE's commitment to long-term institutional control, (5) site conditions such as the general lack of easily accessible resources and the great depth to groundwater, and (6) waste form stability. On the basis of these considerations, DOE did not include a quantitative analysis of inadvertent human intruder in the EIS. Site-specific NEPA reviews would be conducted as needed.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Cancer Risk continued…

- USDOE misrepresents risk in GTCC EIS saying there will be only .00003 latent cancer fatalities. Fine print: per year.
- Fails to consider high number of people who will use water and risk of intrusion into trenches/vaults which will spread wastes.
  - reasonably foreseeable exposure scenarios include over 1,000 Tribal members per year exposed, heavy agricultural use or development with 1,000 households drawing groundwater (groundwater withdrawals for small subdivisions are unregulated and require no state permits -thus, institutional controls will not prevent use). Battelle / PNNL report forecast agricultural usage downgradient – relying on irigation- after federal control ends

W552-35

- Fails to consider cumulative impacts; e.g., from adjacent IDF and commercial radioactive waste landfills - both add contamination to the same groundwater.

W552-36

W552-35 See response to W552-34.

W552-36 See response to W552-11.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Cancer Risk continued…

- USDOE should be presenting risk in GTCC EIS in same way as is done in Superfund cleanup decision documents: projecting how many cancers per 10,000 exposed.
- Superfund (CERCLA) standard is 1 additional fatal cancer for every 10,000 adults exposed, with Hanford cleanup levels set at 15 mrem.
- Use of trenches or vaults for GTCC is projected to result in doses of 48 and 44 mrem per year. That is > 3 x level for which USDOE is spending billions per year to cleanup Hanford. Adding GTCC waste creates new Superfund cleanup for next generation!

W552-37

W552-38

W552-37 The GTCC EIS is not a CERCLA document. As in other DOE EISs concerning radiological impacts, collective population risks are presented as the number of potential latent cancer fatalities for the population that is exposed. The potential risks are developed in order for DOE to compare between alternatives in order to make an informed decision on disposal of GTCC LLRW and GTCC-like waste. Comparison of impacts against appropriate standards would be considered during the actual design and implementation of a disposal facility.

W552-38 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup efforts at these sites will continue.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Cancer Risk continued

- USDOE fails to present cancer risks to CHILDREN in the GTCC EIS, repeating the same misrepresentation of risk as in prior USDOE EISes. See S-66: "The EIS presents a comparative analysis of the potential radiation doses and LCF risks to members of the general public (as represented by an adult receptor)"
- Unless children are not members of the general public, this statement is misleading and a failure to meet NEPA's requirements to disclose risks to health.

W552-39

W552-39 See response to W552-26.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Cancer Risk continued

- The presentation of risks in summary documents and tables (e.g., Table S-3), which will be used by both decision makers and public, fail to note that the Latent Cancer Fatalities (LCF) presented are solely for adult males from projected exposures.
- The estimates are not made conservative by use of 2L/day drinking water – which is not a conservative level. Children are 3-10x more susceptible to cancer from same dose as an adult. See http://epa.gov/ncea/raf/cancer2003.html "Draft Final Guidelines for Carcinogen Risk Assessment"].

W552-39 (Cont.)

Heart of America Northwest, Commenter ID No. W552 (cont'd)

What About USDOE's "promise" of a waste import moratorium?

- USDOE says it promises not to import and bury waste at Hanford until Vitrification Plant is operational, around 2020 to 2022
- This is an unenforceable promise which USDOE will be free to ignore at any time
- Waiting a few years is designed to eliminate public concern now, but does NOTHING to eliminate all the harmful impacts
- USDOE's credibility is undermined by refusing to withdraw the existing decision to use Hanford as a national radioactive waste dump from 2004; and, refusal to say it would do a new environmental impact statement with hearings before attempting to import waste. Why would USDOE include Hanford NOW, if going to do new EIS and fresh analysis in 2022?

W552-40

W552-40 See response to W552-3.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

USDOE's suggestion it might limit the Technetium and Iodine sent to Hanford in GTCC Waste, to avoid making cumulative impacts worse, is meaningless

- As TCWMEIS data shows, impacts from numerous other radionuclides and chemicals released to Hanford groundwater are projected to exceed Drinking Water and CERCLA / MTCA cleanup standards for thousands of years. GTCC and GTCC Like wastes include Plutonium, which is already projected to exceed the DWS at the Central Plateau Core Zone Boundary by 177 times and at the Rivershore by over 300 times. Chromium is projected to exceed DWS in the Core Zone by 16 x. The GTCC and GTCC like wastes include Plutonium mixed wastes – with chemicals that make the wastes more mobile. Removal of Tc99 and Iodine from GTCC wastes will not prevent unacceptable impacts to groundwater and health from GTCC disposal. Uranium alone is projected to reach levels resulting in doses of over 600 mrem/year from GTCC waste releases.
- USDOE presents no plan for how it would remove Tc99 and Iodine, where such treatment would occur and fails to discuss if treatment exists for the waste streams which would allow removal and disposal at a location other than Hanford.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Key Comments Summarized:

1. NO MORE WASTE CAN GET ADDED TO HANFORD!!! Put "Clean-Up First"
2. Extremely radioactive wastes belong in deep geologic repositories, not in surface landfills
3. USDOE must start over and consider disposing of these wastes in a deep geologic repository in the North American Granite Shield, not limit to sites which USDOE owns
   - USDOE needs to consider reasonable alternatives which reduce the production of these nuclear wastes and use hardened on site storage until there is a repository
4. Hanford poses the highest truck risks

W552-41

W552-42

W552-43

W552-41 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup efforts at this site will continue. DOE's ROD 78 FR 75913, dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions, as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

W552-42 See response to W552-5.

W552-43 The action alternatives evaluated in the GTCC EIS did not include interim storage of GTCC LLRW and GTCC-like wastes until a geologic repository, in granite or otherwise, for spent nuclear fuel and high-level radioactive waste becomes available because such interim storage is outside the scope of the GTCC EIS. The purpose of the GTCC EIS is to evaluate the range of reasonable alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes.

The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

DOE did not evaluate developing a geologic repository, such as in the granite shield, exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Key Comments continued:

5. USDOE needs to redo EIS and reissue for comment with the actual truck routes to Hanford through Oregon and WA and the cumulative risks from USDOE's other proposal to truck 3 million cubic feet of radioactive waste to Hanford
   - Would equal nearly 30,000 truckloads
   - 4 a day to Hanford for decades
   - USDOE needs to show dose and risks based on the maximum allowed radiation dose 1 & 2 meters from the trucks with exposure times based on actual inspection protocols and actual routes and parking.

W552-44

W552-45

W552-44 The primary radiological transportation risk to the public for any alternative is from the low level of radiation emanating from the transport vehicle. As discussed in Section 5.3.9.1, the collective population risk is a measure of the total risk posed to society as a whole. A comparison of the collective population risk provides a meaningful evaluation of the relative risks between disposal locations, as provided in Tables 2.7 5 and 2.7 6. The magnitude of the collective population risk is primarily determined by the number of routes, the length of each route, the number of shipments along each route, the external dose rate of each shipment, and the population density along a given route. The primary differences between alternatives from the standpoint of transportation are the lengths of the routes as determined by the location of the disposal sites (destination of the shipments). Thus, higher collective population risks are associated with alternatives that require transportation over longer distances. All alternatives involve routes that have similar characteristics, with no significant differences for comparison among alternatives, requiring transportation through a range of rural and urban areas. In addition, the routes used in the analysis are considered representative routes (as discussed in Appendix C, Section C.9.4.1.1, because the actual routes used would be determined in the future. For each disposal site, the routes most affected would be the interstate highways that are in closest proximity to the site.

W552-45 The EIS evaluated the transportation impacts from the shipments that would be required to dispose of all of the GTCC LLRW and GTCC-like wastes at the various disposal sites. The EIS addressed the collective population risks during routine conditions and accidents, the radiological risks to the highest exposed individuals during routine conditions, and the consequences to individuals and populations as a result of transportation accidents, including those that could release radioactive or hazardous chemical materials. About 12,600 shipments would be required to transport all of the GTCC LLRW and GTCC-like wastes to the Hanford Site for disposal. This would result in about 50 million km (30 million mi) of highway travel, with no significant addition to the cumulative risks (no expected LCFs and one fatality directly related to an accident might occur for GTCC LLRW and GTCC-like waste transport) (see Section 6.2.9.1).

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Key Comments continued:

6. The cancer risks and groundwater contamination should disqualify use of Hanford for any more offsite wastes

W552-46

7. USDOE has to disclose and consider the total (cumulative) risks from all proposals to add more waste to Hanford in one EIS and the public deserves right to review and comment on that EIS – not just have USDOE say it will combine in a final EIS without public comment. (The GTCC EIS and the TCWMEIS must both be revised to disclose and consider cumulative impacts from the related proposals)

W552-47

W552-46 See response to W552-11.

W552-47 DOE has considered cumulative impacts at the Hanford Site in this GTCC EIS. The disposal of GTCC LLRW and GTCC-like waste at the Hanford Site could result in environmental impacts that may warrant mitigation for Tc-99 and I-129 through limiting receipt of these waste streams (see Table 6.2.4.2 and Figure 6.2.4.1 in this EIS).

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

A preferred alternative is not required to be included in a Draft EIS. The Council on Environmental Quality regulations in 40 CFR 1502.14(e) specify that the section on alternatives in an EIS shall identify the agency's preferred alternative or alternatives, if one or more exists, in the Draft EIS and identify such alternative(s) in the Final EIS unless another law prohibits the expression of such a preference; that is, a preferred alternative shall be identified in the Draft EIS if one exists. If no preferred alternative has been identified at the Draft EIS stage, a preferred alternative need not be included. By the time the Final EIS is filed, 40 CFR 1502.14(e) presumes the existence of a preferred alternative and requires its identification in the Final EIS unless another law prohibits the expression of such a preference.

DOE did not have a preferred alternative at the time of issuance of the Draft EIS because of the complex nature of the proposed action and the potential implications for disposal of GTCC LLRW and GTCC-like wastes. To seek public input on how to identify a preferred alternative for inclusion in the Final EIS, the Draft EIS presented considerations for developing a preferred alternative in the Summary (in Section S.6) and in Section 2.9. As required by 40 CFR 1502.14(e), the Final EIS contains a preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes (see Section 2.10). In developing the preferred alternative, DOE took into consideration public comments on the Draft EIS, public EIS scoping comments, and other factors identified in Sections S.6 and 2.9 of the EIS.

The publication by the EPA of a NOA of the Final EIS in the Federal Register initiated a 30-day public availability or "waiting" period. While the availability period is not a formal public comment period, the public can comment on the Final EIS, including the preferred alternative, prior to final agency action. Comments received will be addressed by DOE in a ROD. As required by the Energy Policy Act of 2005, DOE must submit a Report to Congress that includes the alternatives considered in the EIS and await Congressional action before making a final decision regarding which alternative(s) to implement. The Report to Congress will be made available to the public on the GTCC EIS website (http://www.gtcceis.anl.gov/).

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Key Comments continued:

8. USDOE fails to properly disclose groundwater impacts and health risks:

   USDOE needs to include the groundwater contamination from the leaking adjacent commercial radioactive waste dump – which the State's EIS says will add 22 millirem dose to groundwater users from Uranium on top of USDOE's 48 millirem dose from GTCC waste. USDOE must also add in the contamination risks from projected releases from the adjoining IDF landfill.

W552-48

W552-48 See response to W552-11.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Key Comments continued:

8. *Continued re groundwater and dose*

The GTCC EIS fails to utilize the more realistic modeling for Hanford groundwater contamination spread developed for the TCWMEIS. The result is that the GTCC EIS greatly underestimates contamination, the rate of spread of contamination, and the human health impacts. E.g., The GTCC EIS projects maximum Uranium levels after 10,000 years. More appropriate models show the releases would peak much sooner, increasing the maximum dose and cancer risks during the next ten thousand years. The GTCC EIS fails to report the cancer risk from the peak Uranium levels, because they are projected in the GTCC EIS after 10,000 years. The use of a simpler model that fails to take into account specific subsurface features at Hanford – and, which has been shown to fail to reflect reality – violates commitments made by USDOE that the newer, more detailed model would be used in all upcoming environmental impact statements and other USDOE documents requiring modeling.

W552-49 See response to W552-30.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Key Comments continued:

8. *Continued re groundwater and dose*

The GTCC EIS should present dose in comparison to cancer risk standards in federal and state cleanup laws (CERCLA and MTCA) and using the standard comparison of how many additional cancers will be caused from annual exposure to the projected dose over the lifetime of the exposed individuals; e.g., a dose of 48 millirem per year would result in 24 fatal cancers in adults out of every ten thousand exposed (24E-4).

-USDOE fails to meet NEPA requirements to disclose and present relevant standards from cleanup laws and compare impacts to those standards.

W552-50

W552-50 In accordance with Council on Environmental Quality NEPA implementing regulations, Federal agencies are required to address the environmental impacts of the proposed action and the range of reasonable alternatives, to identify any adverse environmental effects which cannot be avoided, the relationship between short-term uses of man's environment and maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources. The proposed action and alternatives evaluated in this GTCC EIS are specifically focused on determining a suitable location for siting a safe, secure disposal facility or facilities for the disposal of GTCC and GTCC-like waste. DOE has identified relevant laws that may have a bearing on the evaluations contained in the GTCC EIS (see Chapter 13, Applicable Laws, Regulations, and Other Requirements). In addition, Federal agencies are also required, and DOE has addressed, potential impacts of reasonably foreseeable actions, whether they be potentially adverse or beneficial. Accordingly, readers are referred to the cumulative impacts discussion found in Section 5.3.12 of the Evaluation Elements Common to Alternatives 3, 4, and 5 Chapter, and Section 6.4.2 of the Hanford Chapter.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Key Comments continued:

9. 70 millirem dose projected from the cumulative dose from releases from trench disposal of GTCC plus the nearby commercial radioactive waste dump **= approximately 2% risk of fatal cancers in children using the groundwater.*** ***This is a genocidal decision for the Tribes with Treaty rights to live on site and use the water.***

*Based on BEIR VII (Biological Effects of Ionizing Radiation Report VII, 2005, National Research Council, National Academies of Science). USDOE should be utilizing BEIR VII as the basis for all reporting of potential cancers from projected doses, and reporting the projected cancer incidence per ten thousand exposed children and women, rather than using adult male based dose effect figures. 70 millirem dose does not include releases from adjacent IDF landfill, which USDOE proposes to use as a national radioactive waste dump for 3 million cubic feet of offsite LLW and MW. Those cumulative impacts need to be included in the GTCC EIS and vice a versa.

W552-51 See response to W552-26.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

W552-52 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup efforts will continue.

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Heart of America Northwest, Commenter ID No. W552 (cont'd)

Higher Ground Farm, Commenter ID No. W354

From: gtcceiswebmaster@anl.gov
Sent: Thursday, June 23, 2011 1:49 PM
To: gtcceiswebmaster@anl.gov
Subject: Receipt: Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10354

Thank you for your comment, Walter Kloefkorn.

The comment tracking number that has been assigned to your comment is GTCC10354. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 23, 2011 01:48:43PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10354

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Comment Submitted:
The USDOE's environmental impact statement (EIS) on the proposal to use Hanford as a national radioactive waste dump for the extremely radioactive GTCC wastes admits that putting the waste in landfill trenches at Hanford would result in annual radiation doses of 48 millirem per year to the people who will be drinking the groundwater - which flows straight to the Columbia.

That's a radiation level which would cause fatal cancers in approximately 1 to 2.5% of the Native American children living in the area under Yakama, Umatilla and Nez Perce Treaty Rights. W354-1

Those cancer risks and radiation doses do NOT include the doses from the adjacent landfill. Nor does it include the risk from the adjacent state operated UNLINED, leaking soil trenches of the commercial radioactive waste dump at Hanford.

We can't cleanup Hanford and protect our Columbia River while more waste gets dumped at Hanford - Please put Cleanup First!

1.First rule when you're in a hole and can't get out: Stop Digging! Hanford can not be cleaned up if USDOE adds any more waste to be buried in landfills or boreholes - the wastes in existing soil trenches and ditches and from tank leaks need to be removed. W354-2

2. Extremely radioactive wastes belong in deep underground repositories, not in landfills, boreholes or vaults. W354-3

1

W354-1 DOE has considered cumulative impacts at the Hanford Site in this GTCC EIS. The disposal of GTCC LLRW and GTCC-like waste at the Hanford Site could result in environmental impacts that may warrant mitigation for Tc-99 and I-129 through limiting receipt of these waste streams (see Table 6.2.4.2 and Figure 6.2.4.1 in this EIS).

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

Disposition of the GTCC LLRW and GTCC-like wastes will be handled in a manner that is protective of human health and the environment and in compliance with applicable requirements and regulations. Doses to workers and the public will be minimized to the extent practical. The methodology used to estimate the radiological human health impacts in the EIS is based on standard practices that are subject to revision as our understanding of the effects of radiation on humans evolves. The same methodology is used in the evaluation of all alternatives; thus, any modification of this methodology (e.g. taking an even more conservative approach for assessment of the area children) would not affect the comparisons among alternatives and the identification of the preferred alternative.

W354-2 DOE is performing environmental restoration activities at the Hanford Site. The ongoing cleanup efforts will continue.

W354-3 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

Higher Ground Farm, Commenter ID No. W354 (cont'd)

3. Perhaps the most important point: USDOE needs to consider in the EIS how to avoid making more of these highly radioactive wastes. W354-4

4. USDOE has to disclose and consider the total (cumulative) impacts of both of USDOE's separate proposals to use Hanford as a national radioactive waste dump, and all the risks from trucking wastes to Hanford, in one environmental impact statement for the public to review and comment on the full picture. The GTCC EIS needs to disclose that USDOE is also proposing to add 3 million cubic feet of radioactive and chemical wastes to be disposed at Hanford, in addition to the GTCC wastes. W354-5

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

2

W354-4 Stopping the generation of nuclear waste is outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

W354-5 The GTCC EIS evaluates the transportation impacts from the shipments that would be required to dispose of the entire inventory of GTCC LLRW and GTCC-like wastes at the Hanford Site and all the other sites being evaluated.

The GTCC EIS evaluates collective population risks during routine conditions and accidents, radiological risks to the highest exposed individuals during routine conditions, and consequences to individuals and populations as a result of transportation accidents, including the release of radioactive or hazardous chemical materials. For the truck option, it is estimated that about 12,600 shipments resulting in about 50 million km (30 million mi) of travel would be required. This transport of GTCC LLRW and GTCC-like wastes would not result in any LCFs, although one fatality directly related to an accident might occur (see Section 6.2.9.1).

In addition, Chapter 6 of the TC&WM EIS also has evaluated cumulative impacts addressing disposal of potential future wastes (including GTCC LLRW and GTCC-like waste) at the Hanford site.

HOME, Commenter ID No. T45

33

MR. HADDER: Good evening. My name is Jonathan Hadder, H-A-D-D-E-R, and I'm representing an organization, 501-C3 Nonprofit, called "HOME," H-O-M-E, "Healing Ourselves and Mother Earth." We also watch out for nuclear issues in the region, and we will be submitting detailed comments later.

I just have a few general comments, at this time, that I want to put forward, for the record. You know, we recognize that there is a need to deal with Greater-than-Class C waste. Certainly, like, doesn't need to deal with spent nuclear fuel. We already have it. We have to figure out something to do with it.

However, we do feel like the process is a bit premature at this time. As has already been mentioned, the Blue Ribbon Commission has not issued their report to Congress. And, obviously, that document will have a lot to do with policy that follows it, and so we think we're a little premature on that. T45-1

Also, all of these sites do have policy implications because, as was already mentioned, you've got DOE-controlled sites versus places coming from commercial sources. So that's an -- that's an issue as well. T45-2

I guess if we were to have to select an T45-3

T45-1 The scope of this EIS is adequate to inform decision-making for the disposal of GTCC LLRW and GTCC-like waste. Sufficient information is available to support the current decision-making process to identify (an) appropriate site(s) and method(s) to dispose of the limited amount of GTCC LLRW and GTCC-like waste identified in the EIS.

DOE believes that this EIS process is not premature and is in compliance with NEPA. On the basis of an assumed starting date of 2019 for disposal operations, more than half (about 6,700 m^3 [240,000 ft^3] of the total GTCC LLRW and GTCC-like waste inventory of 12,000 m^3 [420,000 ft^3]) is projected to be available for disposal between 2019 and 2030. An additional 2,000 m^3 (71,000 ft^3) would become available for disposal between 2031 and 2035. This information is presented in Figure 3.4.2-1. DOE believes this EIS is timely, especially given the length of time necessary to develop a GTCC waste disposal facility.

The Blue Ribbon Commission (BRC) on America's Nuclear Future, in its final report to DOE on January 26, 2012, provided recommendations, which included the development of one or more permanent deep geologic facilities for the safe disposal of spent nuclear fuel and high-level radioactive waste and the development of one or more consolidated interim storage facilities as part of an integrated, comprehensive plan for managing the back end of the nuclear fuel cycle. In its Strategy for the Management and Disposal of Spent Nuclear Fuel and High Level Radioactive Waste (DOE 2013), developed in response to the BRC Report, the Administration agreed "that the development of geologic disposal capacity is currently the most cost-effective way of permanently disposing of used nuclear fuel and high-level radioactive waste while minimizing the burden on future generations" and proposed to "engage in a consent-based siting process and begin to conduct preliminary site investigations for a geologic repository." The Administration's goal is to have a repository constructed and its operations started by 2048. The Administration will work with Congress using the strategy as an actionable framework for building a national program for the management and disposal of the nation's used nuclear fuel and high-level radioactive waste (DOE 2013).

T45-2 The LLRWPAA (P.L. 99-240) assigns DOE responsibility for the disposal of GTCC LLRW generated by NRC and Agreement State licensees. The LLRWPAA (P.L. 99-240) specifies that GTCC LLRW, designated a federal responsibility under section 3(b)(1)(D) that results from activities licensed by the NRC, is to be disposed of in an NRC-licensed facility that has been determined to be adequate to protect public health and safety. However, unless specifically provided by law, the NRC does not have authority to license and regulate facilities operated by or on behalf of DOE. Further, the LLRWPAA does not limit DOE to using only non-DOE facilities or sites for GTCC LLRW disposal. Accordingly, if DOE selects a facility operated by or on behalf of DOE for disposal of GTCC LLRW for which it is responsible under section 3(b)(1)(D), clarification from Congress would be needed to determine NRC's role in licensing such a facility and related issues. In addition clarification from Congress may be needed on NRC's role if DOE selects a commercial GTCC LLRW disposal facility licensed by an Agreement State rather than by NRC.

T45-3 The No Action Alternative is evaluated in Chapter 3 of the EIS, and under this alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue. These practices are described in Sections 3.2 (GTCC LLRW) and 3.3 (GTCC-like wastes) in the Final EIS. It was necessary to make a number of simplifying assumptions to address the long-term impacts of this alternative, and these are described in Section 3.5. As part of this assessment, it was assumed that these wastes would remain in long-term storage indefinitely, including wastes from the West Valley Site as discussed in Section 3.5.3, and that no maintenance of either the storage facility or waste packages would occur after 100 years. These results indicate that very high radiation doses and cancer risks could occur under this alternative in the long term.

HOME, Commenter ID No. T45 (cont'd)

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T45-3 (Cont.)

alternative, we would have to select the No-Action Alternative. We feel that -- we feel, as many others have stated, that the Department of Energy needs to either reevaluate or actually conduct a proper environmental review of reinforced on-site storage for a number of reasons.

T45-4

This facility, as mentioned, could serve a dual purpose, of course. It could handle spent nuclear fuel, which we need to deal with which, as a reminder, it is also in jeopardy now because it's very dangerously stored at many radioactive -- excuse me -- at many nuclear sites across the country, packed very densely. So we do need to find a better way to do the on-site storage, period.

And the reenforced what they call "HOSS" is one good way to do that. It certainly could handle the Greater-than-Class C waste at the same time. And, also, these facilities would be NRC sites, licensed sites. So you wouldn't have the same kind of agency machinations that we've talked about already here, conflicts between the two.

Security is really one of the things that seems to be driving this process a little bit, that the sealed sources, which has been mentioned earlier, are a terrorist risk. Well, again, this kind of facility can

The No Action Alternative is evaluated in sufficient detail in the EIS as required by NEPA. Comparatively high potential radiation doses and cancer risks could occur should this alternative be selected. While a more detailed analysis could reduce the uncertainties associated with estimating these doses and risks, the conclusion of comparatively high impacts would not change for this alternative.

The No Action Alternative is evaluated in the EIS to provide a baseline for comparison with the action alternatives. This evaluation confirmed the risks posed by these wastes and the need to develop appropriate disposal capability. The potential radiation doses for the No Action Alternative covered a time period of 10,000 years in a manner comparable to that done for the action alternatives. Relatively high impacts could occur shortly after the 100-year institutional control period under this alternative.

T45-4 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

HOME, Commenter ID No. T45 (cont'd)

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be secured as well, and so it could handle all of those, all of those aspects of nuclear waste for the short term, which is what we need. T45-4 (Cont.)

We certainly need an intermediate term solution to the problem that we have now, and the reinforced on-site storage will buy us certainly 100 years, maybe a couple hundred years, to work on that. HOME, also, does not -- also supports dealing with waste as close to the source of generation, as close to the location of generation and to minimize transportation. And, again, this does this. T45-5

So we strongly encourage the Department of Energy to pursue environmental analysis of this alternative which certainly could be part of, in some way, the No-Action Alternative.

A couple of specifics I want to mention. The Draft EIS document, Environmental Impact Statement, does acknowledge, or at least it recognizes the existence of the Treaty of Ruby Valley between the Western Shoshoni Nation and the United States Government. And in that treaty, it outlines the land base of the Western Shoshoni people, which has actually gotten support in international law.

And the Draft EIS does not acknowledge or does not discuss how it's going to deal with the T45-6

T45-5 DOE is responsible under the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240) for the disposal of GTCC LLRW. The purpose of the EIS is to evaluate alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. Continued storage of GTCC LLRW at the generating facilities was evaluated as part of the No Action alternative. Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites for reasons provided in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a more centralized disposal facility would result in lower overall human health risks compared to managing the wastes at multiple locations and can be conducted in a safe manner based on compliance with comprehensive regulatory requirements and past experiences.

T45-6 DOE initiated consultation and communication with the 14 participating American Indian tribes that have cultural or historical ties to the DOE sites analyzed in the EIS. These interactions are summarized in Section 1.8 of the EIS, and they included several meetings, workshops, and the development of tribal narratives that were included in the EIS. In addition to including tribal narratives related to the four sites in the EIS, DOE inquired about tribal interests with regard to the WIPP/WIPP Vicinity and SRS. No tribes came forward in response to the inquiries regarding these two locations. It was not necessary to consult with American Indian tribes with regard to the generic regional locations, since the specific locations of the potential disposal facilities (and the affected tribes) were not known.

In terms of DOE tribal consultation with the Western Shoshone in 1991, the DOE/NNSA Nevada Site Office initiated an American Indian program based on an extensive literature review previously conducted to identify tribal groups with cultural affiliation to the NNSS. Since the inception of this program, NNSA has maintained government-to-government relations by working with each tribal government or designated representatives as a means of addressing areas of interest and providing project updates accordingly.

DOE would continue to consult with the site-affiliated American Indian tribes, as appropriate, during implementation of the selected alternative.

HOME, Commenter ID No. T45 (cont'd)

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T45-6 (Cont.)

concerns raised by the Western Shoshoni Nation and that land base being used to dispose of radioactive waste, which it has historically opposed. And I think that that was also mentioned earlier. So that should be addressed more in detail in the document, and including negotiations with the Western Shoshoni on that issue.

Another point, another point that's also been raised is the transportation issues, specifically with the National -- the Nevada Nuclear Security Site.

T45-7

Also, the section which discussed potential contamination from disturbing the soil in constructing the site didn't -- there wasn't -- I didn't see very much data on the radioactive inventory of the soil. I think there should be. At least that should be discussed. That should be in the document so that people know whether it's there or not.

A number of years ago, there was supposed to be a large explosion test called "Divine Strake" in that test site. There was much more detailed analysis there, and I think there should be -- that analysis should be included in the EIS as well.

T45-8

Also, I'd like to correct something in the document. It does not acknowledge that groundwater is a potential contamination pathway from the Nevada Test Site, the NNSA site, NNSS. It's mostly a concern on

T45-7 In 2006, NNSA prepared an environmental assessment and determined that radioactively contaminated soils are not present within the vicinity of the proposed DIVINE STRAKE detonation, DOE 2006 Large-Scale, Open-Air Explosive Detonation, DIVINE STRAKE, at the Nevada Test Site.

T45-8 The NNSS SWEIS under Section 5.1.6.2.1.2 presents data on groundwater monitoring. Groundwater monitoring at the Area 5 RWMC indicates that no contamination of groundwater resources has occurred as a result of waste management activities. Annual modeling concludes that no groundwater pathway exists for this disposal facility. Given the depth to groundwater at the waste disposal facilities and the stringent operating controls and monitoring programs, LLW and MLLW disposal operations are not expected to adversely affect groundwater resources.

HOME, Commenter ID No. T45 (cont'd)

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the west side from the underground testing period, and it may not be a direct concerned site.

But in the site characterization section of the Environmental Impact Statement, it does not acknowledge that as a potential contamination pathway, and it should acknowledge it. This is a public document. So it's an opportunity for people to see what's going on in the site and what kind of analysis is there. So we definitely recommend that that be also included.

T45-8 (Cont.)

That concludes our comments now. I appreciate the time taken for this. We also support that we shouldn't be creating more of what we don't know what to do with.

T45-9

Thank you very much.

T45-9 Stopping the generation of nuclear waste is outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

Honor our Pueblo Existence (HOPE), Commenter ID No. T87

Capital Reporting Company 32

MR. BROWN: Marian Naranjo is our next speaker and I think Beata Tsosie will follow you.

MS. NARANJO: Thank you.

My name is Marian Naranjo. I am the founder and director of Honor our Pueblo Existence or Hope.

Our organization is a community-based organization located at Khapo O'Wingate, or Santa Clara Pueblo.

One of our missions is to address environmental issues of concern because of our relationship to our ancestral homelands within the Pajarito Plateau or the Haemus Mountains, a place that has sustained our life ways since time immemorial, the place where DOE, NNSA, LANL now claims landlordship.

Because of time restraints for this hearing and for the record, I would like to state the HOPE will be sending in depth written comments. These comments T87-1

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Honor our Pueblo Existence (HOPE) – T87

T87-1 The site-specific environmental factors identified by commenters such as seismic issues were evaluated in the EIS as appropriate. The results of the evaluation were taken into consideration in identifying the preferred alternative presented in the Final EIS.

DOE is performing environmental restoration activities at LANL. The ongoing cleanup efforts will continue.

DOE acknowledges that many of the adjacent lands surrounding the LANL site are sacred to the Pueblo people.

Honor our Pueblo Existence (HOPE), Commenter ID No. T87 (cont'd)

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will oppose GTCC waste being transported to a place that has seismic issues, a place that the landlords have not made a decision on what to do with its current nuclear waste problem, and a place that is sacred to Pueblo people.

T87-1 (Cont.)

I believe this act would further desecrate our sustainable life ways both environmentally and spiritually. Before the government agencies and for-profit corporate entities continue the nuclear power cycle, it would be wise to go back to the drawing boards and establish a complete plan that would include a safe, forever disposal of the waste that has been created and really think and consider and invest in alternative energy for the future.

T87-2

This shell game of moving nuclear waste, whether it is ABC or GTCC, from place to place has been a practice in this country since day one of the nuclear age, and it's old school. It's time actually to be frank. This situation, as United States citizen, is quite embarrassing. If you have no place for it, then why make it?

T87-3

If a state chooses nuclear power, then that

T87-4

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T87-2 Even though it is beyond the scope of this GTCC EIS, the comment is noted. This GTCC EIS addresses the potential environmental impacts associated with the proposed development, operation, and long-term management of a disposal facility or facilities for GTCC low-level radioactive waste (LLRW) and DOE GTCC-like waste.

T87-3 Stopping the generation of nuclear waste is outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

T87-4 DOE is responsible under the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240) for the disposal of GTCC LLRW. The purpose of the EIS is to evaluate alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. Continued storage of GTCC LLRW at the generating facilities was evaluated as part of the No Action alternative. Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites for reasons provided in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a more centralized disposal facility would result in lower overall human health risks compared to managing the wastes at multiple locations and can be conducted in a safe manner based on compliance with comprehensive regulatory requirements and past experiences.

Honor our Pueblo Existence (HOPE), Commenter ID No. T87 (cont'd)

Capital Reporting Company 34

state should deal with the whole cycle, which includes the waste. We have no nuclear power plants here in New Mexico. So why is this now our problem?

T87-4 (Cont.)

INL Site Environmental Management, Commenter ID No. L3

11-CAD-006

INL Site Environmental Management
CITIZENS ADVISORY BOARD

June 22, 2011

Arnold Edelman, EIS Document Manager
Office of Environmental Management
U.S. Department of Energy
Cloverleaf Building, EM-43
1000 Independence Avenue, SW
Washington D.C. 20585
arnold.edelman@em.doe.gov

Subject: Comments Draft Environmental Impact Statement (EIS) for the Disposal of Greater Than Class C (GTCC) Low-Level Radioactive Waste and GTCC Like Waste (DOE/EIS-0375-D)

Dear Mr. Edelman:

Please find attached the Idaho National Laboratory Environmental Management Citizens Advisory Board's recommendation regarding the Draft Environmental Impact Statement (EIS) for the Disposal of Greater Than Class C (GTCC) Low-Level Radioactive Waste and GTCC Like Waste.

We appreciate the opportunity to provide comments.

Best Regards,

Willie Preacher,
Chairman

cc: Cate Brennan, DOE-HQ
Jim Cooper, DOE-ID
Bob Pence, DOE-ID
INL EM CAB Members and Liaisons
Letter transmitted electronically

INL Site Environmental Management, Commenter ID No. L3 (cont'd)

INL Site Environmental Management
CITIZENS ADVISORY BOARD

Comments on the Draft Environmental Impact Statement (EIS) for the Disposal of Greater Than Class C (GTCC) Low-Level Radioactive Waste and GTCC Like Waste (DOE/EIS-0375-D)

The Department of Energy (DOE) recently released the Draft Environmental Impact Statement (EIS) for the Disposal of Greater-Than-Class-C (GTCC) Low-Level Radioactive Waste and GTCC Like Waste (DOE/EIS-0375-D). In conjunction with the release of this draft EIS, the DOE also has conducted public meetings in Idaho Falls, ID, as well as opening a 120-day public comment period.

The Environmental Management (EM) Site-Specific Advisory Board in Idaho, locally known as the Idaho National Laboratory Site EM Citizens Advisory Board (CAB) has been briefed on this draft EIS, and a CAB member attended the public meeting held in Idaho Falls, ID. The CAD had also provided comments on this EIS as part of the scoping process in 2007 (Recommendation #133).

The purpose of this recommendation is to provide the CAB's comments on this draft EIS.

The CAB notes that no preferred alternative has been identified in this draft EIS, but it does identify the INL as a potential site for the disposal of these waste forms.

The INL has a long history of involvement in the management of radioactive waste generated by DOE and its predecessor agencies. In general, the citizens of Idaho have supported the INL role in managing the agency's waste. In 1988, due to the amount and types of waste being brought into the INL from outside the state, and the lack of long-term disposal strategies for some of these wastes, then Governor Cecil Andrus instituted a moratorium on DOE waste shipment into the state. This moratorium ultimately resulted in a Settlement Agreement between the DOE and the State of Idaho (1995). This agreement set forth conditions under which radioactive wastes at the INL would be managed. It also defined a framework under which spent nuclear fuel could be received and managed at the INL. The Settlement Agreement has never identified GTCC Low-Level Radioactive Waste and GTCC Like Waste to be brought into the state of Idaho–INL.

The action by Governor Andrus received wide-spread public support at the time. It has also been supported by all subsequent governors. It also continues to be supported by the public.

L3-1 The current EM mission at the INL is to complete the clean-up of EM facilities, and to meet the requirements of both the Idaho Settlement Agreement and the current Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) records of decision. The current plans call for completing the EM mission at INL by the end of 2015. Completion of the EM mission early at INL has been identified by DOE as having the potential for significant cost saving.

L3-2 In addition, the neighboring Shoshone-Bannock Tribes do not support the idea of having the INL as a potential disposal location for the GTCC Low-Level Radioactive Waste and GTCC Like Waste.

In conclusion, the INL EM CAB is opposed to consideration of the INL as a potential disposal location for GTCC Low-Level Radioactive Waste and GTCC Like Waste because:

- Such action would be in conflict with previously negotiated agreements between DOE and the State of Idaho.
- Based on the experience of the INL EM CAB, the citizens of the State of Idaho do not support such an action.
- Such action would be in conflict with the current EM mission for the INL.

RECOMMENDATION #148 June 22, 2011
Page 1

L3-1 DOE is performing environmental restoration activities at INL. The ongoing cleanup efforts will continue.

L3-2 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

International Source Suppliers and Producers Association (ISSPA), Commenter ID No. L100

ISSPA

INTERNATIONAL SOURCE SUPPLIERS AND PRODUCERS ASSOCIATION

SAFE AND SECURE AT THE SOURCE

www.isspa.com

17 June 2011

Dr. Ines Triay, Assistant Secretary for Environmental Management
U.S. Department of Energy
1000 Independence Ave. SW
Washington, DC, 20585

Dear Dr. Triay:

The International Source Suppliers and Producers Association (ISSPA) is an association that is comprised of companies who are international industry leaders in the manufacture, production and supply of sealed radioactive sources and/or equipment that contain sealed radioactive sources as an integral component of the radiation processing or treatment system, device, gauge or camera.

ISSPA strongly supports the need for a GTCC waste repository in the USA. As an integral part of the safety infrastructure of the US, many sealed sources that are utilized in beneficial applications in the medical and industrial sectors meet the greater than Class C disposal criteria. If there is no available final waste repository for these sources at the end of their useful life, companies that manufacture these sources may elect to not support these vital activities.

