

Department of Energy

Washington, DC 20585 April 9, 2021

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MEMORANDUM FOR DISTRIBUTION

FROM:	WILLIAM I. WHITE ACTING ASSISTANT SECRETARY WM MAA FOR ENVIRONMENTAL MANAGEMENT
SUBJECT:	Implementation of Pre-Approved Authorized Limits for Release and Clearance of Volumetric Radioactivity of Personal Property

at Environmental Management Sites

The Office of the Associate Under Secretary for Environment, Health, Safety and Security (AU) recently issued pre-approved Authorized Limits (ALs) for Release and Clearance of Volumetric Radioactivity of Personal Property. This memorandum clarifies and adds certain requirements for implementation of the pre-approved ALs by the Office of Environmental Management (EM) sites.

The AU policy authorizes the Department of Energy (DOE) use of certain portions of the national consensus standard ANSI N13.12-2013, *Surface and Volume Radioactive Standards for Clearance*, as pre-approved ALs for release and clearance of volumetric radioactivity of personal property. The pre-approved ALs meet the constraint of an annual effective dose of 1 mrem (0.01 mSv) to the public, as required by DOE Order (O) 458.1. Pursuant to that Order, the DOE Field Element Manager is the approving authority for use of pre-approved ALs at a site or for a DOE activity.

In issuing the pre-approved limits, AU noted several important limitations:

- The ALs apply to the clearance of personal property only, including recycling or reuse of process gases, liquids, and residue.
- The issuance of the pre-approved ALs does not change, and is not inconsistent with the January 2000 moratorium on the release of volumetrically contaminated metals and the related July 2000 prohibition on unrestricted release of volumetrically contaminated metal into commerce (attached).
- All relevant requirements of DOE O 458.1 must be met, including appropriate records of released materials, public notification, and radiological surveys.

In addition to these conditions, EM sites must notify EM Headquarters (HQ) of any proposed use of the pre-approved ALs for off-site reuse or recycle of personal property, even if it meets the limits; while the Field Element Manager remains the approving authority per DOE O 458.1, concurrence must be obtained by the (Acting) Assistant Secretary for EM, before site approval for such off-site reuse. Disposal of personal property (on-site or off-site) or on-site reuse within the pre-approved ALs does not require EM-HQ concurrence.

If you have any questions, please contact me or Ms. Betsy Forinash, Director for Infrastructure Management and Disposition Policy, at (202) 586-1467.

Attachments

Distribution

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cc: Matthew Moury, AU-1 Andrew Wallo, AU-20 Derek Favret, AU-22 Mike Stewart, AU-22 Melanie Pearson Hurley, EM-3 Karen Ott, EM-3 Rodrigo Rimando, EM-3 John Jones, EM-3 Scott Bartel, EM-3 Kyle Gjersvold, EM-3 Ty Sanders, EM-3 Brenda Hawks, EM-3.11/CNS (Acting) Craig West, EM-3.3 Elizabeth Forinash, EM-4.1 Mark Senderling, EM-4.2 Doug Tonkay, EM-4.2 Mary Kruger, EM-4.3 Amanda Anderson, EM-3.11 Nancy Buschman, EM-4.11 Dinesh Gupta, EM-4.11



Department of Energy

Washington, DC 20585

March 16, 2021

MEMORANDUM FOR DISTRIBUTION

FROM:

MATTHEW B. MOUR MB Moury ASSOCIATE UNDER SECRETARY FOR ENVIRONMENT, HEALTH, SAFETY AND SECURITY

SUBJECT:

Pre-Approved Authorized Limits for Release and Clearance of Volumetric Radioactivity of Personal Property at Department of Energy Field Elements

Department of Energy (DOE) Order (O) 458.1, Chg. 4, *Radiation Protection of the Public and the Environment*, permits the Chief Health, Safety and Security Officer (AU-1) or the responsible Cognizant Secretarial Officer in consultation with the Chief Health, Safety and Security Officer, to approve pre-approved Authorized Limits. The Office of Environment, Health, Safety, and Security (AU) has completed a review of American National Standard Institute (ANSI)/Health Physics Society (HPS) N13.12-2013, *Surface and Volume Radioactive Standards for Clearance*, a National Consensus Standard and is approving certain portions of the standard for use in radiological activities conducted under the control of the DOE. The use of pre-approved Authorized Limits is subject to the requirement for approval of that use by the appropriate Field Office Manager and implementation does not conflict with the January 12, 2000, moratorium on the release of volumetrically contaminated metals. Consistent with the requirements and authorities in Section k.(6)(f) of DOE O 458.1, AU-1 is establishing pre-approved Authorized Limits for Release and Clearance of Volumetric Radioactivity of Personal Property as outlined in this memorandum.

AU-1 is authorizing the DOE use of the ANSI/HPS N13.12-2013 screening levels as the preapproved Authorized Limits for Release and Clearance of Volumetric Radioactivity of Personal Property as outlined in Attachment 1. The criteria in Attachment 1 meet the dose constraint of an effective dose of 1 mrem (0.01 mSv) in any calendar year of exposure to the public, as required by DOE O 458.1. The Authorized Limits apply to the clearance of personal property only, including recycling or reuse of process gases, liquids and residue. The Authorized Limits are not intended to be used in conjunction with the discharge of air emissions or liquid effluents that are controlled by other requirements. Appropriate records of the released materials must be maintained consistent with the requirements of DOE O 458.1.