If no action is taken to address the disposal challenges associated with GTCC waste, disused sealed sources will likely be stored at generator sites creating an increased security risk. L100-1

As part of its Code of Good Practice, ISSPA members commit to safely manage the cradle to grave life cycle of the sealed sources. One key aspect of this is assuring the final disposal of the source. A GTCC repository is necessary to ensure the continued safe management of sealed sources.

We would be happy to discuss in more detail or provide additional information if needed.

Sincerely,

Grant Malkoske
Chairman, ISSPA

447 March Road, Ottawa, Ontario K2K 1X8 Canada TEL +1 613 762 0282 FAX +1 613 592 9001

International Source Suppliers and Producers Association (ISSPA) – L100

L100-1 Comment noted. The alternatives presented in the GTCC EIS address the disposal of sealed sources.

ISSUE, Commenter ID No. T115

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MR. FERGUSON: I've got three minutes to discuss the next 30,000 years or more, so I'll make it quick. I was hoping to speak when there was more people in the room, but thanks for everybody coming out on this beautiful evening to sit in a windowless room.

How many would come out to help me block a train track or a railroad? Get them up there (indicating). I mean, that's what -- so obviously nobody said, oh yeah, ship it to Hanford. So nobody wants it, and if the DOE is not going to listen to the public here, we're going to bear witness to an injustice, and we're going to get out there and stop these shipments, nonviolently, peacefully, and with love in our hearts. So can I see those hands again? You can make a little tally. T115-1

So shut them down. Shut the plants down. Stop creating the waste. T115-2 Keep it on site. T115-3 No action as far as the EIS is concerned. Take no action. T115-4 No transporting those wastes. Let's end nuclear power. Let's stop doing any sort of fission whatsoever. We've got alternatives. Clean, renewal energy. The roadblocks are political. Take that message back to Washington, D.C. That's what everybody says around

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T115-1 DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

T115-2 Stopping the generation of nuclear waste is outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

T115-3 DOE is responsible under the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240) for the disposal of GTCC LLRW. The purpose of the EIS is to evaluate alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. Continued storage of GTCC LLRW at the generating facilities was evaluated as part of the No Action alternative. Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites for reasons provided in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a more centralized disposal facility would result in lower overall human health risks compared to managing the wastes at multiple locations and can be conducted in a safe manner based on compliance with comprehensive regulatory requirements and past experiences.

T115-4 The No Action Alternative is evaluated in Chapter 3 of the EIS, and under these alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue. These practices are described in Sections 3.2 (GTCC LLRW) and 3.3 (GTCC-like wastes) in the Final EIS. It was necessary to make a number of simplifying assumptions to address the long-term impacts of this alternative, and these are described in Section 3.5. As part of this assessment, it was assumed that these wastes would remain in long-term storage indefinitely, including wastes from the West Valley Site as discussed in Section 3.5.3, and that no maintenance of either the storage facility or waste packages would occur after 100 years. These results indicate that very high radiation doses and cancer risks could occur under this alternative in the long term.

The No Action Alternative is evaluated in sufficient detail in the EIS as required by NEPA. Comparatively high potential radiation doses and cancer risks could occur should this alternative be selected. While a more detailed analysis could reduce the uncertainties associated with estimating these doses and risks, the conclusion of comparatively high impacts would not change for this alternative.

The No Action Alternative is evaluated in the EIS to provide a baseline for comparison with the action alternatives. This evaluation confirmed the risks posed by these wastes and the need to develop appropriate disposal capability. The potential radiation doses for the No Action Alternative covered a time period of 10,000 years in a manner comparable to that done for the action alternatives. Relatively high impacts could occur shortly after the 100-year institutional control period under this alternative.

ISSUE, Commenter ID No. T115 (cont'd)

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here, not just me.

I also represent a newly formed student group at Portland State called, ISSUE, the International Students Supporting Universal Equality. Check us out at orgzynz.org. That's O-R-G-S-Y-N-Z.O-R-G, and that's open to, you know, anybody in the community. So thanks for coming out, and have a good evening.

League of Women Voters, South Carolina, Commenter ID No. T1

5

MS. SUZANNE RHODES: Thank you very much, Holmes and Mr. Edelman. Whoever picked this location gets an A-plus. It is the most beautiful public meeting I've been to. It's a nice place to even walk around. I am Suzanne Rhodes. I am here today representing the League of Women Voters in South Carolina. The League has a long history of leadership and citizen action and education on nuclear issues in South Carolina. Currently we are concerned regarding proposals to bring even more of the nation's greater-than-class C waste to Savannah River. The SR team already has extensive health and safety responsibilities for much of the nation's legacy curies and there are no exit strategies really. The site is large but the soil could allow rapid contamination and movement of groundwater in

T1-1

League of Women Voters, South Carolina – T1

T1-1 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

DOE is performing environmental restoration activities at the Hanford Site, INL, LANL, NNSS, and SRS. The ongoing cleanup efforts at these sites will continue.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

League of Women Voters, South Carolina, Commenter ID No. T1 (cont'd)

event of accidents, and that was obviously recognized in EIS. More than 30 years ago South Carolinians stood almost alone in urging federal attention for the permanent management of defense waste accumulated at Savannah River Site and elsewhere. Actually several of the governments got together and tried to apply some leverage in connection with another project. The League was part of the concerned community in South Carolina and today the League strongly opposes proposals that suggest we become a storage site for even more defense waste as well as commercial nuclear waste which so far we pretty well kept off the SRS site. We wish to credit the managers of the site as they have made important progresses from the legacy waste at SRS and also the movement of plutonium and other weapons materials from other nations to the SRS for safekeeping. We did not oppose that by any means and it has serious challenges. The League applauds the ingenious strategy that was taken to expedite waste management by taking advantage of funds from the American Recovery and Reinvestment Act, the stimulus monies. Using those monies SRS trained local workers, some previously unemployed, to repack the transuranic waste among other activities. Much of this TRU waste has been or will be shipped to the only permanent nuclear waste geologic storage site in the world. I

League of Women Voters, South Carolina, Commenter ID No. T1 (cont'd)

7

hope I haven't picked my words too carefully but U.S. really does have the only permanent site, and that of course is New Mexico in Carlsbad. Well, that's great but many other TRU wastes are at SRS and they're not ship-able and will remain there indefinitely. The League definitely supports proper management of existing waste for on-site storage at SRS. We anticipate that those greater-than-class C waste already at SRS will remain there in a safe manner and that's reasonable. We think it's reasonable. But we think transporting more waste to SRS is neither fair nor reasonable and I'm really T1-2 glad that Mr. Edelman mentioned the Nuclear Waste Policy Act limitation. But I think a combination of a no-action alternative and some sort of HOSS consideration should be considered for these T1-3 greater-than-class C waste. Nothing in the act is sacred. We've already broken several of the pieces for very good reasons and this would be another one that deserves some serious consideration. Because although not part of the original plan the current practice of default nuclear waste storage at existing defense and commercial sites has been our goal for the most part. Professionals at these sites are knowledgeable and respectful of their responsibilities. Transporting waste generates more wastes. It creates citizen concern and it's expensive. Unless there is a site

T1-2 Same response as for T1-1

T1-3 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

The No Action Alternative is evaluated in Chapter 3 of the EIS, and under this alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue. These practices are described in Sections 3.2 (GTCC LLRW) and 3.3 (GTCC-like wastes) in the Final EIS. It was necessary to make a number of simplifying assumptions to address the long-term impacts of this alternative, and these are described in Section 3.5. As part of this assessment, it was assumed that these wastes would remain in long-term storage indefinitely, including wastes from the West Valley Site as discussed in Section 3.5.3, and that no maintenance of either the storage facility or waste packages would occur after 100 years. These results indicate that very high radiation doses and cancer risks could occur under this alternative in the long term.

The No Action Alternative is evaluated in sufficient detail in the EIS as required by NEPA. Comparatively high potential radiation doses and cancer risks could occur should this alternative be selected. While a more detailed analysis could reduce the uncertainties associated with estimating these doses and risks, the conclusion of comparatively high impacts would not change for this alternative.

The No Action Alternative is evaluated in the EIS to provide a baseline for comparison with the action alternatives. This evaluation confirmed the risks posed by these wastes and the need to develop appropriate disposal capability. The potential radiation doses for the No Action Alternative covered a time period of 10,000 years in a manner comparable to that done for the action alternatives. Relatively high impacts could occur shortly after the 100-year institutional control period under this alternative.

League of Women Voters, South Carolina, Commenter ID No. T1 (cont'd)

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specific safety issue all nuclear waste should remain where they are until we have a permanent plan and it's been demonstrated and South Carolina should surely not receive any more of the nation's nuclear waste. Thank you very much.

Legions of Living Light, Commenter ID No. L294

DRAFT ENVIRONMENTAL IMPACT STATEMENT for the
DISPOSAL OF GREATER THAN-CLASS C (GTCC) LOW-LEVEL
RADIOACTIVE WASTE AND GTCC-LIKE WASTE
(DOE/EIS-0375-D)
U.S. Department of Energy

WRITTEN COMMENT FORM
Must be received on or before June 27, 2011

Mr. ____ Mrs. ____ Ms. X Mr. & Mrs. ____ Dr. ____

Name: Bonnie Bonneau

Title: General Secretary

Organization: Legions of Living Light

Address: PO Bx 351

City: El Prado State: n mex Zip Code: 87529

Phone: 575-737-5099 E-Mail Address:

Comment: P1-3 L-34-5 "The decision to protect the general public for up to 10,000 years" was deminished to 500 years of theoretical saftey. Neither time is adequate for poison lasting millions of years. None of this plan is based on existing knowledge of the accelerated rate of deterioration of any material contaminated by radiation. The baseline data is missing, and trying to extrapolate 65 years of experience into 500 or 10,000 years is beyond impossible. L294-1

Please use other side if more space is needed.

WITHHOLDING OF PERSONAL INFORMATION: Information you provide on this form may be published as part of the public record for this project, including publication on the Internet. Individual respondents may request confidentiality by checking one of the two boxes below. The DOE will honor such requests to the extent allowed by law. All submission from organizations and businesses, or from individuals identifying themselves as representatives or officials of organizations or businesses, will be available to the public in their entirety.

☐ **Withhold my name and address from the public record.**

☐ **Withhold only my address from the public record**

Comment forms may be mailed to:
Mr. Arnold Edelman
Document Manager
Office of Regulatory Compliance (EM-43)
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0119

Hi again

Comment form may be faxed to:
(301) 903-4303

or sent by electronic mail to:
gtcceis@anl.gov

L294-1 DOE recognizes that some of the waste considered contains radionuclides that pose potential human health risks for extended periods of time and that modeling potential releases of these radionuclides from the conceptual disposal sites far into the future approximates what might actually occur. In performing these evaluations, a number of engineering measures were included in the conceptual facility designs to minimize the likelihood of contaminant migration from the disposal units. No facility design can guarantee that radionuclide migration from the facility would not occur over and beyond a 10,000-year time period. Sufficient detail was included in the proposed conceptual land disposal facility designs for use in the EIS analyses, consistent with the current stage of this process. Some of the waste form and site characteristic input values may change in the future and could result in higher impacts (such as from increased precipitation at some sites due to climate change), while others could result in lower impacts (due to decreased precipitation).

DOE believes that 500 years is not an unrealistic time period for the longevity of the types of engineering barriers assumed in the analyses. DOE believes the approach and the assumptions used in the EIS are reasonable for performing the comparative analysis of alternatives required by NEPA. For example, the assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS (Phifer et al. 2007) that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study. DOE believes that the assumptions made to support the long-term modeling calculations for the groundwater pathway are reasonable and enable a comparative evaluation of the impacts between alternatives. The results of the evaluation presented in the EIS are sufficient to inform the selection of sites and methods for disposal. Follow-on project-specific and site-specific NEPA reviews would be conducted as needed.

Legions of Living Light, Commenter ID No. L294 (cont'd)

2/2

How long vitrification will last is also theory.
Disposal is a lazy option when the need is to
neutralize the elements. DOE spends billions to
produce these toxins and needs to have a [illegible]
big project to find ways to make them safe again.
Hiding them anywhere for a short fraction of the
time they are lethal, this is a short term answer
but does not truly protect our earth or lives. Can
you project the impacts when the 500 years is
over? By then none can hold you responsible.
How will the earth change? Oceans rising, plates
shifting, volcanoes [illegible], population migrations,
mutant species.... The Rocky Mountains were once
underwater. Change is a constant and any plan
presuming the status quo as a basis is inadequate.
Before telephones & electric wires, gas pipe lines
and such infrastructure, life was perhaps not so
[illegible], but it was good in [illegible] ways
we cannot know.
What was learned from Fukushima? NTS?
does the trend to pride, greed and denial
have a way to evolve into caring or understanding?
You need to re-examine this proposal in
a sustainable, long term perspective and
re-think the options and variables with better
data and less politics. Thanks
[illegible]

L294-2

L294-2 The EIS considered the range of reasonable alternatives for disposal of the inventory of GTCC LLRW and GTCC-like wastes identified for inclusion in these analyses. Treatment options, such as trying to "neutralize" the elements, was considered to be outside the scope of the EIS because the purpose of the EIS is to show the disposal alternatives of GTCC versus treatment of GTCC.

DOE recognizes that modeling potential releases of radionuclides from the conceptual disposal sites far into the future approximates what might actually occur. Sufficient detail was included in these designs for use in the EIS analyses, consistent with the current stage of this process. Some of the input values may change in the future and could result in higher impacts (such as from increased precipitation at some sites due to climate change), while others could result in lower impacts (due to decreased precipitation).

Loretto Community, Commenter ID No. E76

Picel, Mary H.

From: penny mcmullen <pmsl@cybermesa.com>
Sent: Monday, June 27, 2011 12:35 PM
To: gtcceis@anl.gov
Cc: Congressman Ben R Lujan; Senator Jeff Bingaman; Matt (Tom Udall) Miller
Subject: DOE GTCC EIS

Arnold Edelman, Document Manager
DOE GTCC EIS
Cloverleaf Bld., EM-43
1000 Independence Avenue, SW
Washington, DE 20585

Dear Mr. Edelman:

Please accept these comments from the Loretto Community of Sisters and comembers. I have been working on nuclear issues for 33 years, and am authorized to speak for the Loretto Community on these issues.

The Loretto Community opposes disposing Greater-Than-Class-C (GTCC) waste at the Waste Isolation Pilot Project (WIPP), the Los Alamos National Lab (LANL), or anywhere in New Mexico, for a number of reasons.

WIPP

The Federal Government agreed NOT to bring commercial waste to WIPP in exchange for New Mexico agreeing to receive the transuranic waste (plutonium-contaminated from weapons work). Allowing GTCC waste in WIPP would open the door for commercial waste. As one speaker said in the Jan. 28 public meeting, New Mexico kept its part of the bargain by allowing WIPP to open for transuranic waste, and now the Federal Government is considering breaking its agreement. E76-1

If the Department of Energy (DOE) breaks its promise, then the State of New Mexico would no longer be bound by its agreement to accept ANY waste in WIPP.

The theory that salt will safely encase waste containers is based on the salt being dry. But the salt at WIPP is not dry, and wet salt will eventually corrode the waste containers. E76-2

The karst formations at WIPP could quickly spread any leakage into the ground water and Pecos River, affecting not only New Mexico but also Texas and the nation of Mexico.

Some WIPP officials testified to the safety of transportation. It is good that no WIPP truck drivers were responsible for an accident. But New Mexico has a high drunk driver accident rate. There was an accident near Las Vegas where it took 90 minutes for first responders to arrive, and they didn't have any radiation detectors. Such equipment is not provided for every community along every route to WIPP. So how can anyone claim that there was never any radiation leakage? E76-3

Several proclaimed at the public meeting that the WIPP model "worked" and "is successful." First of all, I wonder if that is true -- I have heard stories from people in Carlsbad that at least one worker died there from radiation exposure. Even if it were true, the fact that it has "worked" so far wouldn't mean it will continue to "work" for many generations into the future, especially with wet salt and karst formations. E76-4

Supporters mentioned several times in the Albuquerque meeting that people clapped and cheered during the first shipment. I believe those people were from the Carlsbad area. They didn't mention the many people who demonstrated against it, wailing along the route, which I witnessed.

1

Loretto Community – E76

E76-1 Disposal of GTCC LLRW and GTCC-like wastes at WIPP or the WIPP Vicinity site is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. In addition, site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal.

However, NEPA does not limit an EIS to proposing and evaluating alternatives that are currently authorized. Furthermore, the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: "The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., Public Law [P.L.] 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions."

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts for all resource areas evaluated, including human health and transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

E76-2 The WIPP has been certified by the EPA as an acceptable facility for the disposal of defense-generated TRU waste. The physical and chemical characteristics of the GTCC LLRW and GTCC-like wastes proposed for disposal in the WIPP repository are comparable to the TRU wastes currently being disposed of in the repository.

Dissolution has occurred outside of the WIPP Land Withdrawal Boundary, as shown by karst features in the Nash Draw area. The EPA has noted that it is possible that dissolution occurred at the WIPP site sometime in the distant past (i.e., millions of years ago for strata-bound features) but was associated with a geologic setting other than that currently present at WIPP. However, dissolution in the underlying geology is not an ongoing process at the WIPP site. The EPA, as part of its compliance certification process, concurred with the modeling performed by DOE (which assumed that there was no karst within the WIPP site boundary) and indicated that this was consistent with existing borehole data and other geologic information.

Loretto Community, Commenter ID No. E76 (cont'd)

...ting, 33 people raised their hands to show opposition to GTCC coming to WIPP. Given the number of industry and government officials attending, that is a substantial percentage of the public. It is true that no one from the public living in Carlsbad spoke against it, but when I visited Carlsbad, I was told by Carlsbad citizens that they are afraid to speak up because of violent retaliation in the past. E76-4 (Cont.)

LANL

The GTCC waste should not be shipped to LANL, either, because of the many seismic, fire, safety and security problems at the Lab. E76-5

The Lab sits atop a complex 29-mile-long fault system. As a result of a new study mapping earthquake danger in the area, the Defense Nuclear Facilities Safety Board, in a unanimous decision, reported that there is a 5% chance of a big earthquake within 50 years, and that the potential fatal public doses from a plutonium release during earthquake-induced fires have been estimated to exceed DOE guidelines by more than 100-fold. E76-6

In 2004 nuclear operations at Los Alamos were suspended for six months due to grave safety concerns, and yet long-standing safety issues remain unresolved. One example: the Institute for Energy and Environmental Research has found that about 300 kilograms of plutonium (enough to make 60 bombs) is missing from LANL's nuclear materials records, increasing the possibility that it could get into the hands of terrorists.

Former Pennsylvania State Police Commissioner Glenn Walp was hired to investigate lapsed security after 9/11. In his recent book Implosion at Los Alamos, Walp describes a lax security culture of corruption, crime, coverups and whistleblower retaliation, where the Lab's "image" is more important than safety or security. E76-7

And now, in order to cut costs, Los Alamos is considering the elimination of some of the facility's fire suppression systems and ventilation equipment intended to prevent plutonium from leaking in the event of an earthquake and fire! Today as I write this, a huge fast-moving fire is burning just one mile from the LANL property. If the fire enters the property, the waste there could be affected, potentially harming everyone downwind. With global warming, we can expect more dry weather and fires in New Mexico, and the waste sitting up at LANL is a serious hazard. The current waste needs to be removed ASAP, rather than bringing more waste to an already contaminated area.

NEW MEXICO

The Loretto Community's position is that no GTCC waste should be dumped anywhere in New Mexico. New Mexico already has more than its share of risks from the nuclear industry. The Rio Grande and our ground water already contain radionuclides and other toxins from the Los Alamos and Sandia Labs. While some people living near the WIPP site see this proposal as a chance to provide a few more jobs, we see it as environmental injustice -- dumping toxic and radioactive waste on minority and low-income populations. E76-8

One of the BRC members mentioned that there were agreements to generator sites that the waste would be moved off-site and the BRC doesn't want to break those agreements. Why are those states more important than New Mexico? Those promises should not have been given when there was no known site available. DOE can tell those sites that they tried to find a suitable repository but were unsuccessful. E76-9

NEW EIS WITH HOSS ALTERNATIVE

DOE needs to write a new Environmental Impact Statement that includes Hardened On-Site Storage (HOSS) to encase current waste on site where it is generated, rather than risking transportation through American communities and into our state which is already too contaminated, and especially not in such unsafe locations as WIPP and LANL. E76-10

NO MORE NUCLEAR ENERGY

GTCC waste comes from the production of nuclear power, and it is time we stop creating it. While nuclear power is promoted as clean because it doesn't emit much carbon dioxide when the consumer uses it, every aspect of producing nuclear energy contributes to global warming. Instead, we need to invest in sustainable energy that does not present such huge waste disposal problems. France, often touted as an example of a nation using nuclear energy, has found that the waste problem is monumental. European nations are beginning to move away from nuclear energy into alternative sources such as wind, solar and biomass. By the time any new nuclear power plants can be operational in our country, nuclear energy will be obsolete. E76-11

2

WIPP is located in a salt formation, and moisture (brine) is naturally present. The brine makes up about 1% of the rock volume. The brine comes in two forms: interstitial and included. Interstitial brine is trapped between crystal facies (between fracture boundaries at the microscopic scale). Included brine is inside small cavities called inclusions trapped within the crystals themselves. Samples of brine collected from locations just inches apart from one another show different chemical and isotopic compositions, indicating that the brine did not move more than a few inches from where it was trapped when an ancient tidal flat dried up 250 million years ago. This indicates the extremely slow movement of water in this salt formation. In addition, the current design for operating WIPP involves sealing the shafts to ensure that no fresh water can enter and affect the disposed-of wastes.

WIPP is surrounded by various natural resources – including potash, oil, and natural gas – as identified in Section 4.2.2.2 of this EIS. Resource considerations were included in the site selection process for WIPP and are documented in the Final Environmental Impact Statement, (Waste Isolation Pilot Plant, in Section 7.3.7). Disposal of GTCC LLRW and GTCC-like wastes at WIPP would not invalidate the WIPP site selection decision

E76-3 DOE is responsible under the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240) for the disposal of GTCC LLRW. The purpose of the EIS is to evaluate alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. Continued storage of GTCC LLRW at the generating facilities was evaluated as part of the No Action alternative. Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites for reasons provided in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a more centralized disposal facility would result in lower overall human health risks compared to managing the wastes at multiple locations and can be conducted in a safe manner based on compliance with comprehensive regulatory requirements and past experiences.

The EIS evaluates the transportation impacts from the shipments that would be required to dispose of all of the GTCC LLRW and GTCC-like wastes at each of the reference locations evaluated. The EIS addresses the collective population risks during routine conditions and accidents, the radiological risks to the highest exposed individuals during routine conditions, and the consequences to individuals and populations as a result of transportation accidents, including those that could release radioactive or hazardous chemical contaminants. The EIS also evaluated the impact of intentional destructive acts that could occur during waste handling, transportation, and disposal (see Section 2.7.4.3 of the EIS). The potential risk of such destructive acts is estimated to be low. DOE sites considered in the EIS are secure, and the packaging for the GTCC LLRW and GTCC-like wastes would be robust. Because GTCC LLRW and GTCC-like wastes are not readily dispersible, the potential physical impacts from an intentional destructive act (e.g., an explosive blast) would be no greater than those from the release of any radioactivity from a severe accident during waste handling, transportation, and disposal.

DOE's requirements for transportation of radioactive waste are developed and continually revised to ensure maximum protection of public health and the environment, thereby minimizing the risk of a traffic accident. DOE has established a comprehensive emergency management program that provides detailed, hazard specific planning and preparedness measures to minimize the health impacts of accidents involving loss of control over radioactive material or toxic chemicals. DOE's transportation emergency preparedness program was established to ensure that DOE and its contractors, state, tribal, and local emergency responders are prepared to respond promptly, efficiently, and effectively to accidents involving DOE shipments of radioactive materials. Should an accident occur that involves a release of radioactive material to the environment, it would be promptly remediated in accordance with these procedures. These measures would help DOE to minimize and mitigate any impacts on the environment.

Loretto Community, Commenter ID No. E76 (cont'd)

The production of nuclear energy presents all the same hazards to workers and the environment that go with producing nuclear weapons. For this reason the Loretto Community in 1979 made working to end the production of both nuclear weapons and nuclear energy one of our main missions as "an urgent moral imperative."

At the Albuquerque hearing, Bob Neill compared the number of people exposed to radiation for medical reasons to those exposed from power plants, saying people accept the risks for the benefits. There are two problems with this analogy. First, it's not the number of people that matter as the amount of radiation exposure. And second, many in the medical profession now admit that people are receiving too much radiation from medical tests -- the human race is waking up to the cumulative danger of radiation.

So what can we do? First, stop creating nuclear waste and develop truly clean energy. I urge DOE to go to the website for the Institute for Energy and Environmental Research (ieer.org) and study the report called "Carbon-Free and Nuclear-Free" -- we don't need nuclear energy. Second, use the HOSS alternative for current waste. E76-11 (Cont.)

The Loretto Community has been serving the people of New Mexico for 159 years, and the health of this Land of Enchantment and the health of future generations of New Mexicans is one of our highest social justice priorities. I hope you will listen to the public, not just to the nuclear industry and government officials, and take our comments seriously.

Sincerely,

Penelope McMullen, SL
Regional Justice and Peace Coordinator
Loretto Community
113 Camino Santiago
Santa Fe, NM 87501

505-983-1251
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cc: President Obama
Senator Tom Udall
Senator Jeff Bingaman
Congressman Ben Ray Lujan

3

E76-4 Detailed exploration and sampling of the subsurface area surrounding the WIPP repository prior to and subsequent to construction, in conjunction with detailed modeling, provide evidence that WIPP will continue to 'work' for many generations. Dissolution has occurred outside of the WIPP Land Withdrawal Boundary, as shown by karst features in the Nash Draw area. The EPA has noted that it is possible that dissolution occurred at the WIPP site sometime in the distant past (i.e., millions of years ago for strata-bound features) but was associated with a geologic setting other than that currently present at WIPP.

However, dissolution in the underlying geology is not an ongoing process at the WIPP site. The EPA, as part of its compliance certification process, concurred with the modeling performed by DOE (which assumed that there was no karst within the WIPP site boundary) and indicated that this was consistent with existing borehole data and other geologic information.

Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites for reasons provided in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a more centralized disposal facility would result in lower overall human health risks compared to managing the wastes at multiple locations and can be conducted in a safe manner based on compliance with comprehensive regulatory requirements and past experiences.

Comments on the Draft GTCC EIS could be made by letter, e-mail, or in person at the public meetings held near the potential disposal sites. Any person fearing reprisal based on their opinions could have requested that their name be withheld from identification when submitting comments by letter or e-mail.

E76-5 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository. Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

E76-6 Site-specific environmental factors, such as seismic or other natural features, as identified by commenters for all of the DOE sites, were taken into account and evaluated in the EIS as appropriate. The results of the evaluation were taken into consideration in identifying the preferred alternative presented in the Final EIS.

E76-7 DOE is performing environmental restoration activities at the LANL. The ongoing cleanup efforts will continue.

Site-specific environmental factors, including wildfires, were taken into account and evaluated in the EIS as appropriate. The results of the evaluation were taken into consideration in identifying the preferred alternative presented in the Final EIS.

Loretto Community, Commenter ID No. E76 (cont'd)

E76-8 All relevant potential exposure pathways were considered in the analyses presented in the EIS. These analyses addressed a range of reasonable scenarios and estimated the potential impacts on all environmental resources, including environmental justice, consistent with NEPA requirements. Environmental justice impacts to residents of New Mexico were addressed in Sections 4.2.7, 8.2.7, and 11.2.7 in the EIS.

E76-9 DOE is responsible under the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240) for the disposal of GTCC LLRW. The purpose of the EIS is to evaluate alternatives for the safe and secure disposal of GTCC LLRW and GTCC-like wastes. Continued storage of GTCC LLRW at the generating facilities was evaluated as part of the No Action alternative. Transportation of GTCC LLRW and GTCC-like wastes from generating facilities to a GTCC LLRW disposal facility is a required component of the disposal process that would be identified for the GTCC LLRW and GTCC-like wastes because the disposal site(s) or location(s) would not be the same as the generator sites for reasons provided in the EIS. DOE believes that the transportation of GTCC LLRW and GTCC-like wastes to a more centralized disposal facility would result in lower overall human health risks compared to managing the wastes at multiple locations and can be conducted in a safe manner based on compliance with comprehensive regulatory requirements and past experiences.

E76-10 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

E76-11 Stopping the generation of nuclear waste, ensuring the safety of nuclear power plants, and promoting alternative energy sources are outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

Loretto Community, Commenter ID No. T100

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MR. BROWN: Is Bonnie here?

Okay. There were two sign-up sheets. So okay. We'll make sure your name is on the other sheet to receive printed materials. Okay.

Penelope McMullen, and then Teresa Schreck is after Penelope.

MS. McMULLEN: I'm Penelope McMullen with the Loretto community, and my comments will be brief because I will be submitting longer written, extensive comments.

The State of New Mexico agreed to allow the opening of WIPP for weapons related waste on the condition that waste from commercial power plants would never be allowed in the waste isolation pilot plant. Allowing greater-than-Class-C waste in WIPP would open the door for commercial waste, and the promise DOE made will be broken. T100-1

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Loretto Community – T100

T100-1 Disposal of GTCC LLRW and GTCC-like wastes at WIPP or the WIPP Vicinity site is included in the range of reasonable alternatives and is evaluated in this EIS. DOE acknowledges that only defense-generated TRU waste is currently authorized for disposal at the WIPP geologic repository under the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and that legislation would be required to allow disposal of waste other than TRU waste generated by atomic energy defense activities at WIPP and/or for siting a new facility within the land withdrawal area. It would also be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. In addition, site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads) as well as the proposed packaging for disposal.

However, NEPA does not limit an EIS to proposing and evaluating alternatives that are currently authorized. Furthermore, the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant recognizes that the mission of WIPP may change and provides provisions to modify the agreement. For example, the Agreement states: "The parties to this Agreement recognize that future developments including changes to applicable laws (e.g., Public Law [P.L.] 96-164) may make it desirable or necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions."

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts for all resource areas evaluated, including human health and transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

Loretto Community, Commenter ID No. T100 (cont'd)

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The State of New Mexico and New Mexico citizens would never again trust federal government promises and will resist any future agreements with the Department of Energy. And if DOE breaks its promise, then the State of New Mexico would no longer be bound by its agreement to accept any waste at WIPP.

The Loretto community's position is that DOE should develop a new environmental impact statement that includes hardened on-site storage which is safer than trucking the waste through our neighborhoods and safer than putting the waste in WIPP, which is not really as safe as DOE would like us to believe.

The salt beds in WIPP are not dry, and wet salt corrodes containers and harsh conditions would eventually cause radioactive leaks into the Pecos River.

Also, most GTCC waste is from nuclear power plants, and it is time to retire those plants and put government subsidy into renewable energy sources.

(Applause.)

MS. McMULLEN: Which some European nations are now doing precisely because the waste is too big a

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T100-1 (Cont.)

T100-2

T100-3

T100-4

T100-2 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

T100-3 The WIPP has been certified by the EPA as an acceptable facility for the disposal of defense-generated TRU waste. The physical and chemical characteristics of the GTCC LLRW and GTCC-like wastes proposed for disposal in the WIPP repository are comparable to the TRU wastes currently being disposed of in the repository.

Dissolution has occurred outside of the WIPP Land Withdrawal Boundary, as shown by karst features in the Nash Draw area. The EPA has noted that it is possible that dissolution occurred at the WIPP site sometime in the distant past (i.e., millions of years ago for strata-bound features) but was associated with a geologic setting other than that currently present at WIPP. However, dissolution in the underlying geology is not an ongoing process at the WIPP site. The EPA, as part of its compliance certification process, concurred with the modeling performed by DOE (which assumed that there was no karst within the WIPP site boundary) and indicated that this was consistent with existing borehole data and other geologic information.

WIPP is located in a salt formation, and moisture (brine) is naturally present. The brine makes up about 1% of the rock volume. The brine comes in two forms: interstitial and included. Interstitial brine is trapped between crystal facies (between fracture boundaries at the microscopic scale). Included brine is inside small cavities called inclusions trapped within the crystals themselves. Samples of brine collected from locations just inches apart from one another show different chemical and isotopic compositions, indicating that the brine did not move more than a few inches from where it was trapped when an ancient tidal flat dried up 250 million years ago. This indicates the extremely slow movement of water in this salt formation. In addition, the current design for operating WIPP involves sealing the shafts to ensure that no fresh water can enter and affect the disposed-of wastes.

T100-4 Stopping the generation of nuclear waste and promoting alternative energy sources are outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

Loretto Community, Commenter ID No. T100 (cont'd)

Capital Reporting Company 76

problem. It's time we wake up.

Thank you.

Mayor's Office, City of Carlsbad, New Mexico, Commenter ID No. T28

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MR. JANWAY: Good evening. I'm Dale Janway. I'm mayor of the city of Carlsbad. Thank you for the opportunity to offer your views on this extremely important matter.

The federal government is responsible to find a disposal facility for GTCC waste, a type of low-level waste generated through medical isotope production, environmental clean-up, deep space exploration, and other programs.

Given our current national financial crisis, using an existing facility rather than constructing and operating a new one is clearly the smartest move. I urge you to consider WIPP as the preferred alternative for disposal of Greater-Than-Class-C waste.

GTCC waste is similar to what's already at WIPP. WIPP provides a ready-to-go solution for most of the WIPPs being discussed, which emits low levels of radiation comparable to what is now being disposed of at WIPP.

Greater-Than-Class-C waste can safely be disposed of at WIPP using procedures that have been in place for the last 12 years. WIPP has a proven record of the disposal options being considered. WIPP already has an established record of safe operations. WIPP has a transportation system in place responsible for more than 11 million loaded miles without a serious accident or

T28-1

Mayor's Office, City of Carlsbad, New Mexico – T28

T28-1 Based on the GTCC EIS evaluation and WIPP's operating record, DOE believes that the WIPP repository would be a safe location for the disposal of GTCC LLRW and GTCC-like wastes, some of which include long-lived radionuclides. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require modification to existing law. In addition, it would be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit.

The State of New Mexico has indicated a willingness to accept GTCC LLRW and GTCC-like wastes for disposal at WIPP. Twenty-eight New Mexico State Senators signed a proclamation made in the Fiftieth Legislature, First Session, 2011, stating: "Be it resolved that we, the undersigned, support the opportunity for other potential missions in southeast New Mexico to adequately address the disposal of defense high-level waste, commercial high-level waste, Greater Than Class C LLRW and surplus plutonium waste, as well as the interim storage of spent nuclear fuel." In response to the Draft GTCC EIS, Secretary David Martin, Secretary of the New Mexico Environment Department, sent a letter to DOE on June 27, 2011, stating that "the Department encourages DOE to support the WIPP or WIPP Vicinity proposed locations as the preferred alternatives addressed in the Draft EIS. The geologic repository is the favored alternative being more effective for the enduring time frames for this waste type." In addition, the Governor of New Mexico, in a letter to DOE Secretary Steven Chu on September 1, 2011, stated that the State of New Mexico encourages DOE to support the proposed location of WIPP as the preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes.

Mayor's Office, City of Carlsbad, New Mexico, Commenter ID No. T28 (cont'd)

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release of radioactive material. WIPP also has a highly-skilled workforce in place to safely dispose of GTCC waste.

Having a supportive community is also important, and members of the Carlsbad community and residents of southeastern New Mexico are very much in favor of using WIPP's unique repository to better assist the nation. It's the safest option for the nation.

T28-1 (Cont.)

The other options being considered by the DOE do not isolate GTCC waste to the same degree. WIPP's depth, nearly half a mile underground, and its geologic stability make it an ideal option for disposal of such waste.

Remote isolation of salt is a permanent way to reduce risk to human health and the environment. Thank you.

Mayor's Office, City of Carlsbad, New Mexico, Commenter ID No. T35

Our next speaker is Bob Forrest.

MR. FORREST: Yeah, thank you very much. My name is Bob Forrest. I've been the mayor of Carlsbad for the last 16 years and a City Councilor for five years, involved for 25 years, but lived in Carlsbad for the last 65 years. Probably the best part of Carlsbad is to see people come out like tonight and talk from their heart. We try give them brief notes to read off of. They just get away from it and just speak from the heart. It's just unbelievable, our success. I kind of wish sometimes I would have written a book to see how this happened, and we've been doing it for 30 years. This is why we've been holding over 200 hearings, and the first ones were pretty tough up in Santa Fe.

Everybody likes a success story, and when we started with WIPP, I guess in 1975, '76, probably 35 percent of the people approved of the project, and today it's close to 95 percent, and that just doesn't happen. When you look at Carlsbad and when you look at WIPP and the success story, then you look at Yucca Mountain and see all the failures, and you say, "What happened?"

Well, it was one thing. It's called the community, and they never had that community support that we have here in Carlsbad, and it's stronger all the time. And people ask me all the time, they say, "What one thing

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makes WIPP successful?"

And I just have to say, "It's those salt beds out there. They're 250 million years old."

I'm a salesman. To be a good salesman, you've got to have a product to sell. And when you're selling projects like this, safety is the number one issue. And if you can sell it to the public and convince them, you're going to get a lot of support, and that's what's happened.

I can remember being in Santa Fe in 1990 when the halls were packed with people in Sweeney Hall. Had five hearings going on at one time. And I come home and I told my wife, "These people are going to lay down in front of the trucks." I said, "We'll never get WIPP open."

We overcame that. I can remember all the signs in Santa Fe that set another business against WIPP. They're all gone today. I can remember standing in Santa Fe and almost looking up and seeing Los Alamos and seeing those trucks of transuranic waste sitting on asphalt pads. And today they're down near 2,100 feet underground. I remember when Rocky Flats was on fire, literally on fire 10 miles from downtown Denver. Today it's a wild refuge. You couldn't ask for a cleaner area.

I remember when Cecil Andrus, the governor of Idaho closed the border, said, "No more waste."

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All that waste is now at WIPP. And then you see the RH permit, that happened seven years after it took 30 years to get WIPP open. We had the hearing officer. We had our hearings, and I never will forget what the hearing officer said. He said, "The one thing that impresses me most about Carlsbad is the knowledge of the citizens of the workforce."

And you got a dose of Norbert tonight. He corrects everybody. Having people like that in our community, we probably have more Ph.Ds per capita other than Los Alamos. We've got some of the highest capital income. It's just changed the lifestyle of Carlsbad. But still, it's a safe project. We got the RH permit passed, and now this is the next step, and I think the Greater-Than-Class-C waste will fit the WIPP site. We'll treat it like we have the rest of it. We'll dot all the I's, cross all the T's, and we take this very serious.

The Japan accident, what happened over there, you know, I thought there'd be an uproar, maybe a little backlash in Carlsbad, "See, I told you what would happen."

But today, we look at that, and we look at their mistakes and what happened, and the two things that come out of that accident are, you better watch where you put it. If it's close to earthquakes or tsunamis, well, hell, you couldn't get further from it than southeastern New

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Mexico.

And infrared is going to be part of our future. When I first became mayor in '86, Ben Johnson, the most powerful senator in Congress, the senate came to Carlsbad, and he was at Yucca Mountainside. And he looked at West Texas, and he looked at Yucca Mountain, and he looked at Hanford. He came to the WIPP site and he saw that, and he said, "This is the place to put it."

We got Governor Carruthers down here. This was '86 or '87, and he went back to Washington, Pete Domenici, and Senator Bingaman had a stroke, got back to Carlsbad and said, "Hey, let's take it one step at a time. Let's get WIPP open, then we can go for the RH."

And I think the third step is this Greater-Than-Class-C, but to me, to put this waste in Los Alamos when we're trying to clean Los Alamos up doesn't make much sense. Next to WIPP -- you know, it has to be out of the questions. We have the infrastructure. We have the knowledge, we have the expertise and the workforce, and we have everything going for us right here in Carlsbad, so I think it's a no-brainer. But I do appreciate you having the hearing and giving us a chance to show you Carlsbad and see what we're doing. But thank you very much for coming.

T35-1

T35-1 Based on the GTCC EIS evaluation and WIPP's operating record, DOE believes that the WIPP repository would be a safe location for the disposal of GTCC LLRW and GTCC-like wastes, some of which include long-lived radionuclides. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require modification to existing law. In addition, it would be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit.

The State of New Mexico has indicated a willingness to accept GTCC LLRW and GTCC-like wastes for disposal at WIPP. Twenty-eight New Mexico State Senators signed a proclamation made in the Fiftieth Legislature, First Session, 2011, stating: "Be it resolved that we, the undersigned, support the opportunity for other potential missions in southeast New Mexico to adequately address the disposal of defense high-level waste, commercial high-level waste, Greater Than Class C LLRW and surplus plutonium waste, as well as the interim storage of spent nuclear fuel." In response to the Draft GTCC EIS, Secretary David Martin, Secretary of the New Mexico Environment Department, sent a letter to DOE on June 27, 2011, stating that "the Department encourages DOE to support the WIPP or WIPP Vicinity proposed locations as the preferred alternatives addressed in the Draft EIS. The geologic repository is the favored alternative being more effective for the enduring time frames for this waste type." In addition, the Governor of New Mexico, in a letter to DOE Secretary Steven Chu on September 1, 2011, stated that the State of New Mexico encourages DOE to support the proposed location of WIPP as the preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes.

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MR. BROWN: Thanks very much.

Next speaker. I forgot my reading glasses at home. So if you can you spell your name, for the court reporter. Thanks.

MR. ZABARTE: I didn't write legibly.

Good evening. My name is Ian Zabarte. That's

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I-A-N. Last name is Zabarte, Z as in zebra, -A-B, as in boy, -A-R-T-E.

I'm the Vice President of the Native Community Action Council, which is composed of Western Shoshoni and Southern Paiute. It's a nonprofit. The address for the Native Community Action Council is Post Office Box 140, Baker, Nevada 89311.

I also have comments on behalf of the Traditional Government of the Western Shoshoni, the government of Newe Sogobia under Chief Raymond Yowell. For those of you who think that the Western Shoshone National Council is a legitimate government, it is not. I was formally the Secretary of State. I have a new government. Chief Yowell is the chief of that government and was formerly the chief of the Western Shoshoni National Council.

Now, for those of you who like to talk on behalf of the Western Shoshoni, just stop it. That includes the Department of Energy. Just stop it. It's not helpful.

T47-1

First, the Native Community Action Council would like a point of contact with the Department of Energy sufficiently high enough that we can have some meaningful communication. Meeting with the Secretary

T47-2

T47-1 DOE initiated consultation and communication with the 14 participating American Indian tribes that have cultural or historical ties to the DOE sites analyzed in the EIS. These interactions are summarized in Section 1.8 of the EIS, and they included several meetings, workshops, and the development of tribal narratives that were included in the EIS. In addition to including tribal narratives related to the four sites in the EIS, DOE inquired about tribal interests with regard to the WIPP/WIPP Vicinity and SRS. No tribes came forward in response to the inquiries regarding these two locations. It was not necessary to consult with American Indian tribes with regard to the generic regional locations, since the specific locations of the potential disposal facilities (and the affected tribes) were not known.

In 1991, the DOE/NNSA Nevada Site Office initiated an American Indian program based on an extensive literature review previously conducted to identify tribal groups with cultural affiliation to the NNSS. Since the inception of this program, NNSA has maintained government-to-government relations by working with each tribal government or designated representatives as a means of addressing areas of interest and providing project updates accordingly.

DOE would continue to consult with the site-affiliated American Indian tribes, as appropriate, during implementation of the selected alternative.

T47-2 The responsible officer within the Department of Energy when dealing with Tribal Governments is the Secretary of Energy. U.S. Department of Energy, 1000 Independence Avenue, SW Washington, DC 20585

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of Energy is preferable. We would like to know who the responsible officer of the United States Government is in dealing with Native Americans.

Because we contacted the headquarter's office for the point of contact there, and it just goes around, whether it's the web page or the telephone. You call, and it doesn't go anywhere. That is the problem we've had. And Action Council seeks greater involvement and participation in DOE waste management activities.

T47-2

Now, these comments that I'm starting are on behalf of the Western Shoshoni Traditional Government. If there is a so-called representation of Western Shoshoni National Council, then they should come and speak. Unfortunately, their so-called chief has accepted money for the payment of land, and that's not the government that I'm a part of and most of the traditional people that I represent are a part of.

The tribal IRA, federally recognized under Title 25 of the United States Code are U.S.

government protectors. They do not speak on behalf of the legitimate government of the Newe Sogobia. No Newe -- no non-Newe is able to speak on behalf of the government of Newe Sogobia. That means no non-Shoshoni. The government of Newe Sogobia

T47-3

T47-3 The No Action Alternative is evaluated in Chapter 3 of the EIS, and under this alternative, current practice for storing GTCC LLRW and GTCC-like wastes would continue. These practices are described in Sections 3.2 (GTCC LLRW) and 3.3 (GTCC-like wastes) in the Final EIS. It was necessary to make a number of simplifying assumptions to address the long-term impacts of this alternative, and these are described in Section 3.5. As part of this assessment, it was assumed that these wastes would remain in long-term storage indefinitely, including wastes from the West Valley Site as discussed in Section 3.5.3, and that no maintenance of either the storage facility or waste packages would occur after 100 years. These results indicate that very high radiation doses and cancer risks could occur under this alternative in the long term.

The No Action Alternative is evaluated in sufficient detail in the EIS as required by NEPA. Comparatively high potential radiation doses and cancer risks could occur should this alternative be selected. While a more detailed analysis could reduce the uncertainties associated with estimating these doses and risks, the conclusion of comparatively high impacts would not change for this alternative.

The No Action Alternative is evaluated in the EIS to provide a baseline for comparison with the action alternatives. This evaluation confirmed the risks posed by these wastes and the need to develop appropriate disposal capability. The potential radiation doses for the No Action Alternative covered a time period of 10,000 years in a manner comparable to that done for the action alternatives. Relatively high impacts could occur shortly after the 100-year institutional control period under this alternative.

Prior to making a final decision on disposal of GTCC waste, consultations with affected tribal governments will take place.

Native Community Action Council, Commenter ID No. T47 (cont'd)

proposes no action, the No-Action Alternative.

The U.S. does not own Newe Sogobia, which includes the Nevada Test Site, Nellis Air Force bombing gunnery raids, so-called Nye County, White Pine, Lincoln, Humboldt, and a few other counties. About 40,000 square miles to the west, including parts of California, Idaho, and Southern Utah. I use those state names for reference purposes and not to suggest or imply that they are included into the boundaries or jurisdiction of Newe Sogobia.

T47-3 (Cont.)

For those of you who need more history, you can look at the federal statute creating the territory of Nevada. The Nevada Organizing Act in 1861 states that no portion of Indian country will be included in the boundaries and jurisdiction of any state or territory, blah, blah, blah. So long as such shall not -- as long as there's a treaty, blah, blah, blah. We'll submit this in writing.

And for those of you who need to see what this means and how or what affect this federal statute has, you should look at the 1883 Nevada Supreme Court case, "State vs. McKinney." That is controlling here, Folks, and it plays out the issue.

There is the Treaty of Ruby Valley. What happened was in 1864, when Nevada became a state, the

T47-4

T47-4 See response to T47-1.

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Nevada State Act required that the citizens of Nevada forever disclaim all rights, title to the unappropriated public lands. Unfortunately, the treaty lands were not surveyed under the Nevada Organizing Act, as they should have been.

The DOE -- this is our NEPA contention now. That was the legal contention to this EIS process. Now I have a NEPA contention. The DOE continues to use the consolidated group of tribes as a tool to undermine the traditional Newe people. The process was developed by Dr. Richard Stoffel (phonetic) who continues to orchestrate the systematic dismantlement of the living culture of the Newe. This is a focused process designed to systematically destroy the ethnic Western Shoshoni.

T47-4 (Cont.)

The current involvement process for Native Americans is for the benefit of the United States and profit of the nuclear industry -- all of those industries, whether they be medical or commercial, the process is a violation of the U.N. Convention on prevention and punishment of the crime of genocide and the U.S. Act, the Proxmire Act.

As far as nuclear technology, I view nuclear technology and in discussions with my Traditional Elders, we view the technology, whether it's coal or oil or nuclear, the problem is the large-scale

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deployment of these technology, we cannot see what is going to happen. We have global warming. We have Fukushima. We have Chernobyl. We have three --

UNIDENTIFIED SPEAKER: Two-mile Island?

MR. ZABARTE: Place back in Pennsylvania. Yeah, Two-Mile Island.

Anyway, you know, that -- Two-Mile Island was three days -- or excuse me. That was three months, a newly refueled reactor. It had six hours or so with no coolant and lost 30 percent of the core. Fukushima had six to ten days with no coolant and a four-year-running thermally hot reactor. Apples and oranges as far as accidents go, but these are serious events. We cannot foresee what is going to happen with these types of technology.

So when I look at these, they exist. Nuclear exists. Coal, oil, these things are cheap. They need to be viewed as transition technologies until we can get to the safe and sustainable technologies. They are not safe and sustainable, and we need to get there before it's too late. We'll have to use them. The sustainable technologies are solar and wind.

Those are the end of my comments. We're looking for a point of contact. We're going to prosecute our -- we're going to prosecute these issues T47-5

T47-5 See response to T47-2.

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with the United States. T47-5 (Cont.)

Thank you.

Natural Resources Defense Council (NRDC), Commenter ID No. W556

Abplanalp, Jennifer Marie

From:	gtcceiswebmaster@anl.gov
Sent:	Monday, June 27, 2011 8:04 PM
To:	mail_gtcceisarchives; gtcceiswebmaster@anl.gov; gtcceis@anl.gov
Subject:	Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10556
Attachments:	saltstone_RAIs_dec2010_GTCC10556.pdf

Thank you for your comment, Geoffrey Fettus.

The comment tracking number that has been assigned to your comment is GTCC10556. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 27, 2011 08:04:08PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10556

First Name: Geoffrey
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Privacy Preference: Don't withhold name or address from public record
Attachment: saltstone RAIs dec2010.pdf

Comment Submitted:
Please see attached.

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

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Natural Resources Defense Council (NRDC) – W556

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

NRDC
THE EARTH'S BEST DEFENSE

June 27, 2011

Via Electronic Mail

Mr. Arnold M. Edelman
EIS Document Manager
U.S. Department of Energy
GTCC EIS
Cloverleaf Building, EM-43
1000 Independence Ave., S.W.
Washington, D.C. 20585

RE: NRDC Comments on the Draft Environmental Impact Statement for the Disposal of Greater-Than-Class-C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D)

Dear Mr. Edelman:

In 2007 the Natural Resources Defense Council (NRDC) wrote the Department of Energy (DOE) to withdraw its Notice of Intent Prepare an Environmental Impact Statement (EIS) for the Disposal of Greater-Than-Class-C Low-Level Radioactive Waste. 72 Fed. Reg. 40135, July 23, 2007. We stated that the Notice of Intent (NOI) failed to comply with the requirements of the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321, et seq. and failed to provide any comprehensible description of the waste inventory to be managed, the regulatory structure to be in place for the management and disposal process, the criteria for site selection or methods of disposal, and the range of alternatives being considered. After we suggested withdrawing the NOI, we urged the agency to promptly work on issuing an Advanced Notice of Intent to Prepare a Programmatic Environmental Impact Statement (PEIS).

W556-1

Unfortunately, DOE has, in significant measure, ignored the comments we filed in 2007 and issued a Draft Environmental Impact Statement for the Disposal of Greater-Than-Class-C Low-Level Radioactive Waste and GTCC-Like Waste (Draft GTCC DEIS, DOE/EIS-0375-D) that is legally and technically deficient. As with the original NOI notice, the GTCC DEIS fails to comply with the requirements of the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321, et seq. and specifically fails to provide the necessary hard look at the potential environmental impacts of the (too limited) alternatives considered. As we suggested in 2007, after withdrawal of this Draft GTCC EIS and in order to be in compliance with NEPA, the agency should promptly work to issue an Advanced Notice of Intent to Prepare a Programmatic Environmental Impact Statement (PEIS).

W556-1 The scope of this EIS is adequate to inform decision-making for the disposal of GTCC LLRW and GTCC-like waste. Sufficient information is available to support the current decision-making process to identify (an) appropriate site(s) and method(s) to dispose of the limited amount of GTCC LLRW and GTCC-like waste identified in the EIS.

DOE believes that this EIS process is not premature and is in compliance with NEPA. On the basis of an assumed starting date of 2019 for disposal operations, more than half (about 6,700 m^3 [240,000 ft^3] of the total GTCC LLRW and GTCC-like waste inventory of 12,000 m^3 [420,000 ft^3]) is projected to be available for disposal between 2019 and 2030. An additional 2,000 m^3 (71,000 ft^3) would become available for disposal between 2031 and 2035. This information is presented in Figure 3.4.2-1. DOE believes this EIS is timely, especially given the length of time necessary to develop a GTCC waste disposal facility.

DOE developed this EIS to support a decision on selecting a disposal facility or facilities for GTCC LLRW and GTCC-like waste, to address legislative requirements, to address national security concerns (especially for sealed sources), and to protect public health and safety. The purpose and need for the proposed action, as discussed above, is stated in the EIS (Section 1.1). The scope of the EIS is focused on addressing the need for developing a disposal capability for the identified inventory of GTCC LLRW and GTCC-like wastes. DOE plans a tiered decision-making process, in which DOE would conduct further site-specific NEPA reviews before implementing an alternative ultimately selected on the basis of this EIS.

DOE explained in the WM PEIS (DOE, 1997, *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste*, DOE/EIS-0200-F, Office of Environmental Management, Washington, D.C.) that additional analyses would be prepared to implement DOE's programmatic decisions. The GTCC EIS analyzes the potential environmental impacts associated with the disposal of GTCC LLRW and GTCC-like (DOE) wastes. Since the WM PEIS relates only to DOE waste, the inclusion of commercial waste in the WM PEIS is premature until the GTCC EIS is finalized and a ROD is issued. Depending on the outcome of this ROD, DOE will evaluate whether additional programmatic or site-specific NEPA reviews or updates to previous decisions are needed, as appropriate. Any additional NEPA reviews or considerations will be conducted with full opportunity for public input, consistent with Council on Environmental Quality and DOE NEPA requirements.

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For decades, it has been an accepted premise that Greater-Than-Class-C Low-Level Radioactive Waste (GTCC LLW) is not suitable for near-surface disposal. *See* 10 C.F.R. § (a)(2)(iv). In May of 2005, DOE broached the matter of GTCC LLW disposal with an Advanced Notice of Intent to Prepare an EIS for the Disposal of GTCC LLW. In its July 2007 NOI, DOE proposed a number of disposal sites that were limited solely to DOE sites, selection of which were not based upon a set of objective and protective environmental criteria. DOE also proposed to create a new construct of waste classification, defense-derived "GTCC-like waste," and to construct and operate either a new facility, or, in the alternative, multiple facilities at these pre-selected DOE sites to dispose of both commingled GTCC LLW and GTCC-like waste. And now in the Draft GTCC EIS, DOE has purportedly analyzed a "no-action" alternative and four disposal alternatives:

> (1) deep geologic disposal, (2) intermediate-depth borehole disposal, (3) enhanced near-surface trench disposal, and (4) above-grade vault disposal. The latter three methods are hereinafter referred to as the borehole, trench, and vault disposal methods, as appropriate. The effectiveness of these disposal methods is evaluated at an existing repository and at various GTCC land disposal locations.

W556-1 (Cont.)

Draft GTCC EIS at 1-4.

As explained below, DOE's examination of the presented alternatives is both truncated and seriously deficient. DOE should reverse course and commence work on a PEIS, with the express understanding that significant additional NEPA work will need to be done (i.e., singular tiered EIS's for specific site decisions) after all the parties have had an opportunity to weigh in on the wider programmatic decisions.

NRDC Statement of Interest

NRDC is a national non-profit membership environmental organization with offices in Washington, D.C., New York City, San Francisco, Chicago, Los Angeles and Beijing. NRDC has a nationwide membership of over one million combined members and activists. NRDC's activities include maintaining and enhancing environmental quality and monitoring federal agency actions to ensure that federal statutes enacted to protect human health and the environment are fully and properly implemented. Since its inception in 1970, NRDC has sought to improve the environmental, health, and safety conditions at the nuclear facilities operated by DOE and the civil nuclear facilities licensed by the NRC and their predecessor agencies.

DOE Should Prepare a PEIS To Meaningfully Examine the Range of Alternatives.

In response to our request for a PEIS, the Draft GTCC EIS states that those comments were considered to be outside the scope of the EIS. The Department noted:

> This EIS has been scoped to provide adequate environmental information to support the decision-making process to identify an appropriate site(s) and technology(s) to dispose of a limited amount of GTCC LLRW and GTCC-like

W556-2

W556-2 DOE does not agree that a programmatic EIS as described in this comment must be prepared before this EIS is completed. DOE tailored the scope of this EIS to ensure the analyses will adequately inform the decisions at issue, including the selection of sites and technologies for the disposal of GTCC and GTCC- like waste. This EIS presents the environmental information needed to adequately inform decision makers regarding many of the questions and points raised in this comment; other questions and points raised remain outside of the scope of this document. DOE plans a tiered decision making process in which DOE would conduct further site-specific NEPA reviews before implementing an alternative ultimately selected on the basis of this EIS.

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> waste. If appropriate, DOE would conduct further NEPA review, tiered from this EIS, before implementing decisions."

Draft GTCC EIS at A-12.

That response is inadequate and fails to describe matters that have been raised in support of a PEIS, let alone providing a reasoned basis for DOE's failure to draft the requested PEIS. Moreover, what kind of EIS is required also is certainly not outside the scope of an EIS. W556-2 (Cont.)

As the Department is well aware, NEPA requires an impact statement on all "proposals for legislation and other major Federal action" that significantly affect the environment. 42 U.S.C. § 4332(C). In fact, Council on Environmental Quality regulations explicitly include the adoption of programs as one category of "Federal action" requiring an EIS. 40 C.F.R. § 1502.4(b). Moreover, agencies have an obligation under NEPA to evaluate not only programs involving the siting and construction of new facilities, but also "federal or federally assisted research, development, or demonstration programs for new technologies which, if applied, could significantly affect the quality of the human environment." 40 C.F.R. § 1502.4 (emphasis added). With the potential range of disposal configuration and siting issues that could arise in this matter – deep borehole injection, vaults, repositories, multiple vs. single disposal sites, and the difficulty of developing defensible and rational life-cycle cost estimates – a programmatic EIS is precisely the required evaluation of the government's full proposal for ambitious plans that could involve multiple sites, diverse waste streams, and new technologies. Indeed, the single (and currently) only path that would not necessarily require significant statutory alteration is disposal of GTCC and GTCC like waste pursuant to the Nuclear Waste Policy Act, 42 U.S.C. § 10101 et seq., and that option is not even addressed in this Draft.

As we noted several years ago on this matter, DOE must initiate a broad, comprehensive and technically searching review of the environmental impacts of the entire range of issues presented by this as yet speculative set of related actions for both commercial and defense radioactive waste. This analysis must include a full range of reasonable alternatives for achieving the government's purpose and need for action, thereby ensuring that the agency embarks on a legally compliant path toward fulfilling its NEPA obligations. In 2007 we stated that DOE must address in any initial PEIS on these matters a full and clear accounting of the waste inventory of GTCC LLW and GTCC-like waste. This is seemingly the one area where DOE actually responded to our comments. While there needs to be substantial improvement with respect to information on the waste that is to be generated from reactor decommissioning, the specificity with respect to sealed sources and activated metals is an improvement over past DOE documents. W556-3

Moving beyond matters of waste inventory, DOE must analyze the full range of disposal and storage options. And with the range of disposal options presented, DOE must clearly account for the environmental standards and the associated life-cycle costs that will be necessary and implemented for each potential disposal or storage method. And it is here that DOE is (1) ignoring the alternative of substantially improved hardened onsite storage and artificially truncating the list of potential alternatives; and (2) presenting a legally deficient analysis of the range of alternatives and the requisite "hard look" at their respective impacts (discussed later in these comments).

W556-3 The EIS considered the range of reasonable alternatives for disposal of the inventory of GTCC LLRW and GTCC-like wastes identified for inclusion in these analyses. The Secretary of Energy determined that a permanent repository for high-level waste and spent nuclear fuel at Yucca Mountain, Nevada, is not a workable option and will not be developed. Therefore, DOE concluded that co-disposal at a Yucca Mountain repository is not a reasonable alternative and has eliminated it from evaluation in this EIS, as described in Section 2.6 of the EIS. DOE did not evaluate developing a geologic repository exclusively for disposal of GTCC LLRW and GTCC-like wastes because DOE determined that such an alternative is not reasonable due to the time and cost associated with siting a deep geologic repository and the relatively small volume of GTCC LLRW and GTCC-like wastes identified in the GTCC EIS. DOE believes that the results presented in this EIS for the WIPP geologic repository alternative are indicative of the high degree of waste isolation that would be provided by disposal in a geologic repository. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

As part of this EIS process, DOE solicited technical capability statements from commercial vendors that might be interested in constructing and operating a GTCC waste disposal facility. Although several commercial vendors expressed interest, no vendors provided specific information on disposal locations and methods that could have been analyzed in the EIS. Hence, this option was analyzed generically. The analysis provided in this EIS could be used to support a decision for disposing of GTCC LLRW and GTCC-like waste in one or more commercial facilities, if such facilities are identified in the future. Site-specific NEPA reviews would be conducted as needed.

Long-term storage and a retrievable "disposal" option were considered to be outside the scope of the EIS because neither would provide a permanent disposal solution. Regarding the use of mined cavities, DOE does not believe it is reasonable to dispose of GTCC LLRW and GTCC like waste in a new mined cavity (other than the existing WIPP facility) because of the potential cost and time it would take to develop such an alternative in comparison to the relatively small amount of waste. With regard to existing mines, no specific mine has been identified as having the proper characteristics for disposal of GTCC LLRW and GTCC-like wastes.

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More specifically, as was suggested in the 2007 scoping document, the Draft GTCC EIS considers that DOE geologic repositories are not the only reasonable alternatives for disposal. The Draft includes two "Waste Isolation Pilot Plant Vicinity" sites, and four "generic regional commercial disposal sites." Yet the Draft does not include any of the eight commercial LLW disposal sites as reasonable alternatives. As the DOE is well aware, disposal of LLW has occurred at a number of sites around the country (examples include Barnwell, SC; Energy Solutions, Clive, UT; Maxey Flats, KY). In addition, Waste Control Specialists, Andrews, TX may receive LLW in the future. And GTCC waste will be generated by commercial nuclear reactors and other sites around the country over the next several decades. Yet none of those specific locations are considered reasonable alternatives for disposal.

W556-3 (Cont.)

Further, the Draft GTCC EIS fails to analyze whether any of the commercial LLW disposal sites (active and/or closed) could be used for the inventory that may not require geologic disposal. And the document even fails to consider whether at least one of the many commercial generation and storage sites could be used for the technologies that may not require geologic disposal. That no one has volunteered to host such a facility does not mean that a generic analysis should not take place. Ultimately, the "generic" sites included in the Draft GTCC EIS are more appropriately analyzed in a PEIS.

The Alternatives Fail NEPA's Hard Look Test

NEPA directs that DOE take a "hard look" at the environmental impacts of its proposed program and compare them to alternative means of fulfilling the same purpose and need for agency action that may avoid or mitigate environmental harms or risks posed by the Proposed Program. "What constitutes a 'hard look' cannot be outlined with rule-like precision, but it at least encompasses a thorough investigation into the environmental impacts of an agency's action and a candid acknowledgement of the risks that those impacts entail." Nat'l Audubon Soc. V. Dept of the Navy, 422 F.3d 174, 185 (4th Cir. 2005).[1]

W556-4

The Draft GTCC EIS fails NEPA's hard look test, most clearly on the issue of "reasonably forseeable" impacts. As one example, Alternative 5, disposal of GTCC in a new vault facility, is discussed in a scant few paragraphs. See Draft GTCC EIS, Vol. 1, 2.5, at page 2-8. Appendix D goes on to describe the conceptual design of such a vault. Id. at Vol 2, App. D, 3.3 at pages D-8 to D-12. There is no discussion of DOE's long history of failures, leaks, and cracks with radioactive waste vaults in the nuclear weapons complex and how, this time, such problems will be avoided. See Attachment 1, the Nuclear Regulatory Commission's "Second Request for Additional Information on the 2009 Performance Assessment for the Saltstone Disposal Facility at the

[1] NEPA is clear in its well-established mandates. NEPA characterizes environmental impacts broadly to include not only ecological effects, such as physical, chemical, radiological and biological effects, but also aesthetic, historic, cultural, economic, and social effects. 40 C.F.R. § 1508.8. NEPA requires an agency to consider both the direct effects caused by an action and any indirect effects that are reasonably foreseeable. Effects include direct effects caused by the action and occurring at the same time and place and indirect effects caused by the action, but later in time or farther removed in distance, but still reasonably foreseeable. 40 C.F.R. § 1508.8

W556-4 The EIS considered the range of reasonable alternatives for disposal of the inventory of GTCC LLRW and GTCC-like wastes identified for inclusion in these analyses. An analysis of borehole and trench disposal methods is provided in Chapter 5 and Appendix D.

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

Mr. Arnold Edelman
Department of Energy
June 27, 2011
Page 5

Savannah River Site," Docket No. PROJ0734. The same paucity of analysis is evident with respect to the issue of boreholes and trenches.[2] W556-4 (Cont.)

Ultimately, the Draft GTCC EIS suggests repeatedly that a significant near-term issue and the primary driver for action is the protection and disposal of commercial sealed sources, which comprise less than one percent of the activity and volume of GTCC waste. But the Draft fails to demonstrate that current (or, one might hope, improved) storage methods are inadequate. And further, DOE provides no analysis that hardened onsite storage is not sufficient for the relevant wastes for the next several decades, a time period that allows for the President's Blue Ribbon Commission on America's Nuclear Future to conclude its work and even the U.S. Congress to respond accordingly. Instead, the Draft GTCC EIS presents a deficient analysis of disposal options and improperly assumes that proposed alternative methods (boreholes, trenches, vaults) will be approved by NRC. The Draft GTCC EIS states: "NRC regulations at 10 CFR 61.55 (a)(2)(iv) require that GTCC LLRW must be disposed of in a geologic repository unless alternative methods of disposal are proposed to the NRC and approved by the Commission." Draft GTCC EIS at 1-20. Especially in light of DOE's history of leaking, cracked vaults and improperly designed trenches, the agency fails to present information or evidence to support an assumption of reasonable alternatives approved by the NRC. In short, an adequate Draft GTCC EIS would analyze the assumption that some or all of the GTCC waste would not be approved for the alternative methods and be structured accordingly. W556-5

If you have questions, please do not hesitate to contact me at (202) 289-6868. Thank you for considering our views on these important matters.

Sincerely,

/s/________________
Geoffrey H. Fettus
Senior Project Attorney
Natural Resources Defense Council
1152 15th Street, NW
Suite 300
Washington, DC 20005
(202) 289-6868

[2] See, e.g., http://www.ananuclear.org/Portals/0/documents/Water%20Report/waterreportexecsummary.pdf, or http://www.ieer.org/reports/poison/toc.html.

W556-5 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

From: gtcceiswebmaster@anl.gov
Sent: Monday, June 27, 2011 8:06 PM
To: mail_gtcceisarchives; gtcceiswebmaster@anl.gov; gtcceis@anl.gov
Subject: Greater-Than-Class-C Low-Level Radioactive Waste EIS Comment GTCC10558
Attachments: NRDCGTCCcomments27June11FINAL#1_GTCC10558.docx

Thank you for your comment, Geoffrey Fettus.

The comment tracking number that has been assigned to your comment is GTCC10558. Please refer to the comment tracking number in all correspondence relating to this comment.

Comment Date: June 27, 2011 08:06:07PM CDT

Greater-Than-Class-C Low-Level Radioactive Waste EIS Draft Comment: GTCC10558

First Name: Geoffrey
Middle Initial: H
Last Name: Fettus
Organization: Natural Resources Defense Council
Address: 1152 15th St. NW
Address 2: Suite 300
City: Washington
State: DC
Zip: 20005
Country: USA
Email: gfettus@nrdc.org
Privacy Preference: Don't withhold name or address from public record
Attachment: NRDCGTCCcomments27June11FINAL#1.docx

Comment Submitted:
See attached file

Questions about submitting comments over the Web? Contact us at: gtcceiswebmaster@anl.gov or call the Greater-Than-Class-C Low-Level Radioactive Waste EIS Webmaster at (630) 252-5705.

1

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

December 15, 2010

Mr. Thomas Gutmann, Director
Waste Disposition Programs Division
U.S. Department of Energy
Savannah River Operations Office
P.O. Box A
Aiken, SC 29802

SUBJECT: SECOND REQUEST FOR ADDITIONAL INFORMATION ON THE 2009 PERFORMANCE ASSESSMENT FOR THE SALTSTONE DISPOSAL FACILITY AT THE SAVANNAH RIVER SITE, DOCKET NUMBER PROJ0734

Dear Mr. Gutmann:

The U.S. Nuclear Regulatory Commission (NRC) staff is currently reviewing the "2009 Performance Assessment for the Saltstone Disposal Facility at the Savannah River Site" (PA) dated October 2009, and the associated documentation. This review is being conducted in accordance with Section 3116 (b) of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005, which requires NRC to monitor disposal actions taken by the U.S. Department of Energy (DOE) for the purpose of assessing compliance with the performance objectives set out in 10 CFR Part 61, Subpart C. The PA is an update to the Performance Assessment performed in support of the "Draft Section 3116 Determination, Salt Waste Disposal, Savannah River Site," dated February 28, 2005.

We have enclosed a second Request for Additional Information (RAI), RAI-2009-02, which is a list of comments for which the NRC staff needs responses from DOE before the NRC can complete its review. The first RAI, RAI-2009-01, was submitted to DOE on March 31, 2010, and DOE provided a response to that RAI on July 22, 2010. The staff's initial assessment of the adequacy of the responses to that RAI was discussed at a public teleconference between NRC and DOE on September 2, 2010.

As was expressed in the September 2, 2010, public teleconference, the staff reviewed the responses to RAI-2009-01 and, though several of the responses adequately addressed NRC staff comments, a number of them either did not provide enough information, or did not fully address all the NRC comments. From the review of the information provided by DOE thus far, the staff cannot yet determine whether or not the Saltstone disposal actions will comply with the performance objectives in Part 61. The staff is particularly interested in the expected degradation case, or the "base case." It appears that the base case may not sufficiently reflect relevant known conditions, may not adequately account for uncertainty and variability, and may not be supported by an adequate technical basis. Several of the NRC comments in the enclosure explore this issue further.

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

T. Gutmann 2

To meet the current schedule for NRC to complete its review of the 2009 PA by June 15, 2011, we are requesting your response to the RAI by March 15, 2011, in order to provide NRC adequate time to review your response and document our findings. It is important that DOE provide a comprehensive response to the enclosed RAI to avoid another round of questions from the NRC, which could substantially delay the scheduled completion of our review. Please let us know if you believe more time is needed to respond to any of the enclosed comments, after you have had a chance to review them. It may be worthwhile to spend a little more time now to provide a comprehensive response, which could result in a short delay in completing our review, in order to prevent a much longer delay that could result from NRC asking another round of questions. To facilitate preparation of your response to the RAI, the NRC staff would be happy to meet with your staff and your contractors to clarify the RAI, or discuss proposed responses, as soon as you have had a chance to review the enclosed RAI comments.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's Agencywide Documents Access and Management System (ADAMS Accession Number ML100820097). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html.

If you have any questions, please contact Nishka Devaser, Project Manager in the Division of Waste Management and Environmental Protection, by email at Nishka.Devaser@nrc.gov, or by phone at (301) 415-5196.

Sincerely,

/RA/

David L. Skeen, Acting Deputy Director
Environmental Protection
and Performance Assessment Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Enclosure: RAI

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

T. Gutmann 2

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If you have any questions, please contact Nishka Devaser, Project Manager in the Division of Waste Management and Environmental Protection, by email at Nishka.Devaser@nrc.gov, or by phone at (301) 415-5196.

Sincerely,

David L. Skeen, Acting Deputy Director
Environmental Protection
and Performance Assessment Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Enclosure: RAI

ML103400571

OFC	DWMEP:PM	DWMEP:LA	DWMEP:BC	DWMEP:BC	DWMEP
NAME	NDevaser	AWalker-Smith	CMcKenney	GSuber	DSkeen
DATE	12/07/10	12/07/10	12/14/10	12/14/10	12/15/10

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Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

RAI-2009-02

Second Request for Additional Information for the 2009 Performance Assessment for the Saltstone Disposal Facility at the Savannah River Site

December 2010

Structure of Comments

The U.S. Nuclear Regulatory Commission (NRC) staff's review comments are separated into topical areas to facilitate the U.S. Department of Energy's (DOE's) responses (SRR-CWDA-2010-00033). Documents published by DOE are referenced by number. Section or table references provided without an associated document title or reference refer to sections or tables in the document "*Performance Assessment for the Saltstone Disposal Facility at the Savannah River Site, SRR-CWDA-2009-00017*" (SRR-CWDA-2009-00017). DOE responses to the first Request for Additional Information (RAI), *RAI-2009-01* (NRC, 2010b), can be found in the "*Comment Response Matrix for NRC RAIs on the Saltstone Disposal Facility Performance Assessment, SRR-CWDA-2010-00033*" (SRR-CWDA-2010-00033) and are referred to in this document as "DOE RAI response".

All comments have been combined in this document; the same naming and numbering system is used as was provided in the first RAI. Comments from RAI-2009-01 maintain their original name and number and where new comments are introduced in a section, the next sequential number is used. Table 2 below lists all the comments with a "Status of Comment" designation assigned for simpler navigation. "Status of Comment" designations are defined in Table 1 below. The format for the follow-up comments, which are continued comments from RAI-2009-01, is to provide the original comment and identification, a discussion of the inadequacy of the DOE response, and a path forward. New information requests have the same format as in the first RAI package. Clarifying comments from RAI-2009-01 that received adequate responses are not repeated in this document, the Clarifying Comments section of this document consists only of new comments and those from RAI-2009-01 that require additional clarification.

Individual comments may have multiple items for which NRC is seeking additional information. Extra care should be taken to ensure that all items are addressed in the responses to ensure that further additional information is not needed. If items are not addressed, the NRC will be unable to complete its technical evaluation report, or will not be able to reach conclusions on the DOE analysis.

The path forward provided for each comment is one recommended approach to resolution; the NRC staff understands that there may be more than one method for adequately addressing the technical issues raised in the comments. Appropriate responses to some comments may depend on the nature of the resolution of other comments. It will be important for DOE to ensure internal consistency of the responses, especially if any changes are made to analyses supporting the performance assessment (PA).

Enclosure

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

New Research

During previous onsite monitoring visits and meetings with DOE, site staff stated that ongoing research was being performed in a number of areas. If any new documents have been published by DOE or its contractors in the areas listed below, please provide these documents to the NRC.

- Saltstone variability testing and product quality assurance
- Vault degradation - hydraulic properties
- Reduction and sorption of Tc in the saltstone wasteform
- Vault cracking and transport through cracks
- Drainage layer plugging
- Engineered cap performance
- Results of studies performed with the core samples removed from Vault 4
- Current inventory of all radionuclides in Vault 4

Common Acronyms

FDC	Future Disposal Cell
LFRG	Low-Level Waste Disposal Facility Federal Review Group
MOP	Member of the Public
NDAA	Sect. 3116, National Defense Authorization Act Fiscal Year 2005
PA	Performance Assessment
SCDHEC	South Carolina Department of Health and Environmental Control
SDF	Saltstone Disposal Facility
SPF	Saltstone Production Facility
SRS	Savannah River Site
TER	Technical Evaluation Report
WD	Waste Determination

Comment Topics

Performance Assessment Methods (PA)
Inventory (IN)
Infiltration and Erosion Control (IEC)
Saltstone Performance (SP)
Vault Performance (VP)
Far-field transport (FFT)
Air Pathway (AP)
Inadvertent Intrusion (II)
Biosphere (B)
ALARA analysis (A)
Clarifying Questions (C)

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

Table 1: Status of Comment Classification Definitions

Status of Comment	Classification Definition
New	New
Complete	Comment addressed; no further questions needed
Incomplete	Additional information requested
Monitoring	Accounted for in monitoring
Clarify	Additional clarification requested

Table 2: Comment Status

Comment	Description of [illegible]	Status
PA-1	Individual Radionuclides Dose Contribution in Sensitivity Cases	Complete
PA-2	Probabilistic Sensitivity Analyses for Bulk Saltstone Degradation	Complete
PA-3	Determination of Key Radionuclides	Incomplete
PA-4	GoldSim Benchmarking Based Only on Key Radionuclides	Incomplete
PA-5	GoldSim Benchmarking Factors and Parameter Adjustments	Incomplete
PA-6	Analyses to Times Beyond Performance Period Based only on Key Radionuclides	Clarify
PA-7	Limited Model Support for PA	New
PA-8	Base Case Assumptions Inconsistent with Current and Expected Future Conditions	New
PA-9	Conservatism of the Synergistic Case Assumptions is not Clear	New
PA-10	Saltstone System Flow Assumptions Appear to be Optimistic	New
PA-11	GoldSim Model for Uncertainty and Sensitivity Analyses may not Accurately Assess Dose	New
PA-12	Dose from Vault 1 Containerized Waste From Vault 4 Leaching	New
PA-13	Dose Consequences from Vault Releases Prior to Completion of Closure Cap	New
PA-14	Calcareous Zones	New
IN-1	Exceedance of Assumed Total Inventory in Vaults 1 and 4	Complete
IN-2	Uncertainty Distributions for Radionuclide Inventories in GoldSim Calculations	Incomplete
IN-3	Distribution of Radionuclide Inventory Among FDCs	Incomplete
IN-4	Inventory in Sheet Drain Systems and Transfer Lines At Closure	Incomplete
IN-5	Th-230 and Ra-226 Inventory and Identification of Key Radionuclides	New
IN-6	Potential Changes to SDF Feed Tank and Sampling	New
IEC-1	Infiltration of Water from Perimeter Drainage Channel	Complete
IEC-2	Materials Used to Backfill Around Disposal Cells	Complete
IEC-3	Long-Term Performance of Closure Cap Side Slopes	Monitoring
IEC-4	Effect of Transition from Bahia Grass to Pine Tree Forest on Closure Cap	Monitoring
IEC-5	Differential Settlement of Backfill	Complete
IEC-6	Hydraulic Conductivity of Infiltration and Erosion Cap Foundation Layer	Complete
IEC-7	Implications of Saturated Conditions Above The Lateral Drainage Layer	New
IEC-8	Long-Term Performance of Filter Fabric and Lateral Drainage Layers	New
SP-1	Basis for Assuming Saltstone is Hydraulically Undegraded for 20,000 Years	Incomplete
SP-2	Basis for Assumed Extent of Saltstone Fracturing	Incomplete

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

4

Comment	Description	Status
SP-3	Basis for Assumed Moisture Characteristic Curve for Saltstone	Incomplete
SP-4	Characteristic Curves Do Not Reflect Non-Equilibrium Flow	Incomplete
SP-5	Support Needed for Intact Saltstone Hydraulic Conductivity	Incomplete
SP-6	Basis for Effective Diffusivity of Intact and Degraded Saltstone	Incomplete
SP-7	Basis for Assumptions in Simulation of Sulfate Attack using STADIUM	Incomplete
SP-8	Initial Grout Mineralogy Assumed in Expansive Phase Precipitation Study Inconsistent with Other Research	Incomplete
SP-9	Groundwater Composition Uncertainty Not Considered in Estimation of Eh & Ph Transitions	Complete
SP-10	Plutonium and Neptunium Sorption Coefficients in Cementitious Materials	Incomplete
SP-11	Evaluation of K_d Values for "Middle" and "Old" Age Cementitious Materials	Monitoring
SP-12	Model Support for Eh–pH Evolution in Cementitious Materials	Incomplete
SP-13	Effect of Limiting The Shrinking-Core Model for Eh Evolution to Tc	Incomplete
SP-14	Basis for Assumed Iodine and Radium K_d Values in Cementitious Materials	Incomplete
SP-15	Basis for Assumed Tc Pseudo-K_d of 1,000 mL/g	Incomplete
SP-16	Basis for Reduction Capacity Used for Tc Transitions in Shrinking-Core Model	Complete
SP-17	Basis for Neglecting Gas-Phase Diffusion of Oxygen in Saltstone	Incomplete
SP-18	Basis for Uncertainty Ranges Used for K_d Values of Cementitious Materials	Incomplete
SP-19	Research on Tc-99 Release From Saltstone Inconsistent With Releases in PA	New
VP-1	Applicability of Vault 1 and 4 Degradation Mechanisms to FDCs	Complete
VP-2	Neglecting of Disposal Unit Degradation Mechanisms Other than Sulfate Attack	Incomplete
VP-3	Assumption of Completely Reducing Disposal Unit Floors	Incomplete
VP-4	Effect of Inventory Effects in Vault 1 and 4 Floors	Complete
VP-5	Incorporation of FDC Hydrotest Observations in PA	New
VP-6	No Physical Basis for Bypassing of Flow Through Vault 1 and 4 Walls	New
FFT-1	Uncertainty Ranges Used for Site Soils K_d Values	Incomplete
FFT-2	Site-Specific K_d Value Measurements for Sorption of Radium to Soil	Complete
FFT-3	K_d of Selenium in Vadose and Backfill Soils	Incomplete
FFT-4	Effect of Calcareous Zones on Far Field Transport	New
AP-1	Inclusion of Dose from Radon in Air Pathway Dose Assessment	Complete
AP-2	Consideration of Saltstone Degradation and Cover Moisture Content in Air Pathway Dose Calculation	Complete
II-1	Potential Pathways of Exposure for An Inadvertent Intruder	Incomplete
II-2	Calculation of Intruder Dose Calculated Based on the Unrealistic Case A	Incomplete
B-1	Exclusion of Biotic Transfer Factors from Uncertainty Analysis	Incomplete
B-2	Exclusion of Poultry and Eggs in Dose Assessment	Incomplete
B-3	Radionuclide Build-Up in Irrigated Soils	Incomplete
B-4	Soil to Plant Transfer Factors	New
B-5	Drinking Water Ingestion Rate Inconsistent With Assumed Receptor and Scenario	New
A-1	ALARA Considerations	Incomplete
C-4	Consideration of Presence of Selenium as Selenate in Solution	Clarify

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

Comment	Description	Status
C-8	Radionuclides included in PORFLOW Cases B - E	Incomplete
C-22	PORFLOW Hydraulic Conductivity	New
C-23	Geomembrane Placement Quality	New

Performance Assessment Methods

PA-1 **Comment:** The contribution of individual radionuclides to the dose was not provided for several deterministic sensitivity cases.

NRC Response: The answer to this RAI was adequate.

PA-2 **Comment:** Probabilistic sensitivity analyses were not provided for cases representing bulk saltstone degradation.

NRC Response: The answer to this RAI was adequate, but note that the NRC staff have concerns about the methodology used in the GoldSim analyses (see PA-11).

PA-3 **Comment:** The determination of key radionuclides described in Section 5.2.2 of the PA may not have captured all of the risk significant radionuclides. The determination of key radionuclides is significant to the results of the PA because many of the analyses used to support the PA only include the key radionuclides (e.g., the PORFLOW analyses for Cases B-E).

NRC Response: The NRC discussion on PA-3 has been combined with PA-4. See below for details.

PA-4 **Comment:** Benchmarking based only on key radionuclides identified in the base case analysis does not provide adequate support for the interpretation of alternate-case GoldSim model results.

DOE Response Discussion: In the DOE RAI response for PA-3, DOE indicated that the inventory list used in the GoldSim model included the less mobile radionuclides even if they were not determined to be key radionuclides. This aspect of the response was adequate.

However the response went on to indicate that the dose comparisons for the three key radionuclides Ra-226, Tc-99, and I-129 show good agreement, providing assurance that the behavior of additional radionuclides simulated in the GoldSim model for alternate cases is appropriate. NRC disagrees with this conclusion for two reasons. First, the code comparisons do not show particularly good agreement. The charts are presented with logarithmic scales starting from very low values. The many order of magnitude presentation of very low fluxes and concentrations makes the peak differences appear to be smaller. Examination of the flux curves for the radionuclides that have been benchmarked show differences of a factor of 10 to 30 or more, depending on the time period selected. The confidence in the non-benchmarked GoldSim radionuclides should necessarily be less than this, because

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

6

they have not undergone the benchmarking exercise. Second, as discussed below for comment PA-5, the benchmarking process itself is not sufficiently transparent to allow NRC to have confidence in the adjustments that were made.

Path Forward: The following options represent acceptable approaches to addressing this issue:

1) Perform a blind comparison of some radionuclides not included in the previous benchmarking (such as Np-237, Pb-210, U-234) for PORFLOW and GoldSim results for some alternate cases to demonstrate the level of confidence that should be assigned to non-benchmarked radionuclides. The blind comparison would be done by running each model for given radionuclides without iteration on benchmarking factors
2) Perform PORFLOW analyses with the additional radionuclides for the alternate cases.
3) Incorporate an appropriate amount of uncertainty in conclusions regarding the non-benchmarked radionuclides in the alternate cases (least recommended) that factors in the level of agreement achieved between the GoldSim and PORFLOW results and that the additional radionuclides will not have been benchmarked.

PA-5 **Comment:** Additional information is needed about the benchmarking factors and other GoldSim parameter adjustments based on benchmarking to the PORFLOW model.

DOE Response Discussion: DOE provided additional information discussing the changes that were made in the benchmarking exercise including the basis for some of the changes. The modifications made to account for the different release modeling of Tc was clear, as was the need to make modifications based on the different dimensionality of the flow fields. However, DOE did not sufficiently address the modifications to the saturated zone in reference to the PORFLOW "dilution" provided in the original NRC comment.

Although the PORFLOW model is being used for the base (compliance) case, the GoldSim model is used to understand the impact of key uncertainties. Some of those uncertainties, as discussed above, NRC believes should be represented in the base case. Conceptually, the benchmarking process was used to achieve better agreement between the results for the different models. The NRC concern is if the modifications cannot be clearly explained as having a physical basis tied to the conceptual representation of the two different models, then neither model representation may have sufficient predictive power of the future risks from the disposal facility. The benchmarking should increase confidence that each calculation appropriately represents the physical processes and therefore that the risks to future receptors has been appropriately estimated, and it should not be an exercise in getting the results of computer programs to match.

Path Forward: Provide greater transparency in the benchmarking adjustments. For example, one acceptable approach would be to provide a comparison of the results

Natural Resources Defense Council (NRDC), Commenter ID No. W556 (cont'd)

(unbenchmarked) then a stepwise comparison after each benchmarking change, with each change linked to the conceptual model explaining the physical basis for the change. A diagram of the model, such as a cross section, with the benchmarking changes and the magnitude of the changes would be very useful to help the NRC develop the confidence in the benchmarked model results that the DOE has.

PA-6 **Comment:** Results of analyses run to times beyond or far beyond the performance period appear to underestimate dose by excluding radionuclides and pathways based on their contribution to the base case analysis at 10,000 or 20,000 years. Although an estimate of the dose at extremely long times is not likely to be necessary for a compliance determination, it is important to understand the basis for any reported results and, when reporting the information, to note important limitations.

DOE Response Discussion: The answer to this RAI was mostly adequate, but NRC staff has one clarifying question about this RAI response. The first sentence in Section 5.5.1.5 of the PA states, "The peak groundwater pathways doses associated with key radionuclides are calculated for 40,000 years in order that the dose behavior well past the performance period can be evaluated". However, the RAI response implies that the calculation described in this section included all radionuclides. Although the dose at 40,000 years is outside of the period of compliance, the information presented in Figure 5.5-9 may be misleading if all radionuclides were not included in this PORFLOW calculation.

Path Forward: Please provide a list of the radionuclides that were included in the PORFLOW calculation described in Section 5.5.1.5.

PA-7 **Comment (New):** Model support for the PA is limited and plans for development of additional support are not provided.

Basis: Model support is essential to developing confidence that the PA provides for decisions that are protective of public health and safety. Model support is intended to develop confidence that an appropriate model was used. DOE has done a much better job at explaining the calculations. However, with respect to model support, DOE has referenced ongoing research or provided sensitivity analyses. NRC acknowledges the ongoing research and is fully supportive of it. The sensitivity analysis is useful to understand how the results may change with changes in data or models. However they are of limited use in determining whether the current representation is appropriate and sufficient. The likelihood of making a poor decision increases if model support is limited. NUREG-1854 (NRC, 2007) provides information on appropriate forms of model support.

Path Forward: Provide acceptable model support for the PA model. If research is ongoing, provide a description of the plans to develop model support including when the information is scheduled to be developed. Consult NUREG-1854 (NRC, 2007) for additional information regarding approaches acceptable to NRC.

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PA-8 **Comment (New):** The base case does not represent the current and reasonably expected future conditions.

Basis: The PA base case scenario is unrealistic and non-conservative in that it (i) does not reflect relevant known conditions, (ii) does not adequately account for uncertainty and variability, and (iii) does not have adequate technical bases.

The base case model is inconsistent with known conditions. Significant site characteristics that have not been adequately incorporated into the model include the following:

- Fractured saltstone is not considered in the base case even though fracturing of saltstone has been observed. In addition, shrinkage has been observed and is not included in the model. (Comment SP-2)
- The PA models appear to be inconsistent with observed, advective contaminant releases from Vault 4. (Comments SP-6)
- Material interfaces have shown to be relevant to performance; however they are not considered in the PORFLOW model. (Comment VP-5)

The base case model does not adequately account for uncertainty in initial, temporal, and spatial conditions. NRC concerns with parameter and conceptual model uncertainty include the following:

- The hydraulic conductivity and effective diffusion coefficient for saltstone are time-invariant as the base case model does not adequately account for temporal variation. (Comment SP-1; SP-6)
- The initial hydraulic conductivity of saltstone does not fully account for uncertainty in scaling from laboratory conditions to full-scale, as-emplaced saltstone. (Comment SP-5)
- The PA does not account for uncertainty in the predictions of Eh-pH evolution for cementitious materials. (Comment SP-12)
- The PA does not account for uncertainty with respect to vault degradation mechanisms. (Comment VP-2)

The base case does not have adequate technical bases. NRC concerns with limited model support include the following:

- Model support for geotextile filter fabrics and the lateral drainage layers is not commensurate with their expected long-term performance and risk significance. (Comment IEC-8)
- The moisture characteristic curves implemented in the base case for intact and fractured cementitious materials, which significantly reduce flow, lack adequate support considering their risk significance. (Comments SP-3; SP-4)

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- The chemical stability of saltstone provides a significant barrier to transport; however, the basis for the Eh-pH evolution of cementitious materials is very limited. (Comment SP-12)
- The basis for the adopted technetium pseudo-K_d of 1,000 mL/g is inaccurate and insufficient. (Comment SP-15)
- The selected biotic transfer factors lack site-specific data and have very limited support. (Comment B-1)
- There is not a sufficient technical basis to exclude the chicken and egg pathway. (Comment B-2)
- The effects of radionuclide build-up in irrigated soils may be underestimated. (Comment B-3)
- The soil to plant transfer factors may be too low due to the elimination of the leafy plant component. (Comment B-4)

DOE has supported the base case with alternative scenarios and one-off sensitivity analyses. Alternative scenarios can be considered towards compliance determination; however, limitations with the assumptions and parameterization make the conservatism of the alternate cases and the synergistic case unclear (see Comment PA-9).

DOE has used one-off sensitivity analyses to evaluate the risk significance of certain parameters that are not incorporated into the base case model to demonstrate that the individual parameters do not appreciably impact the estimated dose to the Member of the Public (MOP) during the compliance period. However, this type of analysis, which may result in an insignificant increase in the base case dose, will only identify local sensitivity within the parameter space. When (i) many uncertainties exist, (ii) the margin between compliance and the base case dose is relatively small, and (iii) it is not clear how all of the uncertainties are interrelated, then the resultant dose from the inclusion of these uncertainties could be significant on a cumulative basis even if the increases for individual one-off analyses are insignificant on an absolute basis.

Path Forward: DOE should establish a base case that has adequate technical bases and appropriately reflects uncertainties to demonstrate with reasonable assurance that the performance objectives can be met.

PA-9 Comment (New): Conclusions about the conservatism of the synergistic case are not clear as certain assumptions appear to be overly optimistic, while other assumptions are potentially conservative.

Basis: The synergistic case was developed by DOE, based on comments received from the LFRG, to evaluate the impact of simultaneously changing multiple material parameters to account for several potential increased degradation mechanisms from the base case. The PA describes this case as pessimistic. However, NRC staff

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believes that certain assumptions within the synergistic case render the degree of pessimism or conservatism indeterminate.

NRC staff is unable to assess the adequacy of the synergistic case without additional understanding of the balance between (i) the potential conservatism of the flow through the cracked saltstone and (ii) the model limitations that are applicable to all of the cases in the PA. The general limitations of the PA cases include the following: flow through the vaults and saltstone (see Comments PA-10; IEC-8; SP-1; SP-2; SP-3; SP-4; SP-5; SP-6; VP-3; and VP-6); chemical stability of cementitious materials (see Comment SP-12); and appropriateness of the biosphere calculations (see Comments B-1; B-2; B-3; B-4; and B-5). In addition, the synergistic case appears to only include the key radionuclides determined in the base case. Differences in the conceptualization between the synergistic case and the base case could change the key radionuclides (e.g., short-lived radionuclides may be risk significant in the synergistic case with the earlier degradation of the closure cap and the presence of fast pathways and the advective flow present in the synergistic case could result in a set of key radionuclides that differs from the diffusion-dominated base case.)

Path Forward: The appropriateness of the synergistic case depends on the extent that DOE relies on the synergistic case to demonstrate compliance with the performance objectives. If compliance determination rests heavily on the synergistic case (i.e., the synergistic case is used to estimate the impact from key uncertainties, lack of model support, limited information), DOE should (i) provide discussion on the balance between potential optimisms and conservatisms within the synergistic case, (ii) address the limitations applicable to all of the cases in the PA, and (iii) address the potentially limited subset of radionuclides.

PA-10 **Comment (New):** Assumptions in the PA regarding the conceptual model and parameterization may result in unsupported modeled flow rates through saltstone.

Basis: Several engineered barriers in the PA provide a significant and long-term impediment to the flow of water through the saltstone wasteform. However, DOE has very limited data to support the performance of several of these key barrier components, which include:

- Hydraulic conductivity of saltstone being hydraulically undegraded for 20,000 years in the base case. (See Comment SP-1)
- Saltstone as not being fractured in the base case. (See Comment SP-2)
- Moisture characteristic curves that are implemented for intact saltstone. (See Comment SP-3)
- Moisture characteristic curves that are implemented for fractured saltstone and concrete. (See Comment SP-4)
- Initial hydraulic conductivity of saltstone that does not adequately account for uncertainty. (See Comment SP-5)

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- Geotextile filter fabrics and the lateral drainage layers that provide long-term shedding of water around the vaults. (See Comment IEC-8)
- Neglecting disposal unit degradation mechanisms other than sulfate attack. (See Comment VP-2)
- Degradation of the vault walls that can result in the bypassing of flow around the saltstone as a potential modeling artifact. (See Comment VP-6)

Model support for these flow-related components is limited, however DOE assumptions and parameter selections indicate a consistent bias towards constrained flow through the saltstone wasteform that is unsupported. Reducing the flow of water through the modeled Saltstone system has a compounded effect in that less water is available for the transport of contaminants and the lifespan of reducing conditions in the cementitious materials is prolonged. The timing of the chemical transitions for the walls, floors, and saltstone are dependent on the number of pore volumes that pass through these cementitious materials. Higher flow rates would result in more rapid chemical transitions and generally a more rapid release of redox sensitive radioelements (e.g., Tc-99).

As a scoping calculation, NRC staff determined that the flow through saltstone, the floors, and the walls would be more than a factor of 10 higher at the 500 year time period, if the geotextile filter fabric fails at 500 years (i.e., the lower lateral drainage layer has properties similar to the overlying backfill) and the moisture characteristic curves for saltstone and fractured cementitious are comparable to literature values. As a first order approximation, the dose would increase by this factor based on the increased flow rate through saltstone and the floors. However, the contaminant release is compounded due to a more rapid change in chemical transitions for cementitious materials. The timing of these chemical transitions for these cementitious materials would be less than 1/10 of the time assumed in the PA. It appears that the chemical transitions for saltstone, the floors, and the walls would occur well before the 10,000 year compliance period. This result would have a significant dose impact as transitions for saltstone, the floors, and the walls are assumed in the PA to occur beyond the 10,000 year compliance period. It should be noted that these scoping calculations still likely contain significant optimisms; for example, the assumption of intact saltstone in the base case, the assumed hydraulic conductivity of saltstone, the limited degradation mechanisms for the disposal units, and the assumption that 100% of the blast furnace slag is available for reaction with the infiltrating water (WSRC-TR-2008-00283).

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Path Forward: Verify that the modeled flow rates are (i) physically reasonable and (ii) consistent with the conceptual models for the various cases.

Provide a level of data support for flow through the Saltstone system commensurate with the risk significance of this topic, or use parameter values that are technically defensible. If research is ongoing, provide a description of the plans to develop model support including when the information is scheduled to be developed. Even if research is ongoing, the compliance case needs to be adequately supported based on information that is available at the time the compliance case is developed.

PA-11 **Comment (New):** The GoldSim probabilistic model used for sensitivity and uncertainty analyses is not adequately supported.

Basis: NRC staff has several concerns with the methodology used in the GoldSim calculations:

1) NRC staff has numerous concerns with the implementation of the PORFLOW calculations that provide the input into the GoldSim Calculations (see e.g., PA-8 and PA-10).

2) The GoldSim model incorporates all five cases (Case A-E), and the assumed probability of each case occurring is considered in the uncertainty calculations. NRC staff believes that the probabilities of each case provided in Table 5.6-3 of the PA are unrealistic. For example, the actual probability of Case A is essentially 0 for Vaults 1 and 4 because this case assumes that the saltstone does not crack during the performance period and the saltstone is already known to have cracks. However, in Table 5.6-3, the probability assumed for Case A is 95% for Vault 1 and 85% for Vault 4.

3) The results of the GoldSim model may not be applicable to radionuclides other than the ones that the benchmarking was performed for (see PA-4 and PA-5). In addition, there does not appear to be a good correlation between the PORFLOW and GoldSim results even for the radionuclides that were benchmarked (see Figures 5.6-1 to 5.6-25 in PA and PA-5).

4) It is not clear that there is adequate basis for the uncertainty distributions used (e.g., the uncertainty distributions for inventory [see IN-2] and the uncertainty distributions for K_d values [see SP-18]).

Because the GoldSim model was not used as the basis for demonstrating compliance, the NRC staff did not review these calculations to the same extent as the compliance case (Case A) was reviewed. If DOE decides to use this case to demonstrate compliance, the NRC staff will focus more on these calculations and new questions may be identified.

Path Forward: The concerns listed above need to be addressed. The amount of information needed for this comment depends on the extent to which the GoldSim model will be relied on to demonstrate compliance with the performance objectives of 10 CFR 61. These concerns need to be addressed to the degree that this model is not used to demonstrate compliance or for model support.

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PA-12 **Comment (New):** The dose consequences from the disposal of containerized Vault 4 waste in Vault 1 should be evaluated.

Basis: The NDAA states that, "(t)he Commission shall, in coordination with the covered State, monitor disposal actions taken by the Department of Energy". As part of this coordination, SCDHEC and NRC staff discussed a letter written by SCDHEC to the DOE regarding the potential disposal of containerized Vault 4 waste in Vault 1 (SCDHEC, 2010). In this letter, a request for the disposal of containerized waste from Vault 4 operations and soil remediation is described.

The NRC staff requires more information about this waste in order to assess compliance with the performance objectives of 10 CFR 61. In particular, the NRC staff must understand the origin and amount of this material. This is possibly important to monitoring the performance of Vault 4 because if this waste primarily consists of soil that has become contaminated due to seeps from Vault 4, then this might show that Vault 4 is not performing as expected. It also would be useful to evaluate whether the PORFLOW model accurately predicts the inventory that has seeped out of Vault 4. If the amount of inventory that has reached the outside of Vault 4 and the surrounding soil is significant, this may indicate that the model underestimates the release from this vault. Also, if any residual radioactivity remains in the soil surrounding Vault 4 following this remediation, this radioactivity could move through the subsurface more rapidly than predicted, especially since the site does not yet have a cover to limit the infiltration.

NRC staff is also interested in the effect of this additional waste on the expected dose from Vault 1. In particular, NRC staff is interested in how much additional inventory will be placed in Vault 1 and the effect of this inventory on the expected dose. It is possible that the long-term performance of containerized waste will be different than the long-term performance of grout. An evaluation of the potential effect of the containerized waste on long-term performance should be performed.

Path Forward: Please provide the following information:

1) The inventory of radionuclides that has seeped from Vault 4, including the amount (concentrations and total activity) and location of this inventory.
2) A comparison of the inventory that has seeped from Vault 4 to the inventory predicted by the PORFLOW model to be released from the vault to confirm that the modeling calculations are accurate.
3) An assessment of the dose due to residual radioactivity remaining outside of Vault 4, if any.
4) The inventory in the additional waste that will be added to Vault 1 and the expected dose from this inventory.
5) An evaluation of whether the presence of containerized waste is consistent with the assumptions in the PA for Vault 1 and the potential effect of this waste on the calculated dose.

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PA-13 **Comment (New):** The dose consequence from early releases from the vaults prior to completion of the closure cap is not considered.

Basis: The performance assessment calculations assume that the closure cap will result in a signification reduction in the infiltration reaching the vaults starting at the first year of the model. However, the closure cap is not expected to be constructed until the end of the operational period, and there will be no reduction in the amount of precipitation reaching the vault roofs and walls before that time. The reported average precipitation rate for the site is 49 in/yr (124 cm/yr), which is significantly higher than the assumed initial infiltration rate (0.00042 in/yr [0.0011 cm/yr]). It is likely that the amount of leaching will be higher before the closure cap is installed because more water could contact the saltstone during this time. This is especially true for Vaults 1 and 4 because these vaults have had problems with water leaking through the roof and cracks forming in the walls. It is important to understand the potential for early releases to the environment during the time between the placement of the saltstone and the installation of the closure cap and the potential future dose from these releases because these releases could be significant compared to future releases.

In addition, the rate of degradation of the vaults might be higher before the backfill and cover are installed. For example, the larger amount of water reaching the vaults during this time could cause the concrete to age more rapidly. Also, the vaults will be exposed to more of the freeze/thaw cycle prior to the backfill being placed around the vaults. The saltstone wasteform would likely experience faster rates of oxidation due to higher rates of oxygen transport associated with air movement through the system compared to post-closure configurations.

Path Forward: Provide an assessment of the dose consequences from the increased amount of water the vaults will be exposed to prior to completion of the closure cap. Also, provide an assessment of the effect of the vaults being initially uncovered on the integrity of the vaults and the oxidation of saltstone.

PA-14 **Comment (New):** The PA does not discuss the existence or implications of calcareous material, or soft zones, underlying Z-Area.

Basis: Two supporting PA documents (K-ESR-Z-00001; K-ESR-Z-00002) addressed geotechnical issues regarding the calcareous zones at Z-Area that support 10 CFR Part 61.44. In addition to potential stability impacts, these zones have potential implications for other aspects of the future performance of the SDF (e.g. cover integrity, saltstone integrity, and far-field flow and transport [see Comment FFT-4]). It is not clear how these features were or were not considered. As NRC staff only recently became aware of these features, additional information may be requested.

Path Forward: Provide any additional documentation of calcareous features at Z-Area, including any documentation regarding how these features were addressed in the PA as well as data or analyses from any core, geophysical logs, cone

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penetrometer test logs and geotechnical borings.

Inventory

IN-1 **Comment:** The reported inventory of some of the radionuclides disposed of in Vaults 1 and 4 as of March 31, 2009 (X-CLC-Z-00027) exceeds the total inventory of these radionuclides assumed in the PA for these vaults (Tables 3.3-1 and 3.3-3 in the PA), even when accounting for the decay of these radionuclides to the year 2030.

NRC Response: The answer to this RAI is adequate.

IN-2 **Comment:** More information is needed about the basis for the uncertainty distributions for the radionuclide inventories used in the GoldSim calculations.

DOE Response Discussion: In the PA, it is stated that "(t)he source variation deals with variability associated with the ability to predict inventories. This source variation not only includes material variability within the waste tanks, but also includes process treatment uncertainty and analytical uncertainty." The ratios of the measured saltcake concentration to the concentration predicted by the Waste Characterization System (WCS) calculations were used as the basis for developing these distributions. The previous NRC comment addressed the basis of using the ratio information for a subset of the radionuclides and applying the ratio for the distributions for all radionuclides.

In the response to this comment, DOE stated that the exclusive use of C-14, Cs-137, Pu-239, Sr-90, and U-238 ratio information in developing the uncertainty distributions was due to the lack of data for the other radionuclides.

NRC staff understands that limited information is available on these ratios, but the uncertainty distributions are not adequately justified and may not be appropriate for the following reasons:

1) The basis for using salt concentration ratios to represent uncertainty in the supernate is not provided.

2) It is not clear how the uncertainty in removal efficiencies is being represented by uncertainty in the WCS predictions.

3) The basis for using the same uncertainty distributions for radionuclides that are expected to be removed during treatment and those that are not (e.g., Tc) is not clear.

4) It is not clear why the inventory uncertainty factors are used for Vaults 1 and 4. Most of the inventory for these vaults has already been placed into the vaults, so there should not be significant uncertainty associated with either the WCS predictions or the treatment removal efficiency since the inventory in this waste has already been directly measured.

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The uncertainty distributions assumed for Sr-90, Cs-137, and U-238 are biased towards being less than one such that the use of these uncertainty distributions would result in the mean inventory in the calculations being decreased. This could cause the dose calculated in the GoldSim model for these radionuclides to be underestimated (biased in an arbitrary way to low values).

Path Forward: As was true for PA-11, the amount of additional information needed on this topic depends on the extent to which DOE intends to use the GoldSim model results for compliance or model support. If the GoldSim model is going to be used for compliance, the basis for the ranges is not adequate. In that case, either more information is needed to justify the distributions, or the distributions should be changed to distributions that are defensible.

IN-3 **Comment:** Information is needed on the process that will be used to ensure that the inventory will be distributed among the FDCs in a configuration that provides reasonable assurance that the performance objectives will be met.

DOE Response Discussion: The DOE response to this comment stated that the probabilistic model incorporated the variability in the disposal sequence of the waste. As noted in (PA-11 and IN-2) NRC staff has concerns with the methodology used in the GoldSim probabilistic model, including the uncertainty distributions used for the inventory.

The DOE response stated that the process of moving the waste through the tank farm to the SPF would tend to move the concentrations of radionuclides in the waste towards the average due to mixing of the waste. NRC staff agrees with this assessment, but there will still be some variability in the concentrations of radionuclides in the different FDCs. Because the compliance case is based on all of the FDCs having a concentration at the average concentration, it would be necessary for the NRC staff to monitor the inventory in each FDC to the average concentration. Information on the methodology that will be used by DOE to assess the actual configuration of inventory in the FDCs would be extremely useful for the NRC to have when writing the updated monitoring plan.

Path Forward: Provide a description of the strategy that will be used to assess the dose from the actual inventory disposed of in the FDCs.

IN-4 **Comment:** More information is needed about the inventory expected to remain in the sheet drain systems for Vault 4 and the FDCs and the inventory expected to remain in the transfer lines at the time of closure.

DOE Response Discussion: In the response to this comment, DOE staff stated that a cold cap containing clean water will be placed over the saltstone monolith and that the sheet drain system will therefore be filled with clean water at the time of closure. DOE also stated that the drainwater system will be emptied to the maximum extent practical prior to closure.

NRC staff agrees that the bleed water from the clean grout will likely dilute the

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concentration of material in the feed water collection system, but the system will likely still contain some residual amount of radionuclides because the system is likely to respond like a stirred tank reactor and not with plug flow dynamics. NRC staff is interested in understanding the volume and possible concentration of radionuclides remaining in these systems.

The DOE response also stated that the transfer lines will be removed and disposed of as LLW, so they will not contribute to dose. NRC staff finds that this portion of the response is adequate.

Path Forward: Provide information on the volume of liquid that is expected to remain in the drain water collection system for Vault 1, Vault 4, and the FDCs. Provide an estimate of the inventory that could remain in these systems at the time of closure.

IN-5 **Comment (New):** Additional information is needed about the Th-230 inventory assumed for Vault 4 and the process used to confirm that all risk-significant radionuclides have been identified as key radionuclides as waste is disposed and final inventory information becomes available.

Basis: One of the key radionuclides identified in the current PA is Ra-226, which is created by ingrowth from Th-230. Neither of these radionuclides was identified as key radionuclides in the 2005 PA. Because of this, the NRC staff is concerned that the process used to predict the inventory for the purpose of the PA may not be capturing all risk-significant radionuclides. Key uncertainties in DOE's ability to estimate disposal inventories may not be adequately accounted for in the estimates. When updated inventory information is developed as waste is disposed, it is important to verify that any changes between the predicted and actual inventory do not result in significant changes to the predicted dose or to the list of key radionuclides. NRC staff is interested in the process used by DOE to confirm this.

Additionally, NRC staff would like information on the basis for the assumed inventory of Th-230 in Vault 4 (i.e., was this inventory based on measurements or a calculated value) and NRC staff would like more information on the reason for the underestimation of the Th-230 and Ra-226 inventory in the 2005 PA. This information would help the NRC staff to better understand the cause of this and to have confidence that this type of problem will not occur in the future.

Path Forward: Provide a description of the process that will be used to verify that all key radionuclides have been identified as additional waste is disposed and a more certain inventory is developed. Provide information on the cause of the underestimation of Th-230 and Ra-226 inventory in the previous PA.

IN-6 **Comment (New):** Additional information is needed about potential changes to the salt solution feed batch preparation tanks and the sampling methodology that will be used for these tanks.

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Basis: As part of the coordination with the State required by the NDAA, the NRC and SCDHEC staff discussed a copy of a letter from SCDHEC to the Department of Energy regarding the replacement of Tank 50 as the feed tank for the SPF (SRR-ESH-2010-00030). According to this letter, DOE is proposing to install two 60,000-gallon (2.3E5 L) Salt Solution Receipt Tanks at the SPF as a replacement for Tank 50 as the feed tank.

NRC staff would like information on the sampling approach that will be used for these tanks to assess the inventory of radionuclides that will be disposed of at the SDF. Because the proposed tanks are much smaller than Tank 50 (60,000 gallons [2.3e5 L] instead of 1.3 Mgal [4.9e6 L]), a smaller amount of waste will be mixed in each tank, and the cycle of filling and emptying the tanks will occur more often. The sampling strategy for these tanks may need to be different than for Tank 50. More frequent sampling may be required, particularly if the waste entering these tanks is heterogeneous and there is significant inter-batch variability.

This information would be useful for NRC staff in the preparation of the updated plan for monitoring the disposal of salt waste disposal at the SRS.

Path Forward: If Tank 50 is going to be replaced as the salt solution feed tank, please provide updated information on the sampling approach that will be used to verify the inventory that is sent to the SDF.

Infiltration and Erosion Control

IEC-1 **Comment:** The PA does not describe what portion of the water entering the perimeter drainage channel will infiltrate back into the native soil or backfill, or what, if any, effect such infiltration will have on vadose zone or saturated zone flow.

NRC Response: The DOE response is adequate. The comment will be tracked with monitoring of the final closure cap design.

IEC-2 **Comment:** The cross-sections of disposal units in WSRC-STI-2008-00244 illustrate the lower backfill layer and other materials in the closure cap covering the cells, but do not indicate what materials will be used to backfill around the cells.

NRC Response: The DOE response is adequate.

IEC-3 **Comment:** Additional information is needed to support conclusions about the long-term performance of the side slopes of the closure cap.

NRC Response: No additional information is requested, the final cap design will be tracked in monitoring.

IEC-4 **Comment:** During the transition from Bahia grass to a pine tree forest the closure cap could be affected by external factors such as drought or fire, thus changing the assumptions required for the stability calculation.

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NRC Response: No additional information is requested, as the final cap design will be tracked to be monitored.

IEC-5 **Comment:** Differential settlement could occur due to the presence of the relatively rigid disposal cells within the lower backfill and non-uniform thickness of the backfill. This could affect the drainage efficiency of the upper drainage layer and the integrity of the geomembrane layer.

NRC Response: The DOE response is adequate. The comment will be tracked with monitoring of the final closure cap design.

IEC-6 **Comment:** Additional justification is needed for the hydraulic conductivity assigned to the foundation layer of the infiltration and erosion cap.

NRC Response: The DOE response is adequate.

IEC-7 **Comment (New):** The PA should evaluate the potential implications of saturated conditions above the lateral drainage layer in the closure cap.

Basis: Table 47 in WSRC-STI-2008-00244 indicates that beyond 3,200 years the lateral drainage layer is unable to remove a large portion of the infiltrating water, the system saturates above the filter fabric layer, and runoff increases. If saturation occurs, pore pressure build-up in the overlying closure cap layers could directly affect cover stability, vegetation, hydraulic performance of cover materials, and erosion.

Path Forward: Provide (i) the saturation for individual cover layers with respect to time and (ii) the average head on top of each layer for all time periods. If saturated conditions are physically reasonable, provide discussion of the effects of closure cap saturation on stability, vegetation, erosion, and the performance of cover materials under hydrostatic pressure.

IEC-8 **Comment (New):** The PA should provide a technical basis for the long-term performance of the geotextile filter fabric and the upper and lower lateral drainage layers.

Basis: The geotextile filter fabric and the upper and lower lateral drainage layers significantly limit infiltrating water (e.g., the PORFLOW model files indicate that greater than 99% of the water infiltrating through the closure cap is shed via the lower lateral drainage layer at 8,000 years). Accordingly, the performance of the lateral drainage layers can have a significant effect on the dose as was noted in DOE's response to C-12 (RAI-2009-01).

The performance of these layers is subject to degradation of the filter fabric layer and the subsequent infilling of the porosity within the lateral drainage layer. As stated in WSRC-STI-2008-00244, "sufficient data is not currently available to estimate the service life of the filter fabric" but that "it will degrade due to oxidation and root

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penetration". Calculations were presented in Appendix I that account for the reduction in hydraulic conductivity of the lateral drainage layer due to the migration of colloidal clay into the lateral drainage layer. However, it is not clear why larger particles (which would decrease the effective lifetime of the lateral drainage layers) were excluded from these calculations, as there is very limited data regarding the service life of filter fabrics and degradation of the filter fabric is likely to result in the conveyance of larger particles. Infilling of the lateral drainage layers with particles larger than colloids may accelerate infilling and result in a more rapid decrease in the hydraulic conductivity of this layer. A decrease in hydraulic conductivity would limit the ability of the lateral drainage layer to shed water, leading to an infiltration rate that is greater than estimated in the PA.

In addition, Figure 4.2-15 in the PA illustrated the change in vertical hydraulic conductivity with respect to time for the lower lateral drainage layer. The PORFLOW model files and Appendix E of SRNL-STI-2009-00115 indicate that vertical hydraulic conductivity of this layer is one order of magnitude greater than stated in the PA.

Path Forward: Due to the risk significance of the lower lateral drainage layer, provide (i) data quantifying the percentage of infiltrating water being shed versus transmitted with respect to time via this layer, (ii) justification for excluding the migration of particles larger than colloids from the overlying backfill materials to the lateral drainage layer, and (iii) support for the long-term performance of this layer. In addition, discuss the apparent discrepancy in the vertical hydraulic conductivity of the lower lateral drainage layer in the PA and the PORFLOW model.

Saltstone Performance

SP-1 **Comment:** Additional justification is required for the assumption that saltstone is hydraulically undegraded for 20,000 years.

DOE Response Discussion: The DOE response focused on on-going research for overall assessment of degradation and in the case of sulfate attack, short-term experimental measurements that have been completed. The DOE response did not specifically address the NRC comments that had been replicated from a previous review on the expansive phase report.

The PA has to account for what is known and conservatively include the impact of uncertainties that are not yet fully understood. Considering the ongoing research, NRC staff believes it is optimistic to assume no hydraulic degradation over 20,000 years. The effects of degradation are evaluated in sensitivity cases, but the conservatism of those cases is unclear. Because the effects are included in a sensitivity case and not in the compliance case, it means the effects are not included in the case used to demonstrate compliance with the performance objectives.

The DOE response focused on sulfate attack whereas NRC was interested in a basis for neglecting degradation via all mechanisms. For example, the disposal facilities have embedded steel, some of which is exposed to the atmosphere now or will be

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exposed to the soil after facility closure. Much of that steel can be seen today to have already experienced corrosion. It is unrealistic to assume that the carbon steel will experience no corrosion. Corrosion of the steel would cause disruption of the surrounding concrete or saltstone.

Previous NRC comments on the expansive phase report to which DOE deferred a response include the following:

1) The conclusions of the expansive phase precipitation report are based on geochemical modeling results. It is unclear whether there are data and observations available for comparison to constrain the modeling calculations.

2) The expansive phase study does not consider the effects of organic additives or pozzolanic replacement on the dissolution and precipitation of cement-related compounds, which may have an effect on the generation of expansive phases. Future research could consider the effect that sulfide from the blast furnace slag might have on the phases and reactions present in this system.

3) Experiments that are designed to collect data on initial mineralogical conditions, fundamental thermodynamic data and reaction kinetics would provide much needed model support for this study.

4) Geochemist's Workbench is based on an equilibrium reaction model. However, reaction kinetics could result in metastable products that are often associated with an increase in volume. Subsequent studies might consider expansive phases produced by intermediate or metastable reaction products.

5) The conclusions reached in this study area could be integrated with other ongoing or recently completed studies. Dixon (SRNL-STI-2008-00421) recently completed a study on the physical properties of grout, which included bulk porosity measurements. Updated measurements of the bulk porosity of saltstone grout may be useful in assessing whether expansive phase precipitation is likely to result in grout degradation.

Path Forward: Provide additional basis for assuming no hydraulic degradation of saltstone occurs in the base case or provide an updated base case analysis that reflects estimated saltstone hydraulic degradation (e.g., changes in hydraulic conductivity and effective diffusivity). Specifically, address the comments on the expansive phase report and additional degradation mechanisms. Provide model support for the long-term performance of saltstone and reinforced concrete.

SP-2 **Comment:** A basis is required for the modeled extent of saltstone fracturing.

DOE Response Discussion: The DOE response referenced Case C as including cracks. DOE indicated that the sensitivity studies provide information regarding the effect of crack variability.

NRC does not believe that the impact of cracking on the PA results is adequately captured by Case C, sensitivity analyses that address increased hydraulic

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conductivity, or alternate configurations such as Case E as currently represented. The references provided (T-CLC-Z-00006; SRNL-STI-2009-00115, Rev. 1) address cracking mechanisms for Vault 4 due to differential settlement and seismic events. Case C is intended to capture the impact of transverse structural cracks through saltstone caused by these mechanisms. However, a basis is not provided to extend the mechanisms responsible for Vault 4 cracking to saltstone and address fracture mechanisms that are unique to saltstone. Cracking of saltstone has been observed (SRNL-ESB-2008-00017) and the uncertainty and variability in (i) cracking (e.g., number of cracks, crack spacing, crack orientation, crack length, crack aperture, etc.) and (ii) crack evolution (e.g., acceleration of cracking) has not been evaluated. Therefore, it is expected that two longitudinal cracks do not adequately reflect the uncertainty associated with the extent or effects of potential cracking.

Sensitivity analyses with increased hydraulic conductivity do not evaluate the full matrix of the potential effects of cracks. For example, changes to the surface-area-to-volume ratio, which is dependent on crack representation, is not captured by varying the hydraulic conductivity. Removal of radionuclides and leaching of cementitious materials, which can lead to additional fracturing, is strongly correlated to the surface-area-to-volume ratio.

In addition, results from sensitivity analyses with increased hydraulic conductivity and Case E are inconclusive due to the moisture characteristic curves applied in the PA (see Comments SP-3 and SP-4).

Path Forward: Provide a basis for the extent of fracturing included in the base case representation. Demonstrate how the base case model appropriately represents current observations with respect to cracks. Address the mechanisms noted above as well as other mechanisms by which fractures could increase the rate of subsequent fracturing.

SP-3 **Comment:** The moisture characteristic curve for intact saltstone implemented in the PORFLOW model does not sufficiently account for experimental uncertainties and is inconsistent with literature results for material similar to saltstone and other cementitious materials.

DOE Response Discussion: The DOE agreed in their response that the moisture characteristic curve based on the INL dataset is somewhat inconsistent with literature (WSRC-STI-2007-00649). To evaluate the impact of using a modified moisture characteristic curve, the base case was rerun in PORFLOW with the relative permeability set to 1.0. The resulting contaminant release rate was approximately twice that of the base case for Vault 2 during the compliance period. For Vault 4, with the relative permeability equal to 1.0, the release rate of Tc-99 was almost doubled, while the I-129 and Ra-226 rates were each less than a 30% increase over the base case. DOE stated that these increases in release rates would not significantly impact the resulting dose to the MOP during the compliance period.

Increases in contaminant release rates of 30% and 100% for one-off sensitivity

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analyses may result in an insignificant increase in base case dose on an absolute basis (i.e. if the base case dose is small). However, when (i) many uncertainties exist, (ii) the margin between compliance and the base case dose is not very large, and (iii) it is not clear how all of these uncertainties are related, then the resultant dose from the inclusion of these outstanding uncertainties could be significant on a cumulative basis even if the increases for individual one-off analyses are insignificant on an absolute basis.

Path Forward: If adequate justification is not available for the moisture characteristic curves implemented in the PA model for intact saltstone, provide updated results for Case A, B, C, D, the synergistic case, and the sensitivity case in Section 5.6.6.7 that use a characteristic curve for intact saltstone that is more consistent with results in the literature.

SP-4 **Comment:** Characteristic curves implemented in the PA are based on a continuum approach that does not reflect non-equilibrium flow.

DOE Response Discussion: The DOE response discussed the effects of transient flow on contaminant leaching. However, NRC staff's concern is the inability of a continuum approach to represent unsaturated flow through porous or fractured media. Unsaturated flow is characterized by non-equilibrium, gravity-driven fingering that can lead to pulsating flow conditions, even in the presence of a steady state infiltration boundary condition (Pruess et al., 1999). Abstraction of unsaturated flow with moisture characteristic curves cannot replicate this flow behavior. Equilibrium flow through unsaturated media can significantly underestimate actual flow rates through a system.

Path Forward: Provide additional model support for unsaturated flow. Model support could include analogs, laboratory experiments, and/or field studies that verify consistency between numerical results and physical measurements. Alternatively, demonstrate that non-equilibrium flow through porous and fractured media does not significantly affect the performance of the system.

SP-5 **Comment:** Additional support is needed for the hydraulic conductivity of intact saltstone that is used in Case A, Case B, Case C, Case D and the synergistic case.

DOE Response Discussion: The DOE response indicated that additional testing of hydraulic and physical properties has continued to be performed and provided a summary of additional test results. DOE indicated that the baseline test results yielded values of 1.3E-9 to 4.0E-9 cm/s which was consistent with the base case value of 2E-9 cm/s used in the PA. They also indicated that sensitivity analyses were performed to examine the impact of a much higher hydraulic conductivity, and the estimated doses were much less than 25 mrem/yr. The DOE response did not address the monitoring follow-up items provided in the original comment pertaining to the measurement of hydraulic properties. The original comment requested justification for logarithmic averaging of the hydraulic conductivity values for the limited data set with an unknown distribution, which was not provided.

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Ongoing tests are helpful and fill some important data gaps, but the tests do not capture the full range of conditions that can be expected for actual emplaced saltstone. The test results provided in the comment response have values as large as 9E-9 cm/s for the impact of water to premix ratio and as high as 9E-7 cm/s for a baseline composition with organics, admixtures, and a 60°C cure temperature. Depending on the composition and curing temperature of saltstone, these values could arguably be representative of a reasonable starting point for a base case value. These measurements highlight the need to be conservative when selecting a base case deterministic value for a key parameter such as hydraulic conductivity. As DOE has collected additional measurements, the hydraulic property values have been consistently revised higher. In addition, these hydraulic tests are on laboratory prepared samples which do not account for (i) scale, (ii) emplacement (batching, pumping, curing), (iii) CO_2 contamination, and (iv) permeability evolution.

Path Forward: Provide adequate support for the hydraulic conductivity value that is implemented in the base case for the PA for intact saltstone. Additional support should include a description of how data from laboratory samples is scaled to represent full-scale, as-emplaced saltstone. Additional support should also address the specific analytical concerns raised in the original comment, including the potential impact of atmospheric CO_2 on the results. Provide justification for the logarithmic averaging of hydraulic conductivity for a limited data set or provide additional data to characterize the distribution.

SP-6 **Comment:** Additional basis is required for the values of the effective diffusivity of intact and degraded saltstone used in the base case and sensitivity cases.

DOE Response Discussion: DOE indicated in their response that releases are primarily advection dominated, and calculated Péclet numbers for two separate cases: A and E. Because the Péclet number was large except for very early time periods in Case A, DOE concluded that uncertainty in the effective diffusion coefficient would not have a noticeable impact on calculated peak dose results.

The application of Péclet number as a criterion to neglect the importance of diffusion or advection is problematic (Huysmans and Dassargues, 2004). The importance of these transport mechanisms is more appropriately determined by extracting and comparing the model results. The PORFLOW model output files contain the diffusive and advective releases for each radionuclide at one-year time intervals for 20,000 years. NRC review of this data for key radionuclides (e.g., Ra-226, Tc-99, Pu-239) indicates that (i) diffusion strongly dominates radionuclide fluxes at early time periods (as much as four orders of magnitude) and (ii) continues to dominate throughout the 20,000-year period.

Path Forward: Provide a basis for using the effective diffusivity of intact saltstone in the two sensitivity cases that address degraded saltstone or update the sensitivity cases that address degraded saltstone with a value of effective diffusivity that reflects the physical degradation of the wasteform. Provide adequate technical basis for the value of the effective diffusivity of intact saltstone. Similar to SP-5, the values

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assigned should reflect what has been measured and conservatively reflect the uncertainty associated with the results of experiments that are yet to be completed.

SP-7 **Comment:** Additional bases are needed for key assumptions used in the simulation of sulfate attack with the STADIUM code.

DOE Response Discussion: The DOE response discussed the development of STADIUM by Simco Technologies. Data for blended cements have been developed but are part of a proprietary material database and are unpublished. Minor species are neglected because there is no self-diffusion data available. However, the model has been shown to reproduce experimental observations even though secondary phases are neglected.

The DOE response covered most of NRC's concerns. NRC is aware of the high quality of work performed by Simco. However, the use of proprietary unpublished information as a basis does not provide transparency for staff to verify the results. Staff is aware of similar research that has been performed at Vanderbilt University (it may also not yet be published). Research completed as part of the Cement Barriers Partnership showed the modeling results could be sensitive to initial mineralogy.

Path Forward: Given the constraints associated with proprietary information, evaluate whether the blended cement formulations that have been evaluated using STADIUM can be compared to the saltstone and concrete formulations used for saltstone disposal. Communicate the relative agreement between predicted and measured values. With respect to minor species, at a minimum an assumption regarding the neglect of minor species should be tracked and reevaluated as future pertinent research is completed. As research is published, provide a comparison of Simco and Vanderbilt assessment results.

SP-8 **Comment:** The initial grout mineralogy used in evaluating expansive phase precipitation is inconsistent with the initial mineralogy used to determine Eh and pH transitions in pore fluids. Depending on which initial mineralogy is more appropriate, the conclusions of either report could change.

DOE Comment Discussion: The DOE response indicated why there were differences in the formulations (basically because of timing of the parallel development of products) and that research was ongoing. They also indicated that the uncertainty in Eh and pH transitions of +/- 50% was applied in the uncertainty and sensitivity analyses.

The explanation of why the differences were present is useful to provide understanding, but it does not address why the differences are acceptable or what the impact of the differences in composition may be on the conclusions of the reports. The uncertainty range for the Eh and pH transitions has not been demonstrated to capture the differences in the number of pore volumes that would result from the variability in the initial mineral compositions. The assigned uncertainty range is speculative, and the effects are limited to alternate cases and therefore are not reflected in the base case results.

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Path Forward: Provide a basis for using different initial mineralogies in the calculations described in the basis of this comment, or provide information that demonstrates the calculation results are not significantly affected by the differences in initial mineralogy. Provide a basis for the uncertainty range assigned to the Eh and pH transitions.

SP-9 **Comment:** Uncertainty in groundwater composition was not considered in the Geochemist's Workbench simulations to estimate Eh and pH transitions in pore fluids.

NRC Response: The DOE response is adequate.

SP-10 **Comment:** There are indications that some measured plutonium and neptunium sorption coefficients in cementitious materials could reflect solubility rather than sorption, which could lead to a significant overestimate of plutonium and neptunium sorption.

DOE Comment Discussion: Recent DOE-sponsored research indicated that the dissolved concentrations of plutonium and neptunium were solubility limited rather than sorption controlled (SRNL-STI-2009-00636). DOE further stated that the models supporting the PA (i.e., PORFLOW and GoldSim) do not use solubility constraints but instead utilize apparent K_d values. However, it is not clear that solubility effects could be ruled out for the studies that form the basis for these plutonium and neptunium K_d values (WSRC-STI-2007-00640 and SRNS-STI-2008-00045). The use of K_d values based on sorption experiments in which solubility was actually the controlling process could lead to underestimation of the radionuclide release rates.

The K_d values measured in WSRC-STI-2007-00640 are extremely high; the solubility limit for plutonium may have been exceeded in these experiments. This report does not include information on the plutonium concentration used in these experiments and how it compares to the solubility limit. This report does state that no solids control samples were included to determine if precipitation was occurring, but the results of these samples were not included in the report. SRNS-STI-2008-00045 provides more information about the methodology used to account for the possibility of precipitation, but it is not clear how the information from the no solids control was used. On page 30, it is stated that the concentrations from samples 621-A, B, and C are used as the initial concentration in the calculation of the K_d. However, based on Table 13, it appears that this sample is not a 'no solids' control and that this sample contains simulated saltstone. Additionally, it seems that this sample is in a reducing environment rather than an oxidizing environment.

DOE also stated that the plutonium and neptunium K_d values used in the PA could be overestimated; however these values did not show up as sensitive parameters. In support of this finding, DOE conducted a sensitivity run that set the K_d value for plutonium and neptunium in cementitious material equal to zero in the GoldSim transport model. The results of these sensitivity runs indicated that the dose to the

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MOP during the compliance period increased by a factor of less than three for the base case; therefore, DOE concluded that any overestimation of plutonium or neptunium K_d values on cementitious materials would not impact the overall conclusions of the PA.

In addition to the limitations regarding one-off sensitivity analyses (see Comment PA-8), the relative increase in dose from reducing the K_ds to zero was significant. Table 5.5-2 in the PA indicates that for the base case, plutonium and neptunium each contribute less than 0.05 mrem/yr to the total peak dose of 1.4 mrem/yr in the 10,000-year performance period. In the sensitivity analysis with the K_ds for plutonium and neptunium set to zero, the result was that the total dose more than doubled from the original 1.4 mrem/yr. This large relative increase illustrates the sensitivity of the model to the cementitious material K_d for plutonium and neptunium. In light of the sensitivity of the model to these K_d values and the uncertainties in the PA, a one-off sensitivity analysis is not conclusive.

Path Forward: Provide an updated base case that includes technically defensible K_d values for plutonium and neptunium.

Provide information on the no solids control samples in WSRC-STI-2007-00640 and SRNS-STI-2008-00045, including the amount of precipitation observed in the no solids control samples (i.e., provide the initial and final concentrations in these samples). Provide information on the aqueous phase used in the no solids control samples and the pH of these samples. In addition, clarify which samples were used for the initial concentration in the K_d equation on p. 39 of SRNS-STI-2008-00045.

SP-11 **Comment:** In recent experiments used to help define K_d values for cementitious materials, the distinction between "middle" and "old" age conditions was based chiefly on water chemistry—not on the mineralogical assemblage. It is not clear whether the differences in solid phases for the different stages can be neglected.

DOE Comment Discussion: In the response, DOE states: "(d)ecreased sorption as a result of evolving mineral assemblage is not expected to be significant in the wasteform because the timing of re-crystallization of reducing old-age concrete is after the performance period, and because a decreasing trend between middle-age and old-age cement K_ds was implemented in the PA to account for this type of uncertainty." NRC staff does not agree with this statement because the estimation of the timing of the re-crystallization is based on hydraulic assumptions that the NRC staff does not think are supported (see Comments PA-8 and PA-10).

In addition, the comment response states: "(a)s identified above, there is a potential for sorption of key radionuclides onto old-age concrete to decrease with increasing precipitation of quartz as CSH gel dissolves. Any potential impact this may have on underestimating releases from the wasteform are considered insignificant, because countering factors would tend to immobilize these same radionuclides under the old age conditions, either by incorporation into the re-crystallized structures, increased sorption to iron oxyhydroxides, or by increased precipitation of the radionuclide itself, effectively canceling out the effects." NRC staff agrees that some of these factors

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may act to mitigate the decreased sorption in old-age concrete due to precipitation of quartz. However, NRC staff does not agree with the proposition that the two competing effects will necessarily cancel each other out. The net effect of competing effects is dependent on how strongly the different effects affect the system.

Finally, the comment response states: "(i)t is also proposed that the K_ds used in the PA are conservative in that they do reflect a decreasing trend in K_ds from middle-age to old-age cementitious material." NRC staff also does not agree with this logic because whether or not something is conservative is dependent on the actual values chosen, not just the trend in the values.

Path Forward: Depending on the results of research on the predicted flow through the cementitious materials, this comment may be more significant in the future if the transitions are predicted to occur during the performance period. NRC staff will continue to track this topic under monitoring.

SP-12 **Comment:** Model support is needed for the process models supporting PA predictions of Eh-pH evolution for cementitious materials.

DOE Comment Discussion: The comment response indicated that research is ongoing, and to account for the preliminary nature of the available information uncertainty and sensitivity analyses were performed.

NRC recognizes that additional work will be done to provide model support, and NRC is highly supportive of that work. However, using uncertainty analysis to account for lack of model support is generally insufficient unless it can be demonstrated:

i) The justification is provided to show that the range of parameter values considered in the uncertainty analysis encompasses the uncertainty in the model,

ii) The uncertainty and sensitivity analyses are reasonably conservative, and

iii) The impact of the uncertainty is limited locally and globally in the analysis.

Since the model is not adequately supported, it is very difficult to define an appropriate representation for the uncertainty analysis. Uncertainty analysis is a useful tool for use in performance assessment, but should be used very cautiously if at all with respect to model support.

Path Forward: Provide model support for the Geochemist's Workbench results regarding pore fluid volumes necessary for transitions in Eh and pH of pore fluids in cementitious materials (SRNL-TR-2008-00283). For example, model support could include a comparison of model results with the results of pH and Eh measurements in accelerated physical testing using higher flow rates than anticipated in full-scale saltstone. Plans for developing model support may provide appropriate basis, because NRC could verify the implementation of those plans in its monitoring role.

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However, use of plans for model support could result in the development of information that does not support the decision.

SP-13 **Comment:** The effect of limiting the shrinking-core model to the effects of the Eh evolution of saltstone on Tc should be analyzed.

DOE Comment Discussion: DOE provided information to demonstrate that for key radionuclides the transitions from different Eh and pH conditions are not expected to have a significant influence on the results, and therefore switching to a shrinking core model for those radionuclides is not warranted. Tc-99 was the main radionuclide for which the transitions were expected to have a big impact, and so it was included in the shrinking core model.

NRC's comment also applied to radionuclides that did not contribute at least 0.05 mrem in the all-pathways base case dose. The approach to modeling the release for those radionuclides could cause them to be defined as important or not.

Path Forward: Demonstrate that the key radionuclide list is not impacted by the type of release model (i.e. shrinking core vs. step transitions) applied. For instance, compare the K_d values assigned at different Eh and pH states, the concentrations of those radionuclides in the waste, and their dose conversion factors for key pathways or provide shrinking core model results for those radionuclides.

SP-14 **Comment:** Additional information is needed about the basis for the K_d values used for iodine and radium in cementitious materials.

DOE Response Discussion: In the DOE response to this comment, it is stated that: "(r)esults for iodine partition coefficients onto old-age cements in an oxidizing environment from the same report were not recommended for update because the new results do *not* correspond to previously reported values (Table 2, WSRC-STI-2007-00640)."

NRC staff disagrees with this statement for two reasons:

1) It is not reasonable to ignore data simply because the results are unexpected, and

2) The reducing grout used in WSRC-STI-2007-00640 is based on a different formulation than saltstone (i.e., it contains sodium thiosulfate as a reducing agent).

The radium K_d information provided in the DOE comment response is adequate, but NRC staff would like to note that the K_d value for Ra is risk-significant, so it is important for future research to be done on the sorption of Ra on simulated saltstone instead of relying on literature values based on the sorption of strontium. NRC staff would also like to note that it is important for the performance assessment to adequately account for the uncertainty in this parameter value.

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Path Forward: K_d values for I that are consistent with measurements made for simulated saltstone should be used in the PA. NRC suggests that future research include the sorption of Ra onto simulated saltstone, particularly under oxidizing conditions.

SP-15 **Comment:** The basis for the adopted technetium pseudo-K_d of 1,000 mL/g for reducing conditions is not sufficient.

DOE Comment Discussion: The DOE response to this comment states that,

> *"(t)he technetium K_d value selected for the shrinking core model (1,000 mL/g) is a lower bound on the values recommended in SRNL-STI-2009-00636 for cementitious materials of varying age. The selected value also creates margin in comparison to the recommended value (5,000 mL/g) for young and medium age cementitious material. This margin can be used to account for uncertainty in the recommended value."*

NRC staff does not believe that the "recommended values" of 1000 mL/g or 5000 mL/g are applicable to the saltstone wasteform for the following reasons:

1) *The 5000 mL/g value was measured for a formulation that included a strong reducing agent and is very different than the saltstone formulation.*

According WSRC-TR-2006-00004 and WSRC-STI-2007-00640 the "recommended" value of 5000 mL/g K_d is originally based on a measurement value from Bradbury and Sarott (1995). The Bradbury and Sarott (1995) reference states "(i)n some recent work, using Tc(IV) at trace levels (<10E-11 M) and sodium dithionite as reducing agent, distributions of ~5 m^3/kg (5,000 mL/g) have been reported (Bayliss et al., 1991)."

Because saltstone does not have the strong reducing agent sodium dithionite in it, this measured value is in no way applicable to the saltstone wasteform. In addition, the Bayliss et al., reference cited by Bradbury and Sarott is a symposium presentation that does not seem to be peer reviewed. It is inappropriate to use a non-peer reviewed source as the basis for a key assumption that strongly affects the calculated dose.

Similarly, staff from SRS have also told NRC staff that research described in Lukens et al., (2005) provided evidence that Tc would be reduced in saltstone (see meeting summary at ML101790054 [NRC, 2010b]). NRC staff disagrees with this statement because the reducing agent Na_2S was added to the waste simulant to reduce it in these experiments and this reducing agent is not added to the salt waste processed at the SPF.

2) *SRS staff measured much lower Tc K_d values for saltstone.*

In SRNL-STI-2009-00636, the measured K_d values for Sample Tr547, which has a composition similar to saltstone, ranged from 9.1 to 56 mL/g after 4 days (Table

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10.30). It is not clear why this information is not being considered in the PA, and NRC staff believes that in the absence of any relevant experimental data (i.e., using a wasteform formulation that is comparable to saltstone and does not include a strong reducing agent), it is not reasonable to discount experimental results.

3) *It is unclear if the saltstone pore fluid has reducing conditions.*

The redox conditions of waste are important for the release of Tc from the wasteform because under reducing conditions Tc is expected to be retained much more strongly under reducing conditions than under oxidizing conditions. In SRNS-STI-2008-00045, Figure 5, the reported Eh value approaches 0 mV as water flows through the system. Additionally, it is not clear that the Eh measurements were measured correctly. On June 29, 2010, NRC staff and SRS staff held a phone call to discuss the Eh measurements described in this report (see ML101790054 for summary of call). During this call, NRC staff asked what electrode was used and whether the reported values were corrected for the particular reference electrode used (i.e., referenced to a standard hydrogen electrode). SRS site staff stated that the electrode used in their experiments was an Ag/AgCl electrode and that the reported values were read directly from the instrument and were not corrected for the particular electrode used. It is the conclusion of the NRC staff that these redox potentials were incorrectly reported, and based on the half-cell potential of the Ag/AgCl electrode, the true Eh in this system would be 200 mV higher, or less reducing, than was reported.

NRC staff recognizes that the K_d tests for the sorption of Tc onto saltstone were intended to evaluate the transport of Tc through the saltstone once it has been released, rather than the release of Tc. However, because no relevant leaching data has been provided to the NRC, the K_d values measured by SRS for Tc represent the best available information on the release of Tc from the saltstone wasteform.

NRC staff is unable to conclude that the Tc will be retained by the saltstone wasteform to the extent that was assumed in the PA in the absence of appropriate data that clearly demonstrate that this assumption is valid. NRC staff, absent new information and bases on Tc leaching and K_d's, will use the site-specific K_d values measured by SRS staff for the sorption of Tc onto saltstone in their independent modeling analyses and in their conclusions in the TER.

Path Forward: Use a K_d value that is consistent with the values measured by SRS staff for the saltstone wasteform in the PA.

SP-16 **Comment:** The basis for the range of reduction capacities over which the shrinking-core model transitions to oxidizing K_d values for technetium is not clear.

NRC Response: The DOE response is adequate.

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SP-17 **Comment:** Neglecting gas-phase diffusion of oxygen appears to be inconsistent with the PORFLOW result that saltstone fractures are not completely saturated.

DOE Comment Discussion: The DOE response indicated that the transport of oxygen via the liquid phase is generally sufficient to keep the fracture faces near the oxygen solubility limit for Case C except at times less than 1,000 years, due to the very low flow through the cover system (and fractures) for those time periods. The impact of not addressing gas phase diffusion for Case E was considered minimal during the compliance period, since the FDC barrier is intact and effectively would maintain saturated conditions, thus supporting the assumption of saturated conditions being a barrier to gas-phase oxygen transport.

It is not clear to NRC staff that the transport of oxygen via the liquid phase for Case C is realistic or conservative as, (i) the flow of oxygen at early times may be underrepresented in the model due to very low flow through the fractures, (ii) the flow through the fractures in Case C remains low throughout the compliance period, and (iii) the difference between the transport of oxygen via the liquid phase and the gas phase may have an appreciable difference on the dose estimates. In regards to Case E, the impact of ignoring gas phase diffusion due to the performance of the FDCs resulting in saturated conditions is not appropriate as (i) the PORFLOW model appears to indicate saturation levels in the fractures for Case E at 40-50% and (ii) the performance of the FDCs as a hydraulic barrier should be reevaluated in light of recent hydrostatic tests (Comment VP-5).

Path Forward: Provide additional basis for neglecting gas-phase oxygen diffusion in cases representing fractured and degraded saltstone or provide updated dose estimates for cases representing fractured and degraded saltstone considering the potential effects of gas-phase oxygen diffusion.

SP-18 **Comment:** Additional justification is required for the uncertainty ranges used for K_d values in cementitious materials.

DOE Comment Discussion: The DOE stated that the selection of the uncertainty distributions used for the K_d values were based on >730 K_d measurements of 8 radionuclides taken from 27 samples collected from the E-Area vadose and aquifer zones, as discussed in WSRC-STI-2008-00285. The provided reference indicated that the 27 depth-discrete samples were collected from a single borehole from E-Area. Variability in the distributions was attributed to general geochemical/geological differences in the site soils. The resulting data was used to estimate the statistical range and distribution of the K_d values for the studied radionuclides. Using these 8 radionuclides as analogues, the distribution coefficient variability was applied to >50 radionuclides. As site-specific cementitious K_d values were not available, the general rules for bounding the sandy sediment were applied to cement. This uncertainty range was considered conservative as SRS sediment is more heterogeneous than cementitious materials, which also contain fewer minerals than natural sediments.

NRC staff agrees that natural SRS sediment is likely more heterogeneous and has more minerals than cementitious materials; however, the heterogeneity and number

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of minerals does not dictate the potential range of K_d values. The relatively limited number of minerals in cementitious materials makes these materials less likely to have as large a range of K_d values as a natural soil; however, even two minerals with different surface chemistry can lead to significant variability. Research by Baur and Johnson (2003) demonstrated that the K_d for selenium can vary by more than two orders of magnitude depending on the cement phase.

The limited site-specific K_d data and an insufficient technical basis for adapting K_d values from sediment samples to cementitious materials results in significant uncertainty. An increase in the range of K_d values for cementitious materials over sediment samples is not a basis for uncertainty conservatism. Compensation for insufficient data by an increase in a parameter distribution range provides no additional confidence and it could (i) result an unnecessary degree of conservatism or (ii) result in risk dilution due to an artificial extension in the timing of arrival of a contaminant.

The lack of site-specific data demonstrates the importance of an appropriate base case such that a sensitivity and uncertainty analysis could inform research needs to evaluate the variability of data and reduce data uncertainty. Sorption of radionuclides to cementitious materials provides a significant barrier in the PA. Data support for these K_d values should be commensurate with the assumed risk reduction.

Path Forward: Depending on the extent to which DOE will rely on the GoldSim model, provide additional support for using the sandy-soil-based uncertainty distribution for cementitious materials K_d values and a basis for concluding that this approach does not underestimate uncertainty in radionuclide sorption to cementitious materials. For example, additional support could include laboratory analyses for risk-sensitive radionuclides. Plans for developing data support may provide appropriate basis, because NRC could verify the implementation of those plans in its monitoring role.

SP-19 **Comment (New):** Research related to the release of Tc-99 from saltstone appears to be inconsistent with the Tc-99 releases modeled in the PA.

Basis: As discussed in WSRC-STI-2007-00056, experiments on Tc-99 leaching from saltstone simulated grout were conducted and the results incorporated into PORFLOW modeling. Figure 1 shows the modeled release of Tc-99 according to WSRC-STI-2007-00056 and the 2009 Saltstone PA. The modeled Tc-99 release for WSRC-STI-2007-00056 is approximately 60% over the 10,000-year compliance period for saltstone with a hydraulic conductivity of 1E-9 cm/s, which is slightly less than the assumed hydraulic conductivity in the 2009 PA of 2E-9 cm/s. According to the PORFLOW model files in the 2009 PA, the predicted release of Tc-99 from the saltstone material is 0.6% for the base case and 9.6% for the synergistic case.

The research presented in WSRC-STI-2007-00056 demonstrated the release of Tc-99 due to the presence of residual oxygen for an intact saltstone monolith. Residual oxygen would be consistent with field conditions at the SDF as would the

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transport of gas and liquid-phase oxygen to the fractured vaults and saltstone. In addition, the saltstone grout has been shown to be fractured which would increase the surface area-to-volume ratio, thereby increasing the oxidation of saltstone.

NRC staff recognizes that research is ongoing and that the results presented in Figure 1 below are based on a modeled system. However, this model is parameterized from experimental results conducted with a saltstone simulant whereas the shrinking core model utilized in the PA is less empirical. Additionally, some key parameters of the shrinking core model, such as the Tc K_d are based on a formulation that is drastically different than saltstone (see SP-15).

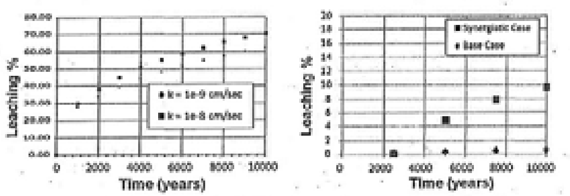

Figure 1: Tc-99 release over the 10,000-year compliance period based on results (a) WSRC-STI-2007-00056 and (b) the 2009 PA model results

Path Forward: The PA should be consistent with relevant research or justification should be provided discussing why it was excluded. Provide any additional references on Tc-99 leaching from saltstone that have not already been provided to the NRC.

Vault Performance

VP-1 **Comment:** Additional analysis is needed to assess the applicability of the degradation mechanisms responsible for the observed fracturing of Vaults1 and 4 walls and the degradation mechanisms described in SRS-REG-2007-00041 to the FDCs and to other parts of Vaults 1 and 4.

NRC Response: The DOE response is adequate at this time; the NRC staff is continuing to review several of the references that were provided by the DOE.

VP-2 **Comment:** Additional basis is required for neglecting disposal unit degradation mechanisms other than sulfate attack.

DOE Response Discussion: The DOE response contained two main elements: sensitivity analyses and ongoing research. A sensitivity case was provided with what DOE believes is pessimistic assumptions that demonstrated the doses would remain marginally below 25 mrem/yr. The DOE response did not address the NRC requests

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to address corrosion cracking or to provide analog information as technical basis (e.g. model support).

The response is mostly complete, but as previously indicated issues or uncertainties should be reflected in the base case and not in an alternative analysis case. For example, the analysis presented shows that the dose could approach 25 mrem/yr. Combined with any other issue that moderately increases the dose independently from this analysis, the performance objective could be exceeded. The original NRC comment provided many technical considerations that should result in modifications to the base case, based on DOE's currently available supporting information.

Path Forward: Update the base-case model to reflect the potential effects of applicable degradation mechanisms and their uncertainties based on currently available information.

Provide justification for neglecting other forms of degradation of disposal unit cementitious materials, including alkali silica reaction, corrosion cracking, and other relevant forms of degradation. The justification should address Vaults 1 and 4 floors and roofs as well as FDC walls, roofs, and floors.

If maintenance of an alkaline pH near steel components of the disposal units is relied upon to demonstrate steel passivity, the model generating predicted pH values should account for local effects near steel components (e.g., pH depression by carbonation in fractures near steel components) or address why such phenomena can be neglected.

A summary of observed reinforcement corrosion of concrete at SRS should be provided. Provide information to demonstrate that modeling of engineered systems in this application is consistent with observed performance of analogous systems at SRS.

VP-3 **Comment:** The effect of modeling disposal unit floors as completely reducing for the entire performance period, and beyond 20,000 years, should be analyzed.

DOE Response Discussion: The DOE response stated that the exposed surfaces of the vault concrete floor begin oxidizing at time zero. The chemical transition times for the various cementitious materials were presented in Table 4.2-17 of the PA, as computed in PORFLOW except for the shrinking core simulations. The shrinking core model explicitly simulated the oxidation of saltstone and the vault concrete for Tc-99 simulations.

The shrinking core model represents a uniform oxidation front with an unreacted core. Rapid transport of redox-sensitive radioelements (e.g., Tc-99) through the oxidized region would occur followed by immobilization once the radionuclide reached the core. However, a fracture in the vault floors would quickly result in a non-reducing fast pathway. It is not clear that DOE has conducted adequate characterization of the floor to support the assumption that the floor is not fractured (initially or at any future time) in the base case. Based on the demonstrated floor

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performance of Vault 2 (due to cracking near anchor bolts) during recent hydrotesting. It is also not clear that the assumption of no fractures in the floors of Vaults 1 and 4 in the base case is realistic as Vaults 1 and 4 floors also contain anchor bolts. NRC staff understands that Vaults 1 and 4 floors are 24 inches thick versus 8 inches thick for the Vault 2 design which may affect the potential for fracturing at the anchor bolt sites.

Path Forward: Vault floor fractures should be included in the base case or provide a technical basis for not including this feature in the base case in light of limited vault floor characterization and the performance of the FDCs.

VP-4 **Comment:** The effects of the potential inventory in Vaults 1 and 4 floors on radionuclide release should be analyzed.

NRC Response: The response is adequate. NRC staff agrees that the potential initial inventory in the floor is likely to be relatively small and not risk-significant.

VP-5 **Comment (New):** The uncertainty in the performance of the vaults is not adequately represented in the PA and the PORFLOW model.

Basis: Recent hydrostatic tests for Vault 2, Cells 2A and 2B have demonstrated the complexities and uncertainties regarding the hydraulic integrity of engineered barriers. Discrete engineering features that can drive system performance are not captured within the PA. Features such as material interfaces, the vault liner coating, and anchor bolts led to unanticipated vault performance (SRR-CWDA-2010-00099). DOE has taken steps to eliminate the issues regarding these features; however, the unanticipated leak test results are indicative of optimistic performance assumptions regarding the hydraulic properties of the FDCs, as well as Vaults 1 and 4. The long-term performance of these engineered barriers has uncertainty that is not adequately represented in the PA.

The discrete features that have driven the performance of Cells 2A and 2B in the hydrotests are not currently incorporated into the PORFLOW analysis. Accordingly, the model would be inadequate with respect to the representation of these failures. The PORFLOW model does not include the potential for discrete failures beneath the anchor bolts, flawed liner coatings, or the discrete material interfaces.

Based on conversations with SRR staff, the recent FDC leaks are not considered significant to the performance of these vaults and they do not significantly impact the conclusions of the PA; the presence of engineered barriers such as the shotcrete and the HDPE-GCL around the FDCs provide a defense in depth. Due to the additional reliance on these engineered barriers and very limited performance data for the relatively unique applications of these barriers, additional model support would provide necessary confidence. Additionally, it is not clear that the HDPE/GCL was a completely redundant barrier i.e., the expected flow and transport through the HDPE/GCL may be correlated to the performance of FDCs.

Path Forward: Provide a technical basis demonstrating that recent events and

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discrete features will have a negligible impact on the dose results. This may include demonstration that barriers in addition to the FDC vaults will provide compensatory performance, such that the conclusions of the PA are not affected by (i) the observed performance of the FDCs to date and (ii) reasonably expected future performance.

Alternatively, reevaluate the expected performance of Vaults 1, 2, and 4 in light of evidence demonstrating the significance of discrete features. Reevaluation of vault performance may indicate that these discrete features should be incorporated into PA models.

VP-6 **Comment (New):** The bypassing of flow through Vaults 1 and 4 walls may not have a physical basis.

Basis: In Section 5.6.3.1, DOE discussed the result of water preferentially flowing through the vault walls and around the saltstone wasteform, which is due to the hydraulic model parameters for the Saltstone vaults and wasteform. The hydraulic conductivity of the walls for Vaults 1 and 4 for all cases in the PA is 4 orders of magnitude greater than that of the backfill or native soil. Although degrading the vault walls is locally conservative, globally the result is non-conservative. If there is not a physical basis for the walls to hydraulically degrade to the extent discussed in the PA, then the flow through the saltstone wasteform would be underestimated.

Path Forward: Provide additional support for the assumed hydraulic conductivity of the degraded Vaults 1 and 4 walls that result in the modeled bypassing of flow around the saltstone wasteform.

Far Field Transport (FFT)

FFT-1 **Comment:** Additional justification is required for the uncertainty ranges used for K_d values in site soils.

DOE Response Discussion: The DOE stated that the selection of the uncertainty distributions used for the K_d values were based on >730 K_d measurements of 8 radionuclides taken from 27 samples collected from the E-Area vadose and aquifer zones, as discussed in WSRC-STI-2008-00285. The provided reference indicated that the 27 depth-discrete samples were collected from a single borehole from E-Area. Variability in the distributions was attributed to general geochemical/geological differences in the site soils. The resulting data was used to estimate the statistical range and distribution of the K_d values for the studied radionuclides. Using these 8 radionuclides as analogues, the distribution coefficient variability was applied to >50 radionuclides.

WSRC-STI-2008-00285 evaluated the vertical variability of K_d values for 8 different radionuclides; however, lateral variability and radionuclide-specific chemistry may also affect K_d variability. Section 3.1.4.2 discusses the complexity and variability of the local geology and soils and it is not clear that a single borehole from E-Area would be representative of the soils at Z-Area. In addition, it is not clear that the

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variability in K_d values for 8 radionuclides would adequately capture the variability of all 50+ radionuclides.

Path Forward: Depending on the extent to which DOE will rely on the GoldSim model, provide additional basis regarding the ability of K_d measurements on sediment samples from a borehole at E-Area for 8 radionuclides to bound the potential variability of >50 radionuclides at Z-Area.

FFT-2 **Comment:** It is unclear whether any site-specific K_d value measurements have been performed for the sorption of radium to soil.

NRC Response: The answer to this RAI is adequate, but NRC staff would appreciate receiving the document described in the response to this comment (SRR-CWDA-2010-00057) if it has been issued. If the measured K_d value is significantly different than the one assumed in the PA, the new value should be used in a revised base case.

FFT-3 **Comment:** Additional justification is needed for the K_d of selenium in vadose and backfill soils.

DOE Response Discussion: The DOE stated that a K_d for selenium of 1,000 mL/g is representative of a low pH soil and a low pH soil is considered appropriate as measurements ranged from 5.3 to 5.7 in the Z-Area background well, ZBG-1 (SRNS-TR-2009-00452). The impact of alkaline buffering on the selenium K_d values was evaluated in the probabilistic GoldSim model by using a minimum value of 250 mL/g, to account for the leaching of young-age cement. In addition, DOE ran a bounding sensitivity case using the Case A GoldSim model with both backfill and vadose zone soil K_d values for selenium set equal to zero. The effect on peak dose was less than 3% for Sector B within 20,000 years. DOE stated that the bounding sensitivity analysis provides confidence that lowering the selenium sorption onto soils has a negligible impact on dose results.

Although 3% represents a small absolute increase in dose, it represents a large relative increase in the dose derived from Se-79. According to SRNS-TR-2009-00452, the pH range of 5.3-5.7 appears to be too narrow for the Z-Area. Three wells within the Z-Area demonstrated pH values in excess of 5.7 and as high as 7. ZBG-1 represents the background well for the site; however part of NRC staff's concern is the variability across the site, including the potential impact of the cementitious materials in the SDF. In addition, the sensitivity case provided by DOE does not provide confidence as the conservatism of these sensitivity cases is unclear.

Path Forward: Depending on the extent to which DOE will rely on the GoldSim model, the selenium K_d values for soil should account for site variability in current conditions as well as reasonably expected future conditions.

SRNS-TR-2009-00452, Z-Area Groundwater Monitoring Report for 2009, Savannah River Site, Aiken, SC, December 29, 2009.

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Provide reference Kaplan, D. I., and S. M. Serkiz, 2006. *WSRC-RP-2006-00005, Influence of Dissolved Organic Carbon and pH on Anion Sorption to Sediment*, Washington Savannah River Company, Aiken, SC.

FFT-4 **Comment (New):** The PA should discuss the implications of calcareous zones within the far field transport model.

Basis: The presence of calcareous zones may require alternative flow conceptualization and modeling. Depending on the extent of these zones within the lower Upper Three Runs (UTR) aquifer, a dual porosity and dual permeability model may better represent flow through a porous matrix and open conduits. The presence of open conduits may (i) lead to preferential flow pathways through the subsurface, (ii) influence the location of the point of maximum exposure or compliance point, (iii) lead to decreased natural attenuation (sorption) to subsurface materials due to a decreased solids to pore water ratio, and (iv) lead to reduced K_d values for key radionuclides (e.g., Pu) due to elevated concentrations of carbonate, or non-equilibrium sorption due to the fast transport rates.

Path Forward:

1) Provide a technical basis for neglecting potential open flow conduits within the calcareous zone of the lower UTR aquifer.
2) Provide support for the treatment of the calcareous zones as porous media in transport modeling in light of the fact that decreased solids and presence of high carbonate concentrations can lead to significantly higher mobility for key risk drivers such as Pu.
3) Provide the report, Mueser, Rutledge Consulting Engineers (1986) Saltstone disposal, Z-Area SRP, cited in WSRC-TR-99-4083, "Significance of Soft Zone Sediments at the SRS" that may contain additional information to evaluate the scope and magnitude of calcareous zones in the Z Area subsurface.

Air Pathway

AP-1 **Comment:** The dose from the radon pathway was not included in the dose assessment of the air pathway (Section 4.5 of the PA).

NRC Response: The DOE response is adequate.

AP-2 **Comment:** The calculations used for the air pathway dose may not have adequately evaluated the dose from this pathway. The materials were assumed to remain constant over the simulation period and degradation of the wasteform and vault does not seem to have been considered. Also, the sensitivity of the calculated land surface flux rates of radionuclides to the assumed moisture content in the cover was also not evaluated.

NRC Response: The DOE response is adequate.

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Inadvertent Intrusion

II-1 **Comment:** Key assumptions about the potential pathways of exposure of an inadvertent intruder appear to underestimate dose.

DOE Response Discussion: In the analysis described in the PA, the intruder analysis was performed at a location of one (1) meter from the boundary of the SDF, which is one meter from some of the FDCs. In response to the NRC comment that the dose at one meter from Vault 4 may be higher, DOE provided a revised analysis that includes the dose at a distance of one meter from Vault 4. NRC staff finds that this portion of the response was acceptable (with the caveat that NRC staff does not agree with the use of Case A [see II-2]).

NRC staff also commented that the one-meter concentrations used in the intruder analysis were based on a 15.2 m (50 ft) grid that began at a distance of one meter from the disposal cells. NRC staff did not believe that it was appropriate to average the concentrations over this large a grid because the concentration of radionuclides that decay relatively quickly and are transported slowly may be very different over the 15.2 m (50 ft) cell. The new calculation for Vault 4 provided by DOE conservatively assumes that the concentration at one meter is equal to the concentration calculated under Vault 4. This response is acceptable to the NRC, but the NRC staff would like additional clarification on the Darcy Velocity assumed in this calculation.

The calculated dose at a distance of one meter from the FDCs was not evaluated in a similar manner and is still based on the concentration averaged over the 15.2 m (50 ft) grid. NRC staff needs an assessment of the dose at one meter from the FDCs to evaluate if the performance objectives can be met.

Additionally, as discussed in more detail in B-2, NRC staff does not agree with the exclusion of the poultry and egg pathway from the dose assessment and NRC staff believes that this should be included in the dose assessment for the intruder.

Path Forward: Provide an evaluation of the effect of the grid size assumption for the FDC. Consider the effect of including the poultry and egg pathway on the intruder (see B-2).

Provide a clarification on the Darcy Velocity assumed in the intruder calculation for Vault 4.

II-2 **Comment:** The basis for the use of Case A to calculate the intruder dose is not provided. Additionally, the methodology used for determining the key radionuclides for the intruder uncertainty/sensitivity analysis may have resulted in radionuclides that are risk significant to the intruder being excluded from this analysis. As a consequence, the results of the uncertainty/sensitivity analysis may not capture the true uncertainty in the intruder dose.

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DOE Response Discussion: The response to the RAI provided by DOE states "(t)he deterministic intruder analysis results are based on Case A because Case A represents the reasonably expected degradation configuration for the SDF disposal units". As stated in PA-8, the NRC staff believes that Case A is very optimistic and is not supported. NRC staff needs an intruder assessment that is based on a credible compliance case that includes all risk significant radionuclides to determine that compliance with the performance objectives of 10 CFR 61 can be met.

In the RAI response, DOE stated that the SDF PA Section 6.5 presents results that address the effects of uncertainty on the estimation of intruder dose and that the calculated mean dose to the intruder for all cases (Cases A through E) is less than 10 mrem/yr. NRC staff recognizes that the GoldSim uncertainty analysis considers the other, more realistic degradation cases. However, NRC staff has some concerns about the GoldSim modeling calculations (see PA-11), and it is not clear that the doses calculated using the GoldSim model are reasonable or meaningful.

Additionally, DOE stated in the RAI response that the potential dose to the intruder associated with the other cases can be inferred based on the dose results at 100 m presented in the SDF PA Section 5.6.6. NRC staff disagrees with this statement because radionuclides that are transported slowly and decay relatively quickly (e.g., Sr-90 and Cs-137) could cause a significant dose at a distance of one (1) meter, but it is unlikely that these radionuclides would travel quickly enough to reach 100 m before decaying. These radionuclides might not be modeled as being released quickly enough in Case A to be a problem at one (1) meter, but they could be released more quickly if more water enters the system than was predicted in that model.

Path Forward: Provide an assessment of the intruder dose based on a realistic and reasonable compliance case.

Biosphere

B-1 **Comment:** The basis for excluding biotic transfer factors from the uncertainty analysis is unclear.

DOE Response Discussion: The DOE response indicated that uncertainty in biotic transfer factors did not result in large changes to the total dose, therefore uncertainty in the transfer factors were not included in the probabilistic analysis. The absolute changes to dose as a result of biotic transfer factor uncertainty was small, however the relative changes were moderate to significant. The impact of biotic transfer factor uncertainty should be part of the base case assessment.

This comment has been expanded to include plant transfer factors and the conceptual approach for developing the values for the distributions and the expected values for the base case. Biotic transfer factors directly influence calculated doses and can have very broad ranges. In many instances, the DOE recommended values are equal to the minimum value of the distribution (for plant transfer factors, at almost

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a three to one ratio compared to values set to the maximum of the distribution). In effect, the distribution is defined such that the actual value will not be lower than the most likely value and the actual value is expected to be higher. These types of distributions are inconsistent with real world data and lack a conceptual basis.

Part of the reason for the distributions appears to be the derivation process documented in WSRC-STI-2007-00004. The process is not supported. DOE had derived transfer factors then updated them with a variety of sources, but primarily from PNNL-13421. For many transfer factors, the updating was performed by calculating a geometric mean of the old and PNNL-13421 values. This approach has no basis, and can result in a significant underestimation of biotic pathway doses. For example, the soil to plant transfer factor for Ra (a key radionuclide) was reduced by a factor of 100 from the previous value using this approach. A footnote infers that the PNNL-13421 values are site-specific, but NRC review of the reference indicates that the values are not site-specific but simply represent a different compilation of values.

Transfer factors operate on the concentrations derived at the end of the calculation, and can have very broad ranges. Many have very few observations. For the most part, the variance in observed values represents real world variability. Use of a geometric mean can result in a high likelihood of the actual value exceeding the assumed value and exceeding it by a large margin. Without actual site-specific measurements, transfer factors have to be selected conservatively.

Path Forward: Provide technical basis for the expected value and distributions of transfer factors used in the analysis. The results should not be aggregated with a geometric mean transfer factor.

B-2 **Comment:** The animal product pathways included in the dose assessment are the beef, milk, and finfish pathways. A basis for excluding the other animal product pathways (e.g., consumption of poultry and eggs) from the dose assessment is not provided.

DOE Response Discussion: In the response to this comment, DOE states that the exposure pathway for poultry and eggs is not included in the SDF PA compliance model based on a survey of local practices within 50 miles of the SRS. WSRC-RP-91-17 cites a personal communication from T. Mathis who indicated that it is the local practice to source poultry feed from offsite. Based on this communication, DOE excluded poultry and eggs as an exposure pathway.

NRC staff believes that this study does not provide a sufficient technical basis to conclude that chicken feed is currently, or will in the future, be sourced from offsite. In addition, even if the poultry primarily consume commercial feed, the poultry may still consume other things (e.g. bugs and forage) which may contain site-derived radionuclides. Furthermore, the poultry would likely consume groundwater (extracted for domestic or agricultural purposes) from the site. For these reasons, the NRC staff does not believe it is appropriate to exclude the chicken and egg pathways from the PA.

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Path Forward: Provide an evaluation of the dose to the member of the public and intruder from chicken and egg pathways.

B-3 **Comment:** The effects of radionuclide build-up in irrigated soils may be underestimated.

DOE Response Discussion: The DOE response indicated that use of a 30-year build-up time as compared to a 183-day build-up time for radionuclides in irrigated soils did not result in large changes to the total dose; therefore the effects did not need to be included in the base case.

Most releases from the SDF are expected to occur slowly over thousands of years. The 30-year buildup time may be exceeded for long-lived radionuclides, however NRC acknowledges that the assessment provided did not consider losses from erosion and leaching. Ambiguity could be reduced by including expected gain and loss processes to determine equilibrium build-up factors.

The absolute changes to dose as a result of increased build-up times were small; however the relative changes were significant. The impact of build-up time uncertainty should be part of the base case assessment.

Path Forward: Include build-up of radionuclides during multiple years of irrigation in the base case PA model.

B-4 **Comment (New):** The soil to plant transfer factors may be too low due to the elimination of the leafy plant component.

Basis: WSRC-STI-2007-00004 uses soil to plant transfer factors for non-vegetative portions of food crops because local productivity of non-leafy vegetables is expected to be considerably greater than that of leafy vegetables (based on WSRC-RP-91-17). However, the transfer factors for leafy vegetables can be considerably larger than non-leafy vegetables for key radionuclides. For example, the reference most used as a source of transfer factors in the current analysis (PNNL-13421) has a factor of 210 for leafy vegetables and a value of 0.24 for non-leafy vegetables for Tc. At a 13% leafy vegetable fraction, the vegetable pathway dose from Tc would be over 100 times larger with the leafy and non-leafy components calculated separately and then combined compared to assigning all vegetables as non-leafy. In addition, the WSRC-RP-91-17 reference may have underrepresented garden production data due to limited survey response.

Path Forward: Include the leafy vegetable pathway explicitly in the plant pathway dose calculation. Consider using EPA or NRC references for garden productivity data.

B-5 **Comment (New):** The drinking water ingestion rate of 337 L/yr is inconsistent with an average member of the critical group definition.

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Basis: The drinking water ingestion rate is calculated by taking the mean per capita total water ingestion of 1233 mL/day and multiplying by the 75% value from community water. However, this is weighting the critical group member's consumption rate by the type of group the critical group member is in. Given the current site usage and definition of the receptor as a resident farmer, the drinking water consumption rate should be a minimum of 87% of the total water ingestion rate (subtract out the bottled water fraction). Consideration should also be given to adjusting the values for a receptor engaging in a more labor-intensive lifestyles than average in a climate that is warmer than average.

Path Forward: Modify the drinking water consumption rates to be consistent with the defined receptor and scenario.

ALARA analysis

A-1 **Comment:** Social, economic, and public policy considerations do not appear to have been considered in an analysis of maintaining doses "As Low As is Reasonably Achievable" (ALARA).

DOE Response Discussion: The response to this RAI states that "the estimated dose pathways evaluated in the PA are well below the performance objectives; therefore, a qualitative assessment of disposal alternatives is justified." NRC staff agrees with the concept that a less detailed ALARA is required when the predicted doses are low, but NRC staff would like to note that an assessment that includes the concerns raised in other RAIs (e.g., PA-11, PA-13, IN-1, etc.) may result in a higher calculated dose. In addition, the response to this RAI did not include a discussion on the processes that are being used to minimize the inventory that is disposed of at the SDF. A discussion on maintaining the worker dose at levels that are ALARA was also not included.

Path Forward: Provide additional information on the methodology used to minimize the inventory of radionuclides that are sent to the SDF. Also, provide more details on the controls that exist to minimize the dose to the workers.

Clarifying Questions

As mentioned in the Structure of Comments section of this RAI, the staff found the remaining clarifying comment responses, not referred to in the section below, to be acceptable. In addition to referring to one Clarifying Comment from RAI-2009-01, the staff has added new clarifying comments in RAI-2009-02.

C-4 **Comment:** Clarify the basis for the selenium K_d of 150 mL/g for old oxidizing conditions. It is not clear from the PA, or the supporting report WSRC-STI-2007-00640, how the value was selected. Clarify whether the evaluation considered the presence in solution of the selenium as selenate, which is potentially less sorptive than selenite.

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DOE Response Discussion: The DOE discussed site-specific batch experiments that showed selenium K_d values ranging from 29.7 to 78.5 mL/g. These experiments were discounted in favor of literature values due to the aqueous selenium concentrations being near the detection limits. The basis for the selenium K_d of 150 mL/g for old oxidizing conditions relied on the values reported in "Sorption of Selenite and Selenate to Cement Materials" (Baur and Johnson 2003). DOE stated that selenite is expected to convert to selenate under old oxidizing conditions and that the K_d values for selenate from the report by Baur and Johnson (2003) were between 180 and 380 mL/g. DOE further stated that as cementitious materials degrade, the selenium sorption constants (K_d = 1041 mL/g) approach that of the sediment. Selenium sorption was stated as being very high due to the ubiquitous presence of iron oxides and low pH of the sediment.

The K_d values of 180 and 380 mL/g reported in "Sorption of Selenite and Selenate to Cement Materials" were for selenite, not selenate. Baur and Johnson (2003) reported no significant update of selenate with calcium-silicate-hydrate (C-S-H) and only limited sorption with ettringite. Furthermore, it is not clear why the sorption coefficient for selenium would approach that of sediment as cementitious materials degrade. The chemistry of degraded cementitious material would not be expected to have the same chemical properties as sediment (high iron content and low pH), which is responsible for the high sorption coefficient for selenium.

Path Forward: Provide support for the selenium K_d of 150 mL/g for old oxidizing conditions or revise the base case K_d value.

C-8 **Comment:** For benchmarking cases B-E (Sections 5.6.2.3.5 though 5.6.2.3.8), the PA compares the doses predicted based on the PORFLOW model and post-benchmarking GoldSim model resulting from "all modeled radionuclides". Clarify whether the term "all modeled radionuclides" in this context refers to the original list of radionuclides included in the PORFLOW model or a smaller list of radionuclides modeled during the benchmarking effort.

DOE Response Discussion: The response to this clarifying comment only addressed the radionuclides included in the Case A PORFLOW and the GoldSim calculations. The radionuclides included in the PORFLOW calculations for Cases B-E were not discussed.

Path Forward: Provide a list of the radionuclides provided in the PORFLOW calculations for Case B, Case C, Case D, and Case E.

C-22 **Comment (New):** Figure 4.2-15 in the PA shows the vertical hydraulic conductivity of the lower lateral drainage layer reducing in time to approximately 4E-5 cm/s by 20,000 years. However, the PORFLOW model files indicate that the hydraulic conductivity is only reduced to 4.9E-3 cm/s for all cases. The flux out of the vaults is directly dependent on the infiltration rates. As indicated in IEC-8, the conservatism of the calculations for the hydraulic conductivity of these lateral drainage layers is not clear and according to the PORFLOW model files, it is not clear if these calculations

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were implemented appropriately. Clarify why different hydraulic conductivity values were implemented in the PORFLOW model.

C-23 **Comment (New):** WSRC-STI-2008-00244 discussed the installation quality of the geomembrane as "Good"; however, the HELP model also requires the specification for the placement quality of the geomembrane. The Help model input data in Appendix J of WSRC-STI-2008-00244, listed the geomembrane placement quality as a "2". According to the "HELP User's Guide for Version 3" (Schroeder et al., 1994), an entry of 2, "assumes exceptional contact between geomembrane and adjacent soil that limits drainage rate (typically achievable only in the lab or small field lysimeters)." The basis for selecting the placement quality of the geomembrane should be provided.

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MR. HABER: Thank you. My name is Jim Haber, H-A-B-E-R. I'm with Nevada Desert Experience. We organize interfaith resistance to nuclear weapons in the war, and we're based here in valley. And we'll also be submitting more formal comments; and we will be encouraging others to submit comments, also, before the deadline.

And looking at this information, which is new to me, not that the issue is new. But it does strike me, even though you spoke to why HOSS is not on here, the Hardened On-Site Storage, seems like to -- the presentation makes it seem to me like we still need to consider hardened on-site something, at least for now. T40-1

And that the comparisons that show human risks to be really elevated for that method assumes no activity for 100 years, or whatever. And so I understand that we can't presume what we will do if we say no action now. But it just makes the form of comparison seem skewed towards the deep geological or was the method being proposed for consideration at the Nevada Test Site.

So the presentation of the data that way seems unfair because no action now doesn't mean no action ever. It means that we're not sure what to do T40-2

T40-1 The use of HOSS and other approaches for long-term storage of GTCC LLRW and GTCC-like wastes are outside the scope of this EIS because they do not meet the purpose and need for agency action. Consistent with Congressional direction in Section 631 of the Energy Policy Act of 2005 (P.L. 109-58), DOE plans to complete an EIS and a ROD for a permanent disposal facility for this waste, not for long-term storage options. The GTCC EIS evaluates the range of reasonable disposal alternatives and, as also required under NEPA, a No Action Alternative. Under the No Action Alternative, current practices for storing GTCC LLRW and GTCC-like wastes would continue in accordance with current requirements.

T40-2 The No Action Alternative is evaluated in Chapter 3 of the EIS, and under this alternative, current practice for storing GTCC LLRW and GTCC-like wastes would continue. These practices are described in Sections 3.2 (GTCC LLRW) and 3.3 (GTCC-like wastes) in the Final EIS. It was necessary to make a number of simplifying assumptions to address the long-term impacts of this alternative, and these are described in Section 3.5. As part of this assessment, it was assumed that these wastes would remain in long-term storage indefinitely, including wastes from the West Valley Site as discussed in Section 3.5.3, and that no maintenance of either the storage facility or waste packages would occur after 100 years. These results indicate that very high radiation doses and cancer risks could occur under this alternative in the long term.

The No Action Alternative is evaluated in sufficient detail in the EIS as required by NEPA. Comparatively high potential radiation doses and cancer risks could occur should this alternative be selected. While a more detailed analysis could reduce the uncertainties associated with estimating these doses and risks, the conclusion of comparatively high impacts would not change for this alternative.

Impacts from accidents or theft/intrusion were not performed for the No Action Alternative because of the large number of potential locations, and in many cases (sealed sources), the current locations of the waste are not known. In general, these impacts would be comparable to those in the accident consequence analyses conducted for facilities and transportation but possibly occur at a higher frequency because of a lower overall level of security.

The No Action Alternative is evaluated in the EIS to provide a baseline for comparison with the action alternatives. This evaluation confirmed the risks posed by these wastes and the need to develop appropriate disposal capability. The potential radiation doses for the No Action Alternative covered a time period of 10,000 years in a manner comparable to that done for the action alternatives. Relatively high impacts could occur shortly after the 100-year institutional control period under this alternative.

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with this material because there is no good thing to do with this material, and so I'm afraid that my comments are going to go beyond the scope of this hearing and this EIS.

T40-2 (Cont.)

And yet it's necessary at all of these junctures to point out that we don't know how to deal with the nuclear gene that is out of the bottle. Therefore, we need to stop generating nuclear waste. We need to stop looking to nuclear power and nuclear weapons for a whole host of reasons, and we have treaty obligations and to be decommissioning and dismantling our nuclear weapons, not finding ways to support nuclear weapons more.

T40-3

Now, this is about nuclear power. We need to not overstate the medical component of the nuclear waste because that seems clear to be a very small percentage, and yet I can hear in public discourse that it's going to be pointed to as, "Oh, we need a place to deal with this medical waste." And yet it's very small, and so I want us to be sure that we don't allow that to happen.

I can see that the Native American community has been involved on some level in this draft, and yet I know that the Western Shoshoni National Council opposes any further use of nuclear -- of the Nevada

T40-3 Stopping the generation of nuclear waste, whether from the use of nuclear power or the generation of nuclear weapons, is outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes in compliance with the requirements specified in NEPA, the Low-Level Radioactive Waste Policy Amendments Act (P.L. 99-240), and Section 631 of the Energy Policy Act of 2005 (P.L. 109-58). The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

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Test Site on Western Shoshoni lands for their use. I'm not Western Shoshoni. I don't presume to speak for everyone there. But I do know that the Western Shoshoni National Council and members of the Timbisha and Yelba Tribes certainly oppose any storage and further use of the facility there in this way.

Just a couple more things. Just checking my notes. Yes. I want to mention again, you know, Fukushima and Chernobyl should be wake-up calls. You know, we just had the 25th anniversary of Chernobyl, and it doesn't seem like this figure is in here at all. I know this has been in the works. But as we go forward, to go from draft to formal, that needs to weigh-in here. I mean, that's just part of the reality that we're struggling with, and it just points out that there is no way to deal with this.

We need to get off that, the train of making more nuclear waste, and that needs to be said at every one of these hearings that deals with anything related. And so that's why I'm here speaking a little outside of the box and yet very much on point.

And, finally, I want to offer people, since yesterday was Mother's Day, I have copies of "The Original Mother's Day Proclamation" from 1870 by Julia Ward Howe. Julia Ward Howe, who also wrote the "Battle

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Hymn of the Republic," and I would like to make them available to people. I'll have them sitting outside. I don't want to disrupt by passing them out. It's very pertinent, also, so for the record.

(Whereupon Exhibit No. 3 was marked for identification.)

MR. BROWN: Okay. Great. Thanks very much. Okay. Judy Treichel is next. And Jane, is that "Foldman" or "Feldman" is after Judy.

MS. TREICHEL: My name is Judy Treichel. I'm the Executive Director of Nevada Nuclear Waste Task Force. I also will be submitting longer comments, and this is just quickly what I've been able to pick up here and in a brief overview of what's being talked about.

One of the things that I think is most important is defining the problem, and it's very difficult to see exactly how dangerous this stuff is. I understand that it comes from many, many sources and there are very different items that are all considered as Greater-than-Class C waste. But we've got to know if -- you have to take the most dangerous of them and let us know exactly how dangerous that is.

If it doesn't need to be in a repository, if it's not that dangerous, then why is a repository being

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PL

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PUBLIC COMMENT

(Continued)

MR. HABER: Jim Haber, H-A-B-E-R. I'm with Nevada Desert Experience.

And the comment I wanted to add to what I said earlier is that it's a bit of a fear and an analogy to another governmental process that happened around health care and the health care debate in that there was so much public support for universal health care, or at least single care; and yet when President Obama came in and sat a panel to look at the issue, he did not include anyone who was for universal health care at the table that was actually discussing what was going to be proposed.

And the comments that you said you've received at previous meetings like this, the comments reflective tonight showed that people feel like on-site storage is what we need to be doing, at this point at least. And yet you look at the graphs and you think, wow, if this graph is presented to Congress, it's not going to be presented.

And it seems like a lot of people feel like HOSS or HOS-something needs to be really seriously considered. And maybe the drafters of the EIS feel like it was considered and not presented for valid

T40-5

T40-5 See response to T40-1.

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reasons, but it feels like it needs to be revisited in a very serious way and not excluded anymore.

T40-5 (Cont.)

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MS. TREICHEL: My name is Judy Treichel. I'm the Executive Director of Nevada Nuclear Waste Task Force. I also will be submitting longer comments, and this is just quickly what I've been able to pick up here and in a brief overview of what's being talked about.

One of the things that I think is most important is defining the problem, and it's very difficult to see exactly how dangerous this stuff is. I understand that it comes from many, many sources and there are very different items that are all considered as Greater-than-Class C waste. But we've got to know if -- you have to take the most dangerous of them and let us know exactly how dangerous that is.

If it doesn't need to be in a repository, if it's not that dangerous, then why is a repository being

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considered? If it does, and I would guess that it does because that's the NRC's regulation for this type of waste, then why would we be considering something less than that?

So either it's okay to put it in a shallow-land burial or it's definitely not or it requires a repository or it doesn't. Those things have to be clearly defined so that we really know what we're talking about.

And if it requires a repository and the only one being looked at is WIPP and if WIPP is unavailable because there's currently laws that say that nothing goes in there but the transuranic that is going in there now, then perhaps it can't be done yet. And as Jim was saying, there may be a situation where we're not ready to do this yet.

T41-1

And looking at the dose chart, it really looks as though the deck is stacked toward either NTS or the WIPP site because that's where you have actually no doses, according to that chart. I'm not sure that's correct, but and very high doses for the other places. So once that's handed to Congress, it would seem to me that they would have very little reason to say any other place but those.

I've been following the Blue Ribbon

T41-1 The scope of this EIS is adequate to inform decision-making for the disposal of GTCC LLRW and GTCC-like waste. Sufficient information is available to support the current decision-making process to identify (an) appropriate site(s) and method(s) to dispose of the limited amount of GTCC LLRW and GTCC-like waste identified in the EIS.

DOE believes that this EIS process is not premature and is in compliance with NEPA. On the basis of an assumed starting date of 2019 for disposal operations, more than half (about 6,700 m^3 [240,000 ft^3] of the total GTCC LLRW and GTCC-like waste inventory of 12,000 m^3 [420,000 ft^3]) is projected to be available for disposal between 2019 and 2030. An additional 2,000 m^3 (71,000 ft^3) would become available for disposal between 2031 and 2035. This information is presented in Figure 3.4.2-1. DOE believes this EIS is timely, especially given the length of time necessary to develop a GTCC waste disposal facility.

DOE developed this EIS to support a decision on selecting a disposal facility or facilities for GTCC LLRW and GTCC-like waste, to address legislative requirements, to address national security concerns (especially for sealed sources), and to protect public health and safety. The purpose and need for the proposed action, as discussed above, is stated in the EIS (Section 1.1). The scope of the EIS is focused on addressing the need for developing a disposal capability for the identified inventory of GTCC LLRW and GTCC-like wastes. DOE plans a tiered decision-making process, in which DOE would conduct further site-specific NEPA reviews before implementing an alternative ultimately selected on the basis of this EIS. For additional information, see Section J.2.4.

Based on the GTCC EIS evaluation and WIPP's operating record, DOE believes that the WIPP repository would be a safe location for the disposal of GTCC LLRW and GTCC-like wastes, some of which include long-lived radionuclides. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require modification to existing law. In addition, it would be necessary to revise the Agreement for Consultation and Cooperation between the Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit.

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Commission meetings that are supposed to be making recommendations beyond Yucca Mountain, if the Yucca Mountain site is completely dead and never used, and one of the big things that they talk about is finding voluntary sites.

And you said that you went out to the commercial industry where a huge majority of this waste would be made and didn't come up with any voluntary sites or enthusiasm for figuring out what to do with this waste, and yet they still haven't even produced the lion's share of it. So it seems to me that there's a big disconnect there. T41-2

And if they don't want the stuff themselves and they still haven't produced a lot of it, it would make sense to me that they not go ahead; although I understand that's not part of your charge here, but I do think that public opposition or public enthusiasm for helping with this problem should play a big part in it. T41-3

There should be a willing host for this stuff. And if there's not, you haven't made the case well enough or people don't understand it well enough or they're just opposing what's going on. T41-4

Thank you.

T41-2 DOE does not consider the lack of interest on the part of the generators for co-locating a disposal facility at the point of generation to be an indicator of a lack of disposal facility interest in general. DOE also considers this to be true irrespective of when the waste will be generated.

As part of this EIS process, DOE solicited technical capability statements from commercial vendors that might be interested in constructing and operating a GTCC waste disposal facility. Although several commercial vendors expressed interest, no vendors provided specific information on disposal locations and methods that could have been analyzed in the EIS. Hence, this option was analyzed generically.

T41-3 Stopping the generation of nuclear waste is outside the scope of the GTCC EIS, the scope of which is to evaluate disposal alternatives to enable the selection of a safe alternative or alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluates the potential environmental impacts of the proposed disposal alternatives for GTCC LLRW and GTCC-like wastes. Based on the evaluation, DOE has determined that there are safe and secure alternatives for the disposal of GTCC LLRW and GTCC-like wastes. The GTCC EIS provides information that supports this determination, and, as discussed in Section 1.1, Purpose and Need for Agency Action, DOE is responsible for the disposal of GTCC LLRW and GTCC-like wastes.

T41-4 DOE agrees that the willingness of the host community is an important factor when selecting the preferred alternative. The State of New Mexico has indicated a willingness to accept GTCC LLRW and GTCC-like wastes for disposal at WIPP. Twenty-eight New Mexico State Senators signed a proclamation made in the 50th Legislature, First Session, 2011, stating: “Be it resolved that we, the undersigned, support the opportunity for other potential missions in southeast New Mexico to adequately address the disposal of defense high-level waste, commercial high-level waste, Greater Than Class C LLRW and surplus plutonium waste, as well as the interim storage of, spent nuclear fuel.” In response to the Draft GTCC EIS, David Martin, Secretary of the New Mexico Environment Department, sent a letter to DOE on June 27, 2011, stating that “the Department encourages DOE to support the WIPP or WIPP Vicinity proposed locations as the preferred alternatives addressed in the Draft EIS. The geologic repository is the favored alternative being more effective for the enduring time frames for this waste type.” In addition, the Governor of New Mexico, in a letter to DOE Secretary Steven Chu on September 1, 2011, stated that the State of New Mexico encourages DOE to support the proposed location of WIPP as the preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes.

Nevada Site Specific Advisory Board, Commenter ID No. L96

received
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U.S. Department of Energy

NSSAB

Nevada Site Specific Advisory Board

June 9, 2011

Greater-Than-Class C Low-Level Radioactive Waste EIS
Office of Technical and Regulatory Support (EM-43)
U.S. Department of Energy
1000 Independence Avenue, SW.
Washington, DC 20585-0119

The Nevada Site Specific Advisory Board (NSSAB) appointed a subcommittee to review the Greater Than Class C Draft (GTCC) Environmental Impact Statement (EIS). The NSSAB is submitting the following formal comments to the Department of Energy (DOE) for consideration. Comments are focused on Nevada National Security Site related topics and broad regulatory issues. Expanded information on each comment can be found in the enclosed Appendix 1.

1. The Draft GTCC EIS does not include a preferred alternative. This severely limits the scope of the potential comments that might be received. L96-1
2. The GTCC EIS Scoping Hearings were based on an assumption that the Yucca Mountain license application would be submitted by June 2008. Dismissal of the Yucca Mountain repository option from consideration in the Draft GTCC EIS invalidates the scoping process, which should be redone. L96-2
3. GTCC waste is defined and regulated by the Nuclear Regulatory Commission (NRC). It is not clear the NRC will accept the near surface disposal alternatives (i.e., trenches or vaults). The DOE should formally engage the NRC in a rulemaking on this matter before recommending to Congress a path forward that the NRC ultimately may not support. L96-3
4. The Draft EIS assumes that: the effective life of the intruder barriers will be 500 years; GTCC waste is stable; and the maximum concentration of radionuclides at the end of the 500 year period will be at a level that does not pose an unacceptable hazard to an intruder or to public health and safety. The EIS contains no supporting documentation to support these assumptions and therefore the various disposal options cannot be reasonably compared. L96-4
5. The Draft GTCC EIS suffers from a lack of perspective of the difficulty of licensing a facility that had originally addressed 10 Code of Federal Regulations (CFR) Part 60 or 63 requirements. Licensing by the NRC would be done in an administrative hearing, which is a much more contentious and rigorous undertaking than an EPA permit process. L96-5
6. Insufficient information is presented that would allow local communities to understand how the projected transportation routes would impact those communities. (This is a particularly sensitive issue for the Nevada National Security Site [NNSS] due to the existing large amount of radioactive waste transported through the area). L96-6

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Nevada Site Specific Advisory Board – L96

L96-1 A preferred alternative is not required to be included in a Draft EIS. The Council on Environmental Quality regulations in 40 CFR 1502.14(e) specify that the section on alternatives in an EIS shall identify the agency's preferred alternative or alternatives, if one or more exists, in the Draft EIS and identify such alternative(s) in the Final EIS unless another law prohibits the expression of such a preference; that is, a preferred alternative shall be identified in the Draft EIS if one exists. If no preferred alternative has been identified at the Draft EIS stage, a preferred alternative need not be included. By the time the Final EIS is filed, 40 CFR 1502.14(e) presumes the existence of a preferred alternative and requires its identification in the Final EIS unless another law prohibits the expression of such a preference.

DOE did not have a preferred alternative at the time of issuance of the Draft EIS because of the complex nature of the proposed action and the potential implications for disposal of GTCC LLRW and GTCC-like wastes. To seek public input on how to identify a preferred alternative for inclusion in the Final EIS, the Draft EIS presented considerations for developing a preferred alternative in the Summary (in Section S.6) and in Section 2.9. As required by 40 CFR 1502.14(e), the Final EIS contains a preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes (see Section 2.10). In developing the preferred alternative, DOE took into consideration public comments on the Draft EIS, public EIS scoping comments, and other factors identified in Sections S.6 and 2.9 of the EIS.

The publication by the EPA of a NOA of the Final EIS in the Federal Register initiated a 30-day public availability or "waiting" period. While the availability period is not a formal public comment period, the public can comment on the Final EIS, including the preferred alternative, prior to final agency action. Comments received will be addressed by DOE in a ROD. As required by the Energy Policy Act of 2005, DOE must submit a Report to Congress that includes the alternatives considered in the EIS and await Congressional action before making a final decision regarding which alternative(s) to implement. The Report to Congress will be made available to the public on the GTCC EIS website (http://www.gtcceis.anl.gov/).

L96-2 The EIS considered the range of reasonable alternatives for disposal of the inventory of GTCC LLRW and GTCC-like wastes identified for inclusion in these analyses. The Secretary of Energy determined that a permanent repository for high-level waste and spent nuclear fuel at Yucca Mountain, Nevada, is not a workable option and will not be developed. Therefore, DOE concluded that co-disposal at a Yucca Mountain repository is not a reasonable alternative and has eliminated it from evaluation in this EIS, as described in Section 2.6 of the EIS. DOE has included analysis of generic commercial facilities in the event that a facility could become available in the future. In that case, before making a decision to use a commercial facility, DOE would conduct further NEPA reviews, as appropriate.

L96-3 The NRC served as a commenting agency on the GTCC EIS and therefore did not actively participate in the preparation of the GTCC EIS. Issues associated with potential regulatory changes or NRC licensing would be addressed as necessary to enable implementation.

L96-4 DOE believes that 500 years is a realistic time period for the longevity of the types of engineering barriers assumed in the analyses. DOE believes the approach and the assumptions used in the EIS are reasonable for performing the comparative analysis of alternatives required by NEPA. For example, the assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS (Phifer et al. 2007) that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study.

L96-5 Comment noted. DOE understands that there are differences between the potential licensing and/or permitting processes.

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7. The Draft GTCC EIS also does not include information about how shipping containers would be "certified." It would be appropriate to address such requirements in the EIS. (This is also a particularly sensitive issue for communities near the NNSS.) L96-7

8. The methodology for mitigation of human intrusion described in the Draft GTCC EIS is not consistent with existing requirements for geologic disposal. Both EPA and NRC regulations specify that an intrusion must be modeled as occurring and causing radioactive material to reach groundwater resources. (This point could work strongly in favor of the NNSS as the preferred disposal site). L96-8

9. The Draft GTCC EIS does not adequately address the potential impacts to historic artifacts or biological resources. L96-9

10. The Draft GTCC EIS does not adequately represent the difficulties that will arise in attempting to modify the WIPP Land Withdrawal Act to allow nearly thirty times as much total radioactivity as is currently allowed by the law. The EIS does not convey the difficulties inherent in requesting Congress to modify both the WIPP Land Withdrawal Act and the Nuclear Waste Policy Act. L96-10

11. The performance assessments described in the Draft GTCC Environmental Impact Statement are deficient because they assume that the facility characteristics to which performance is most sensitive will be met, rather than demonstrating that they can be met. For example, the Draft GTCC EIS does not recognize that removal of the sheet piling following trench disposal will create a pathway for water to contact wastes rapidly. L96-11

12. The Draft GTCC EIS does not present definitive arguments demonstrating that a near surface cover could meet the expected performance required for GTCC waste disposal. L96-12

13. On Page 5-65 the conclusion presented in the paragraph "As the distance would increase from 100 m (330 ft) to 500 m (1,600 ft), the maximum annual radiation dose would increase by more than 70%" is incorrect and is inconsistent with the argument presented. L96-13

14. The argument that a reduction in dose would occur with distance because of additional dilution of radionuclide concentrations in groundwater is not consistent with the EPA's concept of "Reasonably Maximally Exposed Individual" used as the receptor in current repository regulations. (This argument is also essentially irrelevant to near surface disposal at the NNSS since groundwater at that site is very deep and surface water does not reach the groundwater). L96-14

15. There are numerous deep boreholes existing on the NNSS as part of the Test Readiness Program (eventual use for nuclear weapons testing). These boreholes should be considered for disposal of GTCC wastes. L96-15

The NSSAB thanks you for the opportunity to comment on this Draft GTCC EIS. We hope that our comments will be beneficial to DOE as you move forward in addressing the problem of what to do with GTCC wastes.

Sincerely,

Walter F. Wegst

Walter F. Wegst, Chair

Attachment (Appendix 1)

cc: M. Nielson, DOE/HQ (EM-13) FORS
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L96-6 As stated in Section C.9.4.1.1 of the EIS on route selection, many of the GTCC LLRW and GTCC-like wastes considered in the EIS would meet the definition of a highway route HRCQ (49 CFR 173.403). However, as noted in the discussion, states and Native American tribes have the opportunity to designate "preferred routes" to replace or supplement the interstate highway system. For those wastes not specifically designated as HRCQ, the selection of a route is left to the carrier, but in the case of GTCC LLRW and GTCC-like wastes, additional consultation with transportation stakeholders would occur.

DOE/NNSA analyzed various radioactive waste shipping routes through and around metropolitan Las Vegas, Nevada, in the Draft NNSS SWEIS. DOE/NNSA continued discussions with the State of Nevada on routing options throughout the preparation of the Final NNSS SWEIS. After taking into consideration the comments and concerns expressed by State, county, and local government officials and the public in general during the review and comment period for the Draft NNSS SWEIS, DOE/NNSA decided to maintain the current highway routing restrictions for shipments of low-level radioactive waste (LLW) and mixed-low level radioactive waste (MLLW), as described in the Waste Acceptance Criteria (WAC) for the site. DOE/NNSA explained this decision in the Final NNSS SWEIS. The unchanged WAC restrictions are to avoid (1) crossing the Colorado River near Hoover Dam and (2) the greater metropolitan Las Vegas interstate system. DOE/NNSA is not considering, nor is it making, changes to the NNSS WAC with regard to routing.

Such decisions are developed in accordance with NNSA's standard practices (which include consultation with the State of Nevada) and, when finalized, become publicly available through publication on NNSS's website.

Once an alternative is selected in a ROD for this EIS, implementation will include, as needed and appropriate, NEPA reviews and other analysis (e.g., transportation).

L96-7 The specific waste forms and packages used to dispose of GTCC LLRW and GTCC-like wastes would be determined in the future as part of the waste acceptance criteria and packaging requirements developed. See the discussion in Section B.5 and C.9.4.2 of the EIS for more information on packaging requirements. All GTCC LLRW and GTCC-like wastes would be packaged and transported in accordance with all applicable federal and state requirements, and waste disposal activities would be conducted in accordance with appropriate requirements.

L96-8 On the basis of the depth of waste disposal, DOE believes that the only reasonable potential for intrusion is from a future drilling event, such as drilling for a well. The likelihood of inadvertent intrusion from a drilling event would be very low for a GTCC waste trench disposal facility because of (1) the narrow width of the trench, (2) the use of intruder barriers, (3) the remoteness of the sites, (4) DOE's commitment to long-term institutional control, (5) site conditions such as the general lack of easily accessible resources and the great depth to groundwater, and (6) waste form stability. On the basis of these considerations, DOE did not include a quantitative analysis of inadvertent human intruder in the EIS. Further evaluations would be conducted in site-specific NEPA reviews in the future as needed.

Potential inadvertent human intrusion into WIPP is addressed in the documentation (WIPP Performance Assessment) supporting its current operations. Inclusion of GTCC LLRW and GTCC-like wastes with the wastes already planned for disposal in this repository would not be expected to change the results associated with this hypothetical intrusion event.

L96-9 The EIS addresses NNSS ecological resources in Section 9.1.5 and cultural resources in Section 9.1.10. Site-specific NEPA reviews would be conducted as needed.

L96-10 DOE recognizes the potential challenges associated with the legislative changes that would be necessary to dispose of GTCC and GTCC-like wastes at WIPP.

Nevada Site Specific Advisory Board, Commenter ID No. L96 (cont'd)

Appendix 1

Nevada Site Specific Advisory Board Expanded Comments to the Greater Than Class C (GTCC) Draft Environmental Impact Statement (EIS) June 2011

1. **The Draft GTCC EIS does not include a preferred alternative. This severely limits the scope of the potential comments that might be received.**

   Because the Draft GTCC EIS does not include a preferred alternative, it severely limits the scope of the potential comments that might be received. Typically, an Environmental Impact Statement would address multiple alternative approaches for an application at a specific site or perhaps multiple sites for a specific application. The GTCC EIS addresses twelve[1] potential sites with three potential disposal methods. Because the different categories of waste might not be suitable for each of the potential disposal methods, the number of alternatives may be even greater. This decision matrix is far too wide to analyze properly.

   We understand that the Council on Environmental Quality (CEQ) regulations[2] can be read to mean that if the agency has a preferred alternative at the Draft EIS stage, that alternative must be labeled or identified as such in the Draft EIS, or if the responsible federal official in fact has no preferred alternative at the Draft EIS stage, a preferred alternative need not be identified there. Nonetheless, without an indication of how the DOE intends to proceed, or meaningful information to allow discrimination among the options, the public cannot be expected to generate meaningful comments.

   It is thus imperative that the public be given a chance to comment on a preferred alternative, even if this means that the Department will have to delay the recommendation to Congress and any Record of Decision until after time has been allowed for the public to comment on the "Final" Environmental Impact Statement, and for those comments to be addressed by the Department.

[1] Hanford Site, Idaho National Laboratory, Los Alamos National Laboratory, the Nevada National Security Site, the Savannah River Site, the Waste Isolation Pilot Plant, and the Waste Isolation Pilot Plant Vicinity (where two locations are evaluated – one within and one outside the land withdrawal boundary, and four Generic (commercial) sites that coincide with the four NRC regions.

[2] According to the CEQ, the "agency's preferred alternative" is identified so that agencies and the public can understand the lead agency's orientation. 10 CFR 1502.14(e) requires the section of the EIS on alternatives to "identify the agency's preferred alternative if one or more exists, in the draft statement, and identify such alternative in the final statement . . ." If the public is expected to provide meaningful comments on the path forward to disposal of GTCC wastes, it has a right to expect information giving consideration to economic, environmental, technical and other factors about the alternatives. This Draft GTCC Environmental Impact Statement does not provide such information at a level appropriate to discriminate among the options, and is unclear about which alternative the agency believes would fulfill its statutory mission and responsibilities.

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L96-11 The EIS analyses are based on conceptual engineering information and necessitated the use of a number of simplifying assumptions. This approach is consistent with NEPA, which requires such analyses to be made early in the decision-making process. The various land disposal conceptual designs were assumed to be constructed and operated in a comparable manner at each of the various sites. Information on the conceptual engineering designs for the three proposed land disposal methods is provided in Section D.3 of Appendix D in the EIS. By using the same conceptual designs at all of the sites evaluated in the GTCC EIS, except for cases where a design did not apply (e.g., an intermediate-depth borehole at a site with shallow groundwater), the potential impacts (e.g., radionuclides reaching the groundwater) at the different environmental settings could be readily compared.

In performing these evaluations, a number of engineering measures were included in the conceptual facility designs to minimize the likelihood of contaminant migration from the disposal units. No facility design can guarantee that radionuclide migration from the facility would not occur over and beyond a 10,000-year time period. It was assumed that these measures would perform similarly for all conceptual designs, remaining intact for 500 years after the disposal facility closed. After 500 years, the barriers would gradually fail. To account for these engineered features in the modeling calculations, it was assumed that the water infiltration to the top of the waste disposal area would be zero for the first 500 years and then 20% of the natural rate for the area for the remainder of the time period (through 10,000 years). A water infiltration rate of 20% of the natural rate for the area was only used for the disposal area; the natural background infiltration rate was used at the perimeter of the waste disposal units. Again, this approach enables a comparative evaluation of the influence that site-specific environmental factors would have on the potential migration of radionuclides from the disposal facilities and the potential impacts on human health. It should be emphasized that project- and site-specific engineering factors would be incorporated into the actual facility designs of the site or sites selected in a ROD to dispose of GTCC LLRW and GTCC-like wastes.

DOE recognizes that modeling potential releases of radionuclides from the conceptual disposal sites far into the future approximates what might actually occur. Sufficient detail was included in these designs for use in the EIS analyses, consistent with the current stage of this process. Some of the input values may change in the future and could result in higher impacts (such as from increased precipitation at some sites due to climate change), while others could result in lower impacts (due to decreased precipitation).

DOE believes that 500 years is a realistic time period for the longevity of the types of engineering barriers assumed in the analyses. DOE believes the approach and the assumptions used in the EIS are reasonable for performing the comparative analysis of alternatives required by NEPA. For example, the assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study.

Estimated radiation doses and LCFs were calculated for each site and disposal concept for 10,000 years, and if the peak impact did not occur during this time frame, the analysis was extended out to 100,000 years. DOE believes that the assumptions made to support the long-term modeling calculations for the groundwater pathway are reasonable and enable a comparative evaluation of the impacts between alternatives. The results of the evaluation presented in the EIS are sufficient to inform the selection of sites and methods for disposal. Site-specific NEPA reviews would be conducted as needed.

Nevada Site Specific Advisory Board, Commenter ID No. L96 (cont'd)

2. **The GTCC EIS Scoping Hearings were based on an assumption that the Yucca Mountain license application would be submitted by June 2008. Dismissal of the Yucca Mountain repository option from consideration in the Draft GTCC EIS invalidates the scoping process, which should be redone.**

   Scoping hearings were held in 2007, a point in time where the Department of Energy (DOE) had publically announced that submittal of the license application for the Yucca Mountain repository would take place less than one year later. With this Draft EIS, the DOE excluded the potential Yucca Mountain repository from consideration as a GTCC waste disposal option. There can be little doubt that the scoping commenters were aware of the Yucca Mountain repository program, and the fact that its EIS had considered the disposal of GTCC wastes. 10 CFR 61.55(a)(2)(iv) states: *[I]n the absence of specific requirements in this part, such waste must be disposed of in a geologic repository as defined in part 60 or 63 of this chapter unless proposals for disposal of such waste in a disposal site licensed pursuant to this part are approved by the Commission.* Removal of the only repository to ever address 10 CFR Part 60 or 10 CFR Part 63 regulations from consideration, especially since there are lawsuits challenging the Secretary's abandonment of the Congressionally approved Yucca Mountain program, and the Secretary has testified that if directed by the Courts he will execute the program, has a significant negative impact on this Draft GTCC EIS. As the scoping hearings could not have anticipated or foreseen the current situation, the Draft GTCC EIS cannot be responsive to public perspectives on this important issue. Scoping should be redone if Yucca Mountain is not to be considered.

3. **GTCC waste is defined and regulated by the Nuclear Regulatory Commission (NRC). It is not clear the NRC will accept the near surface disposal alternatives (i.e., trenches or vaults). The DOE should formally engage the NRC in a rulemaking on this matter before recommending to Congress a path forward that the NRC ultimately may not support.**

   The Draft GTCC EIS is written from a perspective that the two relatively near surface alternatives, namely, trench or vault burial, will be acceptable to the NRC. To the contrary, the NRC regulations at 10 CFR Part 61 suggest otherwise. In 10 CFR 61.7(a)(5) NRC notes that; *[T]his waste is disposed of at a greater depth than the other classes of waste so that subsequent surface activities by an intruder will not disturb the waste. ...... Waste with concentrations above these limits is generally unacceptable for near-surface disposal.* Further, it notes that: *[T]here may be some instances where waste with concentrations greater than permitted for Class C would be acceptable for near-surface disposal with special processing or design. These will be evaluated on a case-by case basis.* It is inappropriate to assume that because the NRC is willing to consider that there *may be some instances* (emphasis added) where waste with concentrations greater than permitted for Class C would be acceptable for near-surface disposal with special processing or design that all GTCC wastes would meet this exemption, as is done in the Draft GTCC EIS. 10 CFR 61.55(a)(2) (iv) is clear that: *[I]n the absence of specific requirements in this part, such waste must be disposed of in a geologic repository as defined in part 60 or 63 of this chapter unless proposals for disposal of such waste in a disposal site licensed pursuant to this part are approved by the Commission.* A recommendation for a preferred disposal method that relies on an assumption that the NRC will find that near surface disposal for GTCC wastes is generally acceptable is a very precarious position for the DOE. It would seem

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L96-12 While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near-surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

Past operational experience with these types of disposal facilities at DOE sites has shown that when properly implemented, they can provide isolation of radioactive waste from the environment for extended time periods. Past problems that have arisen with each option provide additional information to improve the design and performance of future land disposal facilities. Issues related to performance over time would be analyzed in a project-specific analysis to address technical and long-term concerns.

L96-13 The text was corrected. "increase" was changed to "decrease."

L96-14 There is no argument that a reduction in dose would occur with distance because of additional dilution of radionuclide concentrations in groundwater. It is merely a statement that dilution is going to occur down-gradient from where the contamination reaches the groundwater. The only exposure the hypothetical farmer is expected to receive would be from contaminated groundwater pumped to the surface for use, therefore, further dilution of the contamination once it reaches the groundwater is extremely relevant.

L96-15 The three land disposal facility conceptual designs (above-grade vault, enhanced near-surface trench, and intermediate-depth borehole) were selected as being representative of a range of land disposal configurations (varying degrees of waste consolidation and geometry) that could be employed for the disposal of the GTCC LLRW and GTCC-like waste inventory. As discussed in Section 1.4.2, each concept has been used to some degree in the United States or other countries. The same vault, borehole, and trench characteristics were considered for the disposal sites evaluated in order to compare the performance of each site's natural hydrological, geological, and meteorological properties relative to contaminant fate and transport once any engineered barriers would begin to fail.

The conceptual nature of these configurations takes into account the characteristics of all of the disposal sites for which they were considered, but their designs (e.g., width, depth, cover depth, reinforced containment) could be altered or enhanced, as necessary, to provide an optimal solution at a specific location. As an example, the cover depth could be adjusted to ensure that roots from vegetation would not compromise the top of the engineered barrier. In addition, the dimensions of the generic land disposal units (e.g., trench - width and depth, borehole – diameter and depth, vault – width, depth, and height) were selected based on similar existing facilities, existing equipment and methods for construction, and optimized (maximized waste volume disposed of for a given disposal unit volume; simple waste handling procedures to minimize exposure) for the types of waste packages considered. All designs could also accommodate different disposal packages (existing and proposed) with minor variations in their dimensions, but the EIS analyses would remain relevant for each option considered.

For example, if borehole disposal at NNSS became a preferred alternative, any capacity in the existing boreholes would have been considered in follow-up studies. Past operational experience with these types of disposal facilities at DOE sites has shown that when properly implemented, they can provide isolation of radioactive waste from the environment for extended time periods. Past problems that have arisen with each option provide additional information to improve the design and performance of future land disposal facilities. Issues related to performance over time would be analyzed in a project-specific analysis to address technical and long-term concerns.

Nevada Site Specific Advisory Board, Commenter ID No. L96 (cont'd)

appropriate for the DOE to formally engage the NRC in a rulemaking on this matter before recommending to Congress a path forward that the NRC ultimately may not support.

4. **The Draft GTCC EIS assumes that: the effective life of the intruder barriers will be 500 years; GTCC waste is stable; and the maximum concentration of radionuclides at the end of the 500 year period will be at a level that does not pose an unacceptable hazard to an intruder or to public health and safety. The EIS contains no supporting documentation to support these assumptions and therefore the various disposal options cannot be reasonably compared.**

   The Draft GTCC EIS does not address how the DOE intends to assure the decision makers that the selected disposal option will in fact be allowable under the 10 CFR Part 61 requirements if other than repository disposal option is selected. It seems reasonable that borehole disposition could readily be allowed by the NRC, particularly if sealing requirements are addressed. However, it is not clear how the DOE will get NRC approval for other than repository disposal. This is particularly crucial as the Draft GTCC EIS does not demonstrate that the important 10 CFR Part 61, or Part 60 or Part 63 for that matter, requirements will be met. The Draft GTCC EIS assumes that the effective life of the intruder barriers will be 500 years, assumes the maximum concentration of radionuclides at the end of the 500 year period will be at a level that does not pose an unacceptable hazard to an intruder or public health and safety, and assumes GTCC waste will be stable. A reasonable comparison among the proposed options would require a meaningful demonstration that these requirements will be met by the options.

5. **The Draft GTCC EIS suffers from a lack of perspective of the difficulty of licensing a facility that had originally addressed 10 Code of Federal Regulations (CFR) Part 60 or 63 requirements. Licensing by the NRC would be done in an administrative hearing, which is a much more contentious and rigorous undertaking than an EPA permit process.**

   While it is true that the Waste Isolation Pilot Plant (WIPP) is a repository, it is permitted principally under State of New Mexico Resource Conservation Recovery Act (RCRA) requirements. While not intentionally demeaning the WIPP permitting process, experience gained with the Yucca Mountain program in pre-licensing interactions with the NRC suggests that licensing a GTCC facility to NRC repository or repository equivalent requirements could be a much more challenging exercise than the WIPP compliance certification process. The WIPP permitting process was based on a compliance certification process that was essentially a rulemaking. Licensing by NRC, particularly under requirements that could be equivalent to those for a repository, would be done in an administrative hearing. This is a much more rigorous undertaking, admitting interveners who are allowed to submit contentions to be litigated by the hearing. These contentions could challenge, in court, all of the technical arguments made by the applicant and supported by the staff.

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Nevada Site Specific Advisory Board, Commenter ID No. L96 (cont'd)

6. **Insufficient information is presented that would allow local communities to understand how the projected transportation routes would impact those communities. (This is a particularly sensitive issue for the Nevada National Security Site [NNSS].)**

While it is likely that the transportation risk calculations used reasonable assumptions about shortest transit times and interstate highways, there is no recognition, for example, in Nevada that alternate routes likely would be specified, as is the case for low level waste shipments coming today to the Nevada National Security Site. These additional shipments, coming through small rural communities, will add a burden for emergency response capability that is not addressed in the Draft GTCC EIS. The following graphics provide a synopsis of the FY 2010 low-level waste transportation activities that already take place on the anticipated shipping routes.

List of Approved Generators Shipping To/On the NNSS in FY2010

	APPROVED GENERATOR, STATE	GENERATOR CODE
1	ADVANCED MIXED WASTE TREATMENT PROJECT, ID	AM
2	ARGONNE NATIONAL LABORATORY, IL	AE
3	BABCOX & WILCOX TECHNICAL SERVICES Y-12, TN	BW
4	BATELLE ENERGY ALLIANCE, ID	NE
5	BROOKHAVEN NATIONAL LABORATORY, NY	BR
6	DURATEK/ENERGYSOLUTIONS, TN	DR
7	ENERGX ARGONNE NATIONAL LABORATORY, IL	EN
8	IDAHO NATIONAL LABORATORY, ID	IN
9	LAWRENCE LIVERMORE NATIONAL LABORATORY, CA	LL
10	LOS ALAMOS NATIONAL LABORATORY, NM	LA
11	NATIONAL SECURITY TECHNOLOGIES, NV	DP
12	NAVARRO-INTERRA LLC, NV	IT
13	NUCLEAR FUEL SERVICES, TN	NF
14	OAK RIDGE RESERVATION, TN	OR
15	PADUCAH GASEOUS DIFFUSION PLANT, KY	PD
16	PANTEX PLANT, TX	PX
17	PERMAFIX (M&EC), TN, WA, CA	PF
18	PORTSMOUTH GASEOUS DIFFUSION PLANT, OH	PO
19	PRINCETON PLASMA PHYSICS LABORATORY, NJ	PL
20	SANDIA NATIONAL LABORATORIES, NM	SA
21	UT-BATTELLE, TN	OL
22	WASTREN ADVANTAGE INC., TN	FW

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Nevada Site Specific Advisory Board, Commenter ID No. L96 (cont'd)

Figure 1 - FY 2010 National
Low-Level and Mixed Low-Level Waste General Transportation Routes
to/from the Nevada National Security Site

Shipment Summary of Off-site, Inbound Regional Routes for FY 2010

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Nevada Site Specific Advisory Board, Commenter ID No. L96 (cont'd)

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7. **The Draft GTCC EIS also does not include information about how shipping containers would be "certified". It would be appropriate to address such requirements in the EIS. (This also a particularly sensitive issue for communities around the NNSS).**

   As the GTCC wastes are deemed by the NRC to be sufficiently hazardous to require that *such waste must be disposed of in a geologic repository as defined in part 60 or 63 of this chapter unless proposals for disposal of such waste in a disposal site licensed pursuant to this part are approved by the Commission*, it is not unreasonable to question whether or not the transportation containers need to be as robust as those required for shipping high-level radioactive waste or spent nuclear fuel. No information is provided about the shipping containers, the certification testing, or any ancillary transportation requirements pertaining to escorts, notifications, or emergency response requirements. Such information would be invaluable to differentiate impacts among the different potential locations under consideration.

8. **The methodology for mitigation of human intrusion described in the Draft GTCC EIS is not consistent with existing requirements for geologic disposal. Both EPA and NRC regulations specify that an intrusion must be modeled as occurring and causing radioactive material to reach groundwater resources. (This point could work strongly in favor of the NNSS as the preferred disposal site.)**

   The Draft GTCC EIS states that human intrusion impacts might be mitigated by the waste form and packaging, institutional controls, and engineered and natural barriers (e.g., grouting and depth of disposal). All four disposal methods analyzed in the EIS include a combination of some or all these mitigation features. Mitigation of human intrusion is not consistent with requirements for geologic disposal; both EPA and NRC regulations specify that an intrusion must be modeled as occurring and causing radioactive material to be placed in groundwater resources.

9. **The Draft GTCC EIS does not adequately address the potential impacts to historic artifacts or biological resources.**

   The Draft GTCC EIS states that once (a) specific site(s) is (are) selected for further consideration, DOE plans to consult with other agencies including the Advisory Council on Historic Preservation, the appropriate State Historic Preservation Officer(s), and pertinent Regional Fish and Wildlife Service Office(s). It is not clear how the Draft EIS can be said to have considered and addressed the associated impacts.

10. **The Draft GTCC EIS does not adequately treat the difficulties that will arise in attempting to modify the WIPP Land Withdrawal Act to allow nearly thirty times as much total radioactivity as is currently allowed by the law. The EIS does not treat the difficulties inherent in requesting Congress to modify both the WIPP Land Withdrawal Act and the Nuclear Waste Policy Act.**

    The Draft GTCC EIS correctly points out that: the total capacity for disposal of transuranic (TRU) waste established under the WIPP Land Withdrawal Act is 175,675 m^3 (6.2 million ft^3). The Consultation and Cooperative Agreement with the State of New

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Nevada Site Specific Advisory Board, Commenter ID No. L96 (cont'd)

Mexico (1981) established a total Remote Handles capacity of 7,080 m3 (250,000 ft^3), with the remaining capacity for Contact Handled TRU at 168,500 m^3 (5.95 million ft^3) and the Land Withdrawal Act limits the total radioactivity of RH waste to 5.1 million curies. For comparison, the GTCC Low-Level Radioactive Waste (LLRW) and GTCC-like CH volume, RH volume, and RH total radioactivity are approximately 6,650 m^3 (235,000 ft^3), 5,050 m3 (178,000 ft^3), and 157 million curies, respectively. On the basis of emplaced and anticipated waste volumes, the disposal of all GTCC LLRW and GTCC-like waste at WIPP would exceed the limits for RH volume by nearly a factor of two, and RH total activity by nearly a factor of 30. The WIPP LWA (P.L. 102-579) limits disposal in WIPP to defense-generated TRU waste, so modification of the WIPP LWA to authorize acceptance of non-defense and non-TRU waste, increase the disposal capacity limit for RH total curies, and change the Consultation and Cooperative Agreement to authorize an increase in the total volume of all RH TRU wastes would be required. The Final EIS and Supplemental EIS (SEIS) for Yucca Mountain consider the emplacement of all GTCC wastes; the WIPP EIS does not. Not only would the WIPP LWA need to be amended, the WIPP EIS would need to be amended as well.

11. **The performance assessments described in the Draft GTCC Environmental Impact Statement are deficient because they assume that the facility characteristics to which performance is most sensitive will be met, rather than demonstrating that they can be met. For example, the Draft GTCC EIS does not recognize that removal of the sheet piling following trench disposal will create a pathway for water to contact wastes rapidly.**

The performance assessments described in the Draft GTCC Environmental Impact Statement are based on a number of assumptions. The performance assessments method assumed that: a) the engineering measures (e.g., a cover system) would remain intact for 500 years after the disposal facility closed, b) after 500 years, the barriers would gradually fail, c) the water infiltration rate to the top of the waste disposal area would be zero for the first 500 years and then 20% of the natural rate for the area of the remainder of the period of calculation (10,000 years), and d) the natural background infiltration rate was appropriate to use at the perimeter of the waste disposal units. The performance assessments thus are not true indicators of the differences in performance among the sites. More importantly, the sensitivity study performed indicated that the results were sensitive to the assumptions. In other words, if the assumptions proved to be incorrect, the performance likely would be worse. Absent better information about the likely performance of these key parameters, the performance assessments are reduced to nothing more than assumptions about how the different sites perform.

12. **The Draft GTCC EIS does not present definitive arguments demonstrating that a near surface cover could meet the expected performance required for GTCC waste disposal.**

The performance assessment results indicated that the peak annual dose would increase as the water infiltration rate increased. This result is not unexpected because when more water enters the waste disposal horizon, more radionuclides would be leached and released from the disposal facility. The increase in the peak dose is approximately proportional to the increase in the water infiltration rate, and indicates the need for a very effective cover to minimize the amount of infiltrating water that could

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Nevada Site Specific Advisory Board, Commenter ID No. L96 (cont'd)

contact the GTCC wastes. This is an important reason for the NRC position that GTCC wastes require greater disposal depths than low-level wastes. Rather than basing the potential selection of a disposal option on an assumed performance of a near surface design, the decision maker ought to be presented with a definitive argument demonstrating that a near surface cover could meet the expected performance required for this class of wastes.

13. On Page 5-65 the conclusion presented in that paragraph [As the distance would increase from 100 m (330 ft) to 500 m (1,600 ft), the maximum annual radiation dose would increase by more than 70%] is incorrect and is inconsistent with the argument presented.

14. The argument that a reduction in dose would occur with distance because of additional dilution of radionuclide concentrations in groundwater is not consistent with the EPA's concept of "Reasonably Maximally Exposed Individual" used as the receptor in current repository regulations. (This argument is also essentially irrelevant to near surface disposal at the NNSS since groundwater at that site is very deep and surface water does not reach the groundwater.)

Page 5-65 states that the radiation dose incurred by the hypothetical resident farmer would decrease with increasing exposure distance, as would be expected. The Draft GTCC EIS argues that reduction would occur because additional dilution of radionuclide concentrations in groundwater would result from the additional transport distance toward the location of the off-site well. The dilution with additional distance may not be as effective as assumed for two reasons. First, the Reasonably Maximally Exposed Individual concept of the EPA and NRC repository regulations requires consideration of all of the radionuclides in a representative volume. This construct does not lend itself to an argument that dilution with distance decreases dose [see, for example, the Yucca Mountain SEIS]. Also, the dilution with distance argument is predicated on an assumption of homogeneous porous media flow. There are enough technical papers on contaminant flow arguing against the practicality of this ideal construct to warrant a more sophisticated analysis in the Draft GTCC EIS. The performance assessments which are based on assumed k_ds, also overlook another very important consideration. Under the oxidizing conditions likely for relatively near surface disposal, colloids could form and enhance the transport of certain nuclides of plutonium.

15. There are numerous deep boreholes existing on the NNSS as part of the Test Readiness Program (eventual use for nuclear weapons testing). These boreholes should be considered for disposal of GTCC wastes.

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New Mexico Environment Department, Commenter ID No. L295

received
JUL - 5 2011

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RAJ SOLOMON, P.E.
Deputy Secretary

June 27, 2011

Arnold M. Edelman, EIS Document Manager
Office of Environmental Management
US Department of Energy
Cloverleaf Building, EM-43
1000 Independence Ave, SW
Washington, DC 20585

RE: COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE DISPOSAL OF GREATER-THAN-CLASS C (GTCC) LOW-LEVEL RADIOACTIVE WASTE AND GTCC-LIKE WASTE (DOE/EIS-0375-D)

Dear Mr. Edelman:

Thank you for the opportunity for the New Mexico Environment Department (Department) to comment on the February 2011 *Draft Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D).*

The Department commented previously on the GTCC during the 2007 EIS Scoping. We have reevaluated the comments provided, and upon further review the Department supports the efforts on the GTTC Low-Level Radioactive Waste (LLRW) and GTTC-like waste disposition considerations that the Department of Energy (DOE) is considering.

The Department has the following comment regarding the Draft EIS. The Draft EIS indicates that the volume of mixed waste is estimated to be 170 m^3 in Group 1 and that insufficient information exists to estimate the volume of mixed waste for Group 2 waste. The majority of Group 1 waste is GTCC-like waste and a small amount (4 m^3) is GTCC LLRW. The available information indicates that the mixed waste is characteristic hazardous waste that is regulated under the Resource Conservation and Recovery Act. The Draft EIS assumes that generators will treat the waste and render it nonhazardous. The Draft EIS does not address the waste if it cannot be rendered nonhazardous. Should any of the GTCC or GTCC-like mixed waste be considered L295-1

Protecting our Environment, Preserving the Enchantment

New Mexico Environment Department – L295

L295-1 The mixed radioactive and hazardous waste in the GTCC LLRW and GTCC like waste inventory is estimated to be about 170 m^3 (6,000 ft^3) for Group 1 of the GTCC LLRW and GTCC-like waste inventory. An estimate for Group 2 is not available at this time. Available information about the mixed waste in the GTCC LLRW and GTCC-like waste inventory indicates that most of it is characteristic hazardous waste as regulated under the Resource Conservation and Recovery Act (RCRA); therefore, for the land disposal methods evaluated in this EIS, it is assumed that the generators will treat the waste to render it nonhazardous under federal and state laws and requirements. Based on DOE's current understanding, GTCC waste that is characteristic can be rendered non-hazardous. If the waste is cannot be rendered non-hazardous, DOE agrees with NMED that a RCRA permit would be required. WIPP, however, can accept defense-generated TRU mixed waste as provided in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201).

DOE acknowledges the TRU waste disposal limitations for WIPP specified in the WIPP LWA as amended (P.L. 102-579 as amended by P.L. 104-201) and in the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant. Information on these limitations is provided in this EIS (see Section 4.1.1) and was considered in developing the preferred alternative. Based on the GTCC EIS evaluation, disposal of GTCC LLRW and GTCC-like wastes at WIPP would result in minimal environmental impacts for all resource areas evaluated, including human health and transportation. Both the annual dose and the latent cancer fatality (LCF) risk would be zero because there would be no releases to the accessible environment and therefore no radiation doses and LCFs during the first 10,000 years following closure of the WIPP repository. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require legislative changes and site-specific NEPA reviews would be conducted as needed, including further characterization of the waste (e.g., radionuclide inventory and heat loads), as well as the proposed packaging for disposal.

New Mexico Environment Department, Commenter ID No. L295 (cont'd)

Mr. Arnold M. Edelman
June 27, 2011
Page 2

for potential disposal at any of the proposed sites, a RCRA permit will need to be addressed by DOE.

L295-1 (Cont.)

Also, as noted in the Draft EIS, WIPP can currently accept defense-generated TRU mixed waste as allowed under the 1992 WIPP Land Withdrawal Act (LWA). WIPP is not currently allowed to accept non-defense related waste. If WIPP or the WIPP Vicinity is considered for receiving the GTCC and GTCC-like waste the LWA will accordingly need to be amended to address the expanded types of waste WIPP can receive.

L295-2

The Department encourages the DOE to support the WIPP or WIPP Vicinity proposed locations as the preferred alternatives addressed in the Draft EIS. The geologic repository is the favored alternative being more effective for the enduring time frames for this waste type.

New Mexico looks forward to working with DOE in addressing this important issue.

Sincerely,

Dave Martin

Dave Martin
Cabinet Secretary

cc: R. Solomon, Deputy Secretary
J. Davis, NMED RPD
John Kieling, NMED, HWB
Dr. Inez Triay, DOE, EM

L295-2 Based on the GTCC EIS evaluation and WIPP's operating record, DOE believes that the WIPP repository would be a safe location for the disposal of GTCC LLRW and GTCC-like wastes, some of which include long-lived radionuclides. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require modification to existing law. In addition, it would be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit.

New Mexico State University, Carlsbad, Commenter ID No. T31

MR. BROWN: Thank you.

Russell Hardy is next, and then Norbert Rempe.

MR. HARDY: Good evening. I'm Russell Hardy, President of the New Mexico State University in Carlsbad. It is a two-year campus of the New Mexico State University system.

Many people have spoken of the safety and the science of storing Greater-Than-Class-C waste at the waste isolation site. What I want to talk about tonight is the trained workforce that resulted and who helped safely store that waste, and a large part of that goes to New Mexico State University of Carlsbad, who has been serving the residents of southeast New Mexico since 1950. We were one of the first community colleges in the state.

Our program helped train the initial waste handlers who worked at WIPP in the late '80's, early '90's, and helped lead to the stellar safety record that we see here today. In fact, many of the hazardous waste handlers I work with today got their training at UNMS Carlsbad, and have since gone across the nation and trained other waste handlers in the safe disposal of nuclear waste.

New Mexico State University, Carlsbad, Commenter ID No. T31 (cont'd)

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The University of Carlsbad is currently poised and ready to train the future workforce as it deals with Greater-Than-Class-C waste. In fact, most recently I've been working with officials from the Department of Energy, Carlsbad field office with URS, with Los Alamos National Labs, and with Sandia to revamp our waste handling and health physics associates degree programs.

We are poised and ready to offer those courses at the end of the fall 2011, so we will have a curriculum in place to train any new workers that are needed to handle this waste.

As a life-long resident of southeast New Mexico, I fully support the WIPP site as a long-term disposal site for Greater-Than-Class-C waste. Also, in my current role as chairman of the board of the Carlsbad Chamber of Commerce, I speak on behalf of the board when I say that we fully understand the role that WIPP plays in our local community, and we fully support any change in the permitting process that promotes sustainability, continuation or expansion of the WIPP mission. T31-1

In my opinion, WIPP is the only alternative for the safe disposal of Greater-Than-Class-C waste. Thank you.

T31-1 Based on the GTCC EIS evaluation and WIPP's operating record, DOE believes that the WIPP repository would be a safe location for the disposal of GTCC LLRW and GTCC-like wastes, some of which include long-lived radionuclides. DOE recognizes that the use of WIPP for the disposal of GTCC LLRW and GTCC-like wastes would require modification to existing law. In addition, it would be necessary to revise the Agreement for Consultation and Cooperation between Department of Energy and the State of New Mexico for the Waste Isolation Pilot Plant, the WIPP compliance certification with EPA, and the WIPP Hazardous Waste Facility Permit. For additional information, see Section J.2.2.

The State of New Mexico has indicated a willingness to accept GTCC LLRW and GTCC-like wastes for disposal at WIPP. Twenty-eight New Mexico State Senators signed a proclamation made in the Fiftieth Legislature, First Session, 2011, stating: "Be it resolved that we, the undersigned, support the opportunity for other potential missions in southeast New Mexico to adequately address the disposal of defense high-level waste, commercial high-level waste, Greater Than Class C LLRW and surplus plutonium waste, as well as the interim storage of spent nuclear fuel." In response to the Draft GTCC EIS, Secretary David Martin, Secretary of the New Mexico Environment Department, sent a letter to DOE on June 27, 2011, stating that "the Department encourages DOE to support the WIPP or WIPP Vicinity proposed locations as the preferred alternatives addressed in the Draft EIS. The geologic repository is the favored alternative being more effective for the enduring time frames for this waste type." In addition, the Governor of New Mexico, in a letter to DOE Secretary Steven Chu on September 1, 2011, stated that the State of New Mexico encourages DOE to support the proposed location of WIPP as the preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes.

<u>New York State Energy Research and Development Authority,</u>
<u>Commenter ID No. L301</u>

NYSERDA **New York State Energy Research and Development Authority**

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June 27, 2011

received

Mr. Arnold Edelman
EIS Document Manager
U.S. Department of Energy
Cloverleaf Building, EM-43
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SUBJECT: NYSERDA Comments on *Draft Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste* (DOE/EIS-0375-D)

The New York State Energy Research and Development Authority (NYSERDA) is providing the attached comments on the Department of Energy's (DOE) *Draft Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste Statement* (DEIS) 2011. NYSERDA respectfully requests that these comments be taken into consideration when DOE revises the document in preparation of the final EIS for issuance to the public.

If you have any questions regarding the attached comments, please contact me at (716) 942-9960 extension 4900.

Sincerely,

WEST VALLEY SITE MANAGEMENT PROGRAM

Paul J. Bembia

Paul J. Bembia, Director

ALM/amd
Attachment:
1. NYSERDA Comments on *Draft Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste* (DOE/EIS-0375-D)

PJB/11amd021.alm

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New York State Energy Research and Development Authority – L301

New York State Energy Research and Development Authority,
Commenter ID No. L301 (cont'd)

Messr. Arnold Edelman
Page 2
June 27, 2011

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D. A. Munro, NYSERDA-Albany (w/att.)
A. L. Mellon, NYSERDA-WV (w/att.)
A. L. Peterson, NYSERDA-Albany (w/att.)
File #60200-0700 (w/att.)

PJB/11amd021.alm

New York State Energy Research and Development Authority, Commenter ID No. L301 (cont'd)

NYSERDA's Comment on the Draft *EIS for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D)*

Cmt #	EIS Line #	Comment	
1.	Page S-4, Line 13	To provide a more accurate and conservative total volume, the estimate of 12,000 m³ of GTCC Low-Level Radioactive Waste (LLRW) and GTCC-like waste should be revised to 12,550 m³. Specifically, the Group 2 GTCC LLRW "Other Waste" Remote Handled (RH) subcategory volume should be recalculated to include the West Valley contributions from the NRC-Licensed Disposal Area and the State-Licensed Disposal Area, which total 2,630 m³. Added to the contributions from the Molybdenum-99 Production Facilities (390 m³), the total volume for the Group 2 GTCC LLRW "Other Waste-RH" should be 3,020 m³, versus the previously reported value of 2,300 m³.	L301-1
2.	Page S-8, Lines 14-15	This section states that "Tribal cultural resources include all physical, artifactual, and spiritual aspects for each of the potential areas being evaluated at Hanford, LANL and NNSS." Please clarify why tribal cultural resource evaluations were not conducted for the Waste Isolation Pilot Plant (WIPP) and the surrounding location as well as the Savannah River sites.	L301-2
3.	Page S-13, Line 28	The estimated volume for Group 2 wastes is identified as 6,400 m³. Due to the revisions identified in Comment No. 1, (i.e., the addition of West Valley contributions), the estimated waste volume for Group 2 GTCC LLRW "Other Waste-RH" should be revised from 6,400 m³ to 7,150 m³.	L301-3
4.	Page S-13, Lines 35-37	This section states that "Current information is insufficient to allow a reasonable estimate of the amount of Group 2 waste that could be mixed waste." Although this statement may be accurate for some Group 2 mixed wastes, the 2010 Final EIS for West Valley should be used to approximate the WVDP contribution to the mixed-waste volume.	L301-4
5.	Page S-14, Table S-1	Table S-1, "Summary of Group 1 and Group 2 GTCC LLRW and GTCC-Like Waste Package Volumes and Radionuclide Activities" needs to be revised after the Group 2 GTCC LLRW "Other Waste" RH subcategory volume is recalculated to include the West Valley contributions (as identified in Comments No. 1 and 3). The following estimated waste volumes in Table S-1 for Group 2 and Groups 1 and 2 LLRW and GTCC-like waste should be revised as indicated below: • Under Group 2 LLRW "Other Waste – RH" - 2,300 m³ should be revised to 3,020 m³ • Under the "Total for Group 2 GTCC LLRW" - 5,000 m³ should be revised to 5,750 m³ • Under the "Total Group 2" - 6,400 m³ should be revised to 7,150 m³ • Under the "Groups 1 and 2 GTCC LLRW Projected Total - 8,700m³, should be revised to 9,550 m³, • Under the "Total Projected Groups 1 and 2" - 11,000 should be revised to 11,450 m³ • Under the "Total Stored and Projected"- 12,000m³ should be revised to 12,550 m³.	L301-5
6.	Page S-51, Lines 28-39	This EIS assumes that "the engineered barriers (including the cover) would remain effective for the first 500 years after closure of the disposal facility and that during this time, essentially no infiltrating water would reach the wastes from the top of the disposal facility." Further, the EIS assumes that after 500 years, only 20 percent of the natural infiltration rate reported for each site would come into contact with the wastes at the top of the disposal facility. What is the basis for assuming that the engineered barriers will not fail prior to 500 years, and that after that 500 years, only 20 percent of	L301-6

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L301-1 The estimated inventory of 12,000 m^3 includes waste from the West Valley NDA/SDA. Though not identified in the inventory table, waste from West Valley NDA/SDA is reflected in the inventories listed under Group 2 activated metals, sealed sources, and other waste-remote-handled/contact-handled. Of the 740 m^3 under activated metals, 210m^3 is from the NDA and 525m^3 is from the SDA; 23 m^3 of sealed sources is from the SDA; 1,600 m^3 other waste-contact-handled is from the SDA; and 1,950 m^3 other waste-remote-handled included, 1,943 m^3 from the NDA and 7.34m^3 from the SDA.

Footnotes will be added in the EIS to Table S-1 and Table B-1 identifying wastes from the NDA/SDA.

L301-2 DOE solicited input from various sources to identify American Indian tribes that would be interested in engaging in tribal consultation with DOE on the proposed action discussed in the GTCC EIS. This engagement began in 2007 at the October State and Tribal Government Working Group meeting in Snowbird, Utah. As a follow-up to that meeting, DOE, in 2008, sent out letters to tribal government officials communicating DOE's interest in consulting with tribal nations on the GTCC EIS. However, no tribal group came forward, and DOE was not able to identify any interested tribal group affiliated with WIPP or the Savannah River Site. The approach used to engage American Indian tribes is further described in the EIS under Section 1.8 on tribal consultation for the GTCC EIS.

L301-3 See response to L301-1.

L301-4 The WVDP EIS did not estimate the amount of Group 2 GTCC waste that could be mixed waste, only those wastes that would be considered mixed waste without any further break out.

L301-5 See response to L301-1.

L301-6 DOE believes that 500 years is a realistic time period for the longevity of the types of engineering barriers assumed in the analyses. DOE believes the approach and the assumptions used in the EIS are reasonable for performing the comparative analysis of alternatives required by NEPA. For example, as discussed in Section E.2.2 of the EIS, the assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS (Phifer et al. 2007) that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study.

New York State Energy Research and Development Authority, Commenter ID No. L301 (cont'd)

NYSERDA's Comment on the Draft *EIS for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D)*

Cmt #	*EIS Line #*	*Comment*	
		the site-specific natural attenuation of water will infiltrate into the top of the disposal facility? Are these assumptions consistent with EIS assumptions used at other DOE facilities?	
7.	Page S-52, Lines 30-33	This section states "However, because the post-closure human health estimates presented in the GTCC EIS are for 10,000 years or more, and because current global climate change model projections extend only to the year 2100, it is uncertain whether the indications discussed here would continue for the 10,000-year post-closure period analyzed in the GTCC EIS." Clarify whether climate change model projections were incorporated into the 10,000-year performance assessment period identified in this EIS. If the climate change model projections were used, do these projections extend only through 2100 or do they project for the duration of the performance assessment period (i.e., 10,000-year post-closure period)? If these projections do not include the 10,000-year performance assessment period, how is climate change addressed? Are the projections alternative and location specific? How is uncertainty in the climate change estimates addressed through 2100 and for the remaining 10,000-year performance assessment period?	L301-7
8.	S-58, Lines 7-11	The construction and operational experience stated in this EIS for the Trench Alternative appears to be very specific. Specifically, the conceptual design depth and size are much more detailed than the other alternatives. Explain why this conceptual design is so much more detailed than the other alternatives. Do these details provide sufficient information to "protect the facility from inadvertent human intrusion"? Is there data supporting the effectiveness of these specific design features? If so, it would be beneficial to incorporate this data into the draft EIS.	L301-8

June 27, 2011 Page 2 of 2

L301-7 Section 2.83 of the GTCC EIS addresses climate change. Although the global climate change impacts are modeled only to the year 2100, these initial indications can be used to provide a perspective on what impacts global climate change might have on the proposed borehole, trench, and vault waste disposal facilities at the various reference locations or regions evaluated in this EIS. On the basis of Karl et al. (2009), it can be said that the maximum increase or decrease in precipitation under a higher emission scenario would be plus or minus 10%. Under a lower emission scenario, these percentages would be lower, and thus climate changes would probably not have any significant impacts on GTCC waste disposal operations. This is because essentially no precipitation changes are expected in humid sites such as SRS. For sites located in drier areas, such as Hanford, INL, LANL, NNSS, and WIPP/WIPP Vicinity, small changes would be expected. However, because the post-closure human health estimates presented in this EIS are for 10,000 years or more, and because current global climate change model projections extend only to the year 2100, it is uncertain whether the indications discussed here would continue for the 10,000-year post-closure period analyzed in this EIS.

L301-8 Although construction and operational experiences for the trench alternative appears to be very specific, the EIS provides a similar level of detail for the other proposed disposal methods (intermediate depth borehole and above grade vault). The conceptual designs take into account the issue of inadvertent human intrusion.

The conceptual design for a trench facility is deeper and narrower than it is for conventional near-surface LLRW disposal facilities in order to minimize the potential for inadvertent human intrusion during the post-closure period. The waste packages would be placed into the trench about 5 to 10 m (15 to 30 ft.) bags, and a fine-grained cohesion less fill (sand) would be used to backfill around the waste containers to fill voids. After the trench was filled with the waste containers and backfilled, a reinforced concrete layer would be placed over the waste packages to help mitigate any future inadvertent intrusion. Borehole disposal would entail the emplacement of waste in boreholes at depths below 30 m (100 ft.) but above 300 m (1,000 ft.). Boreholes can vary widely in diameter (from 0.3 to 3.7 m [1 to 12 ft.]), and the proximity of one borehole to another can vary depending on the design of the facility. The spacing of the boreholes would minimize the potential for intrusion during the post closure period. As with the trench a reinforced concrete layer would be placed over the waste packages to help mitigate any future inadvertent intrusion. For the vault, an engineered cover would be used to aid in the isolation of the waste from the environment over the long term. In addition to the protection afforded by the vault and its internal backfill, the thickness of the cover would help deter intrusion by humans.

Nez Perce Tribal Executive Committee, Commenter ID No. L1

Nez Perce

TRIBAL EXECUTIVE COMMITTEE

P.O. BOX 305 • LAPWAI, IDAHO 83540 • (208) 843-2253

received JUL 1 1 2011

June 29, 2011

Arnold Edelman
Document Manager
Office of Technical and Regulatory Support (EM-43)
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, DC 20585-0119

Re: *Nez Perce Tribe's comments on the Draft Environmental Impact Statement (EIS) for the Disposal of Greater than Class C (GTCC) Low-level Radioactive Waste and GTCC-Like Waste (DOE/EIS-0375-D)*

Dear Mr. Edelman:

Enclosed are the Nez Perce Tribe's (Tribe) comments on the *Draft Environmental Impact Statement for the Disposal of Greater Than Class C Low-level Radioactive Waste and GTCC-like Waste*. The Tribe appreciates the opportunity to comment on this document which has the potential to affect the Hanford Site and the Columbia River Basin.

The Tribe appreciates the Department of Energy's (DOE) efforts to comply with the DOE American Indian Policy and its ensuing DOE Order 144.1. The Tribe also recognizes DOE's efforts, as an agency of the United States to fully honor the unique, government-to-government relationship between the United States and Tribe, as embodied by the U.S. Constitution, treaty, statutes, Executive Order, caselaw and agency regulations. Although significant progress has occurred in cultivating this relationship with DOE, the Tribe would have preferred earlier involvement in the NEPA process on this issue. The Tribe also sought formal consultation with the agency prior to the release of the DEIS, but DOE, as we understand it, was unable to honor the Tribe's request for logistic reasons. Nevertheless, the Tribe expects that DOE will formally consult with the Nez Perce Tribal Executive Committee, our governing body, prior to the agency making any final decision on this important issue that stands to affect Tribal treaty rights at Hanford and in the Columbia Basin. L1-1

In our technical and policy review of this document, the Tribe's Environmental Restoration and Waste Management (ERWM) division utilized our own Nez Perce Hanford End-State Vision (Resolution NP-05-411, September 27, 2005), and its corresponding Hanford Guidance Document (Resolution 05-411, June 10,2010), to develop our comments about this EIS document. These policies guide us toward an effective cleanup strategy at Hanford. Our principle is that "the (Tribe) believes that the ultimate goal of Hanford cleanup should be to restore the land to uncontaminated pre-Hanford conditions for unrestricted use...Tribal members, ecological resources, and cultural resources should not be exposed to any potential adverse risk above which that has always existed prior to the establishment of federal projects or facilities at Hanford in 1942." L1-2

Nez Perce Tribal Executive Committee – L1

L1-1 DOE initiated government-to-government consultations with potentially affected American Indian tribes in a timely manner consistent with DOE Order 144.1 and DOE's NEPA implementing guidelines. These consultations were done at a time that DOE had compiled and developed sufficient information for the Draft EIS (including identification of the GTCC LLRW and GTCC-like waste inventory) to allow for an informed consultation with potentially affected American Indian tribes. These consultations resulted in some of the tribes providing narrative text for inclusion in the EIS.

DOE considered the input provided by American Indian tribes (as reflected in the tribal narratives in the EIS) in identifying a preferred alternative. Tribal narratives identified several tribal issues related to NNSS, Hanford, INL, and LANL; however, no affiliated tribes were identified for the purpose of developing tribal narratives associated with WIPP and SRS. DOE will formally consult with any potentially affected tribal government prior to making any final decision on the selection of (an) alternative(s) for the disposal of GTCC LLRW and GTCC-like wastes. For additional information, see Section J.2.5.

L1-2 Regarding tribal treaty rights allowing unrestricted access at Hanford, DOE respectfully disagrees. This EIS presents relevant and essential information important to the evaluation of potential environmental impacts, consistent with NEPA's primary goal of full disclosure to the public as well as agency decision-makers. This includes discussion of the history of the settlement of Hanford and the treaties entered into between tribal nations and the U.S. Government. There is substantial documentation indicating that the tribes understood at the time these treaties were signed that the lands were no longer "unclaimed" when they were claimed for the purposes of the white settlers' activities. DOE is not aware of any judicially recognized mechanisms that would allow these lands to revert to "unclaimed" status merely through the process of being acquired by the federal government. The portion of Hanford that remained in the public domain in 1943, as well as all the acquired lands, were closed to all access, initially under authority of the War Powers Act and then under authority of the Atomic Energy Act. It is therefore DOE's position that the Hanford lands are neither "open" nor "unclaimed." In addition, DOE does not anticipate that the tank farms will be an appropriate location for American Indian access for use of cultural resources or cultural activities, but it continues to allow access to the parts of Hanford that are appropriate. DOE has taken, and is continuing to take, substantial actions to reduce DOE's "footprint" on Hanford. Those efforts are consistent with the Nez Perce Tribe's goals for restoration and access.

Nez Perce Tribal Executive Committee, Commenter ID No. L1 (cont'd)

Unfortunately, the goal and alternatives of this EIS document fail to meet our policy criteria. They present threats to the groundwater and ecology at Hanford and the Columbia River Basin that pose unacceptable health risks to our Tribal members who have accessed and used these traditional areas since time immemorial. In addition, the proposed action presents potential risks to treaty-reserved and cultural resources that are inconsistent with the exercise of Tribal treaty-reserved uses in the affected areas. L1-3

The Tribe's recommendation is that GTCC waste and GTCC-like waste should be disposed of in a deep geologic repository and not be placed at Hanford. Attached you will find additional comments directed towards specific content within the EIS. L1-4

In conclusion, the Tribe is appreciative of DOE's efforts to involve the Tribe throughout this NEPA process, and looks forward to further staff-to-staff and formal engagement on this critical issue. Please contact our ERWM Division, (208) 843-7375, with any questions or concerns regarding this letter and our comments.

Sincerely,

Brooklyn Baptiste
Chairman

Attachments: Comments on GTCC EIS
Nez Perce Hanford End-State Vision, (Resolution NP-05-411, September 27, 2005)
Guidance in Support of the Nez Perce Tribe End-State Vision (Resolution 05-411, June 10, 2010)

L1-3 See Response L1-2.

L1-4 DOE agrees that use of a geologic repository would be a protective and safe method for the disposal of the entire inventory of GTCC LLRW and GTCC-like wastes. The GTCC EIS evaluation for the WIPP geologic repository alternative supports this statement. However, the degree of waste isolation provided by a geologic repository may not be necessary for all of the GTCC LLRW and GTCC-like wastes evaluated in the GTCC EIS. The GTCC EIS evaluation indicates that certain wastes (e.g., those containing short-lived radionuclides such as Cs-137 irradiators) could be safely disposed of in properly designed land disposal facilities at sites with suitable characteristics, such as low precipitation rates, high soil distribution coefficients, and sufficient depths to groundwater. Based on the GTCC EIS evaluation, land disposal facilities located in arid climates (e.g., NNSS and WIPP Vicinity) would isolate radionuclides for a sufficient period of time to allow for significant radioactive decay to occur.

While 10 CFR Part 61 identifies one NRC-approved method for GTCC LLRW disposal (disposal in a geologic repository), these regulations also indicate that other disposal methods could be approved. The GTCC EIS evaluates three land disposal methods (i.e., enhanced near surface trench, intermediate-depth borehole, and above-grade vault). The GTCC EIS evaluation indicates that land disposal methods employed at sites with suitable characteristics would be viable and safe alternatives for the disposal of GTCC LLRW.

Nez Perce Tribal Executive Committee, Commenter ID No. L1 (cont'd)

General EIS comments:

1. The EIS clearly states that DOE will make a preferred alternative but it is not clear in the text if that selection will occur before or after the public involvement process is complete. It is our recommendation that the document clearly states that the public will have an opportunity to comment on a preferred alternative after it has been selected. L1-5

2. "The Nez Perce Tribe opposes disposal of any GTCC or GTCC-like waste at Hanford." [Guidance in Support of the Nez Perce Tribe End-State Visions (Resolution 05-411, June 10, 2010,) Pg. 37 Item #12] L1-6

3. The EIS document could be organized better to introduce the reader to the different repository types and the proposed site located around the country. It is very difficult to understand the pros and cons of the repository types in relations to the different site locations. It is suggested that the document be arranged by presenting the repository types first with a summary presenting the pros and cons of their differences without regard for site location. Then introduce the reader to the various site locations around the country and provide a summary of the strengths and weaknesses of their physical environments in relations to the pros and cons of the repository types. This way it is a more logical process of explaining which storage facility works better or worse with each proposed location. L1-7

Specific EIS comments:

Pg. 1-42.

Comment: The life expectancy of the structures in intermediate depth and near-surface concepts are assumed to be the same along with the infiltration rates. These assumptions are too generalized and are not adequate for such an important risk calculation. There is no reasonable explanation provided for using such broad assumptions in modeling. L1-8

The long-term evaluation in the risk modeling is 10,000 years. Yet the cost of institutional controls (IC) is not calculated for this time frame. Extrapolated cost for IC for 10,000 years should be shown in order to project realistic cost comparisons among alternatives. L1-9

Section 1.8 Tribal Consultations for the GTCC EIS:

Comment: We appreciate the Tribal narrative being used in the Affected Environment sections of the Hanford alternatives. However, the impacts to tribally important resources were not properly analyzed with this tribal context. For instance, our narrative spoke about the weather extremes over the past 10,000 years with respect to storage types. We expected that alternatives would be analyzed based on past weather conditions to project future weather impacts for Hanford proposed repository methods. However, the weather projections used in modeling reflected annual precipitation and annual soil infiltration rates as being constant for 10,000 years. This assumption for 10,000 years gravely underestimates actual weather variability and its real impact on contaminant infiltration to groundwater. See more detail comment at bottom of following page associated with Pg 5-65. L1-10

Pg 2-44 Hanford -Environmental Justice- "No impacts to minority people are expected."

Comment: If Hanford were to be the preferred location of GTCC waste, then its location near the 200 area would exclude Tribal future uses for more than 10,000 years. It would change the future potential use to the exclusion of Tribes right to usual and accustomed areas. DOE's trust obligation to tribes in this area would be compromised for this entire period. L1-11

L1-5 A preferred alternative is not required to be included in a Draft EIS. The Council on Environmental Quality regulations in 40 CFR 1502.14(e) specify that the section on alternatives in an EIS shall identify the agency's preferred alternative or alternatives, if one or more exists, in the Draft EIS and identify such alternative(s) in the Final EIS unless another law prohibits the expression of such a preference; that is, a preferred alternative shall be identified in the Draft EIS if one exists. If no preferred alternative has been identified at the Draft EIS stage, a preferred alternative need not be included. By the time the Final EIS is filed, 40 CFR 1502.14(e) presumes the existence of a preferred alternative and requires its identification in the Final EIS unless another law prohibits the expression of such a preference.

DOE did not have a preferred alternative at the time of issuance of the Draft EIS because of the complex nature of the proposed action and the potential implications for disposal of GTCC LLRW and GTCC-like wastes. To seek public input on how to identify a preferred alternative for inclusion in the Final EIS, the Draft EIS presented considerations for developing a preferred alternative in the Summary (in Section S.6) and in Section 2.9. As required by 40 CFR 1502.14(e), the Final EIS contains a preferred alternative for the disposal of GTCC LLRW and GTCC-like wastes (see Section 2.10). In developing the preferred alternative, DOE took into consideration public comments on the Draft EIS, public EIS scoping comments, and other factors identified in Sections S.6 and 2.9 of the EIS.

The publication by the EPA of a NOA of the Final EIS in the Federal Register initiated a 30-day public availability or "waiting" period. While the availability period is not a formal public comment period, the public can comment on the Final EIS, including the preferred alternative, prior to final agency action. Comments received will be addressed by DOE in a ROD. As required by the Energy Policy Act of 2005, DOE must submit a Report to Congress that includes the alternatives considered in the EIS and await Congressional action before making a final decision regarding which alternative(s) to implement. The Report to Congress will be made available to the public on the GTCC EIS website (http://www.gtcceis.anl.gov/). For additional information, see Section J.2.4.

L1-6 The disposal methods and sites evaluated in the EIS represent the range of reasonable alternatives for the disposal of GTCC LLRW and GTCC-like wastes. This range is consistent with NEPA implementing regulations in Parts 1500–1508 of Title 40 of the Code of Federal Regulations (40 CFR Parts 1500–1508). In this GTCC EIS, DOE analyzed a range of disposal methods (i.e., geologic repository, near-surface trench, intermediate-depth borehole, and above-grade vault) and federally owned sites (i.e., Hanford Site, INL, LANL, NNSS, SRS, and the WIPP Vicinity, for which two reference locations – one within and one outside the WIPP Land Withdrawal Boundary – were considered). DOE has determined that it was reasonable to analyze these six sites because they currently have operating radioactive waste disposal facilities, except for the WIPP Vicinity, which is near an operating geologic repository.

Final siting of a disposal facility for GTCC LLRW and GTCC-like wastes would involve further NEPA review as needed and be in accordance with applicable laws and regulations and would involve local stakeholder involvement and consent.

DOE's ROD 78 FR 75913 dated December 13, 2013, stated that DOE has deferred a decision on importing waste from other DOE sites (with limited exceptions as described in the Settlement Agreement with the State of Washington Department of Ecology) for disposal at Hanford at least until WTP is operational.

L1-7 Figure 1.10-1 provides an overview of the GTCC EIS Organization. The organization of the document does provide a description and discussion of the various methods analyzed and then a discussion of the Federal Sites evaluated for implementation of the various methods. An overview of the waste inventory is provided in Section 1.4.1. The disposal concepts are summarized in Section 1.4.2, and the disposal sites are summarized in Section 1.4.3.

Nez Perce Tribal Executive Committee, Commenter ID No. L1 (cont'd)

The intent of environmental justice regulations is so that federal action does not unfairly impact poor or minority populations. As an affected Tribe, the Nez Perce Tribe would consider this action to be exactly the type of Environmental Justice issue that the regulations were intended to evaluate. In our opinion, the Hanford alternative would change the future use at the 200 East Area to the exclusion of treaty protected uses for 10,000 years.

The Environmental Justice section needs to provide a more thorough investigation into whether there would be an environmental justice issue with the resultant long-term loss of tribal access for practicing treaty rights on "usual and accustomed" areas of the 200 East Area. L1-11 (Cont.)

Pg 2-66 2.9.4.1 Human Health

Comment: As stated earlier, there is concern that the modeling of long-term potential human health risk from groundwater contamination is seriously flawed due to the weather assumption being constant. This does not reflect the real risk with reasonable weather variations that will likely occur during a 10,000 year time horizon. L1-12

Pg 5-65

Comment: The infiltration rate used for the first 500 years seems reasonable, but when the cap begins to fail, it is assumed a 20% infiltration rate for the next 9500 years. It is pretty well accepted knowledge that once the barrier fails, much higher infiltration rates could occur in the 1500-3000 year period. A 20% infiltration rate for remaining 8000-8500 years is also too conservative and not realistic for projecting weather's influence on infiltration rates and contaminant risk. The present modeling of low precipitation with zero variability for 9500 years creates an unrealistically low risk projection that does not reflect reality of when and how contaminants will move to groundwater. During 9500 years after structure failure, it should be assumed in the modeling that there will be wetter than usual occurrences seasonally, annually, over a decade, and even for a century.

Table 5.3.4-3 and 5.3.4-4 needs to show several other precipitation (and infiltration rate) scenarios after the barrier has failed. L1-13

What happens to dose and risk after 500-year cap failure if precipitation variations or climate change creates much wetter years, creating much greater infiltration rates, rates like 100%, 200% or even 500% of normal for single year event, for a decade, and for multiple decades (50 continuous years)? The EIS needs to show dose rates and risk after the 500-year cap failure for these specific infiltration rates for the remaining 8500 year evaluation.

It is important to understand the change in dose and risk when large single precipitation events or long sustained climate change could alter infiltration rates from other than 20% annual assumption. Infiltration will be influenced by the large events and wetter years and not by assuming an annual average will be sustained for 8500 years.

Pg 6-9 Air quality:

Comment: No information is presented about radio-active dust in Chapter 3. The narrative needs to illustrate that air quality testing for radio-active dust occurs, where testing is performed, and the results.

Please illustrate this information in a table with focus on ERDF. Much of the material brought in to ERDF is contaminated soils and demolition debris. ERDF is regularly shut down due to visibility L1-14

L1-8 The EIS analyses are based on conceptual engineering information and necessitated the use of a number of simplifying assumptions. This approach is consistent with NEPA, which requires such analyses to be made early in the decision-making process. The various land disposal conceptual designs were assumed to be constructed and operated in a comparable manner at each of the various sites. Information on the conceptual engineering designs for the three proposed land disposal methods is provided in Section D.3 of Appendix D in the EIS. By using the same conceptual designs at all of the sites evaluated in the GTCC EIS, except for cases where a design did not apply (e.g., an intermediate-depth borehole at a site with shallow groundwater), the potential impacts (e.g., radionuclides reaching the groundwater) at the different environmental settings could be readily compared.

In performing these evaluations, a number of engineering measures were included in the conceptual facility designs to minimize the likelihood of contaminant migration from the disposal units. No facility design can guarantee that radionuclide migration from the facility would not occur over and beyond a 10,000-year time period. It was assumed that these measures would perform similarly for all conceptual designs, remaining intact for 500 years after the disposal facility closed. After 500 years, the barriers would gradually fail. To account for these engineered features in the modeling calculations, it was assumed that the water infiltration to the top of the waste disposal area would be zero for the first 500 years and then 20% of the natural rate for the area for the remainder of the time period (through 10,000 years). A water infiltration rate of 20% of the natural rate for the area was only used for the disposal area; the natural background infiltration rate was used at the perimeter of the waste disposal units. Again, this approach enables a comparative evaluation of the influence that site-specific environmental factors would have on the potential migration of radionuclides from the disposal facilities and the potential impacts on human health. It should be emphasized that project- and site-specific engineering factors would be incorporated into the actual facility designs of the site or sites selected in a ROD to dispose of GTCC LLRW and GTCC-like wastes.

DOE recognizes that modeling potential releases of radionuclides from the conceptual disposal sites far into the future approximates what might actually occur. Sufficient detail was included in these designs for use in the EIS analyses, consistent with the current stage of this process. Some of the input values may change in the future and could result in higher impacts (such as from increased precipitation at some sites due to climate change), while others could result in lower impacts (due to decreased precipitation).

DOE believes that 500 years is a realistic time period for the longevity of the types of engineering barriers assumed in the analyses. DOE believes the approach and the assumptions used in the EIS are reasonable for performing the comparative analysis of alternatives required by NEPA. For example, as discussed in Section E.2.2, the assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS (Phifer et al. 2007) that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study.

Estimated radiation doses and LCFs were calculated for each site and disposal concept for 10,000 years, and if the peak impact did not occur during this time frame, the analysis was extended out to 100,000 years. DOE believes that the assumptions made to support the long-term modeling calculations for the groundwater pathway are reasonable and enable a comparative evaluation of the impacts between alternatives. The results of the evaluation presented in the EIS are sufficient to inform the selection of sites and methods for disposal. Site-specific NEPA reviews would be conducted as needed.

Nez Perce Tribal Executive Committee, Commenter ID No. L1 (cont'd)

problems from high winds. IT would be valuable to know the radio-activity of this dust and whether there is any risk. L1-14 (Cont.)

Pg 6-34 Water Quality

Comment: The tribal narrative placed under the "Water Quality" section needs to be moved to the "Land Use" section. This narrative is about the Monument designation and its implications on land use. L1-15

Pg 6-39

The narrative states that the 200 east area has groundwater travel time of 10-30 years to reach the Columbia River due to large volumes of waste water discharge from the 1940s to 1990s. This discharge created a groundwater mound that is dissipating. Once this pressure declines, the groundwater flow rate would decline also.

Comment: The water mound was intentionally created with ponds placed to the northeast in part to create a barrier to groundwater flows that were previously documented to travel due east. This mound changed the direction of groundwater to its present southeast direction. Once this present hydraulic head dissipates, flow will expectantly change to its prior direction, back to traveling due east. L1-16

Prior to U-pond and B-pond generating the hydraulic mound, groundwater flows from the 200 east area were documented to reach the river due east in as short as 6 years. HW-80909. Brown,D.J. and W.A. Haney, 1964. *The movement of contaminated groundwater from the 200 areas to the Columbia River, General Electric Co., Richland, WA.* In other words, once the mound dissipates, then groundwater may shift back to traveling due east and reach the river much sooner.

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Comment: The description of the PO-1 contamination plumes as listed in table 6.1.3-1 needs to be visually displayed in relation to the proposed repository site. Groundwater contamination in Operable units 200-PO-3 and PO-6 should also be shown. It is important for the public to see and understand the extent of existing groundwater contamination under the proposed repository site.

Pg 6-41 Groundwater Quality

Comment: Operating Unit 200-PO-1 needs a figure that illustrates the tritium, nitrate and I-129 plumes and other contaminants shown in Table 6.1.3-1 that exist in groundwater under the proposed site near 200 east. L1-17

Pg 6-34 Comment: The Tribal narrative should be moved to the "land use" discussion. One of the primary land use designations is the Monument and its mission.

Pg 6-55 Comment: The tribal narrative under the "Employment" section needs to be moved to the "Ecology" section.

L1-9 Costs for institutional controls out to a 10,000 year time frame were not evaluated because the institutional control period was assumed to be for the first 100 years after facility closure. Site-specific NEPA reviews would take a closer look the implementation and costs of institutional controls.

L1-10 Text prepared by potentially affected American Indian tribes is included in this EIS. DOE considered this text for Hanford, INL, LANL, and NNSS; however, DOE also needed to ensure consistency in the EIS analyses between the various sites, so that an even comparison could be made between alternatives as required by NEPA. Because of this, it was not possible to fully utilize all of the information provided by the tribal governments in order to perform specific analyses associated with exposure events unique to a given American Indian tribe (such as greater intakes of fish, game, and plants; the use of sweat lodges; and the use of natural pigment paints for traditional ceremonies). Once a decision is made on a specific site location and method, appropriate site-specific NEPA review would be conducted, including appropriate analysis of exposure events unique to the impacted local American Indian tribes.

However, the information provided in these narratives was considered in the identification of the preferred alternative presented in this EIS. The information provided in the narratives for Hanford, INL, LANL, and NNSS was very useful, and DOE appreciates the time and effort expended by the various tribes in supporting this EIS process.

DOE recognizes that modeling potential releases of radionuclides from the conceptual disposal sites far into the future approximates what might actually occur. Sufficient detail was included in these designs for use in the EIS analyses, consistent with the current stage of this process. Some of the input values may change in the future and could result in higher impacts (such as from increased precipitation at some sites due to climate change), while others could result in lower impacts (due to decreased precipitation).

L1-11 As discussed in Section 6.1.7 of the EIS, there are no minority or low-income populations in the Hanford vicinity as defined in the CEQ guidelines. Thus, no environmental justice issues at Hanford are expected.

L1-12 DOE recognizes that some of the waste considered contains radionuclides that pose potential human health risks for extended periods of time and that modeling potential releases of these radionuclides from the conceptual disposal sites far into the future approximates what might actually occur. In performing these evaluations, a number of engineering measures were included in the conceptual facility designs to minimize the likelihood of contaminant migration from the disposal units. No facility design can guarantee that radionuclide migration from the facility would not occur over and beyond a 10,000-year time period. Sufficient detail was included in the proposed conceptual land disposal facility designs for use in the EIS analyses, consistent with the current stage of this process. Some of the waste form and site characteristic input values may change in the future and could result in higher impacts (such as from increased precipitation at some sites due to climate change), while others could result in lower impacts (due to decreased precipitation).

DOE believes that 500 years is a realistic time period for the longevity of the types of engineering barriers assumed in the analyses. DOE believes the approach and the assumptions used in the EIS are reasonable for performing the comparative analysis of alternatives required by NEPA. For example, the assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS (Phifer et al. 2007) that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study. DOE believes that the assumptions made to support the long-term modeling calculations for the groundwater pathway are reasonable and enable a comparative evaluation of the impacts between alternatives. The results of the evaluation presented in the

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EIS are sufficient to inform the selection of sites and methods for disposal. Follow-on project-specific and site-specific NEPA reviews would be conducted as needed.

L1-13 The assumption of a 20% natural background infiltration rate after 500 years was based on a study at SRS (Phifer et al. 2007) that indicated that after 10,000 years, the closure cap at the F-area would still shed about 80% of the cumulative precipitation falling on it, with an effectiveness that would be greater before 10,000 years, then decrease very slowly after 10,000 years. The approach used in the EIS is more conservative than indicated by this study. A limited sensitivity analysis was conducted to obtain an idea of the uncertainties involved in the long-term post-closure human health estimates as described in Appendix E, Section E.6. The sensitivity analysis did include an analysis of the infiltration rate.

L1-14 Additional information concerning air monitoring and air releases in the 200 west area were added to Section 6.1.1.2.

L1-15 The Tribal narrative about the Monument designation was moved to the Land Use section in the Final EIS.

L1-16 Additional text was added to Section 6.1.3.2.3 with a more detailed description of the groundwater flow.

L1-17 Figures illustrating the groundwater contamination have been added to the discussion as suggested. The Tribal narrative on the Monument has been moved to the "land use" section, and the Tribal narrative under the "Employment" section has been moved to the "Ecology" section.