Pursuant to DOE O 458.1, the DOE Field Element Manager is the approving authority for use of pre-approved Authorized Limits at a site or for a DOE activity. DOE O 458.1 also requires that DOE approval for the use of the pre-approved limits at a site or for a DOE activity be documented and available to the public. The approval of these health- and safety-based volumetric pre-approved Authorized Limits does not annul, but rather, complements, the DOE policy in the Secretarial Metals Moratorium, Subject: Release of Surplus and Scrap Materials, dated January 12, 2000 that encumbered unrestricted release of volumetrically contaminated metal into commerce and the direction contained in the July 13, 2000 memorandum.

Pre-approved Authorized Limits for the release and clearance of surface radioactivity of personal property remain unmodified and appropriate for continued use. This pre-approved Authorized Limit is only authorized for use consistent with the processes established in DOE O 458.1 and current site-approved procedures in place for implementing the pre-approved surface criteria.

If you have any questions, please contact Mr. Mike Stewart, Office of Public Radiation Protection, at <u>mike.stewart@hq.doe.gov</u> or (202) 586-6444.

Attachment

Distribution:

Under Secretary for Science and Energy, S4 Administrator for National Nuclear Security, NA-1 Chief Financial Officer, Office of the Chief Financial Officer, CF-1 Assistant Secretary for Congressional & Intergovernmental Affairs, CI-1 Assistant Secretary for Cybersecurity, Energy Security & Emergency Response, CR-1 Director, Office of Enterprise Assessments, EA-1 Assistant Secretary for Energy Efficiency & Renewable Energy, EE-1 Administrator, Energy Information Administration, EI-1 Assistant Secretary for Environmental Management, EM-1 Assistant Secretary of Energy for Fossil Energy, FE-I General Counsel, Office of General Council, GC-1 Chief Human Capital Officer, Office of the Chief Human Capital Officer, HC-1 Director, Office of Hearings & Appeals, HG-1 Assistant Secretary for International Affairs, IA-1 Inspector General, Office of the Inspector General, IG-1 Chief Information Officer, Office of the Chief Information Officer, IM-1 Director, Office of Intelligence and Counterintelligence, IN-1 Director, Office of Legacy Management, LM-1 Director, Office of Management, MA-1 Assistant Secretary for Nuclear Energy, NE-1 Assistant Secretary for Electricity, OE-1 Director, Office of Science, SC-1

Cc:

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	SI units	Conventional units
Radionuclide groups ^b	Volume (Bq/g)	Volume (pCi/g)
Group 0 Special Case: ¹²⁹ I ^c	0.01	0.3
Group 1 High-energy gamma, radium, thorium, transuranics, and mobile beta-gamma emitters: ²² Na, ⁴⁶ Sc, ⁵⁴ Mn, ⁵⁶ Co, ⁶⁰ Co, ⁶⁵ Zn, ⁹⁴ Nb, ¹⁰⁶ Ru, ^{110m} Ag, ¹²⁵ Sb, ¹³⁴ Cs, ¹³⁷ Cs, ¹⁵² Eu, ¹⁵⁴ Eu, ¹⁸² Ta, ²⁰⁷ Bi, ²¹⁰ Po, ²¹⁰ Pb, ²²⁸ Ra, ²²⁸ Ra, ²²⁸ Th, ²²⁹ Th, ²³⁰ Th, ²³² U, ²³⁸ Pu, ²³⁹ Pu, ²⁴⁰ Pu, ²⁴² Pu, ²⁴⁴ Pu, ²⁴¹ Am, ²⁴³ Am, ²⁴⁵ Cm, ²⁴⁶ Cm, ²⁴⁷ Cm, ²⁴⁸ Cm, ²⁴⁹ Cf, ²⁵¹ Cf, ²⁵⁴ Es, and associated decay chains ^d , and others ^b	0.1	3
Group 2 Uranium and selected beta-gamma emitters: ¹⁴ C, ³⁶ Cl, ⁵⁹ Fe, ⁵⁷ Co, ⁵⁸ Co, ⁷⁵ Se, ⁸⁵ Sr, ⁹⁰ Sr, ⁹⁵ Zr, ⁹⁹ Tc, ¹⁰⁵ Ag, ¹⁰⁹ Cd, ¹¹³ Sn, ¹²⁴ Sb, ^{123m} Te, ¹³⁹ Ce, ¹⁴⁰ Ba, ¹⁵⁵ Eu, ¹⁰⁰ Tb, ¹⁸¹ Hf, ¹⁸⁵ Os, ¹⁹⁰ Ir, ¹⁹² Ir, ²⁰⁴ Tl, ²⁰⁶ Bi, ²³³ U, ²³⁴ U, ²³⁵ U, ²³⁸ U, natural uranium ^e , ²³⁷ Np, ²³⁸ Pu, ²⁴³ Cm, ²⁴⁴ Cm, ²⁴⁸ Cf, ²⁵⁰ Cf, ²⁵² Cf, ²⁵⁴ Cf, and associated decay chains ^d , and others ^b	1	30
Group 3 General beta-gamma emitters: ⁷ Be, ⁷⁴ As, ^{93m} Nb, ⁹³ Mo, ⁹³ Zr, ⁹⁷ Tc, ¹⁰³ Ru, ^{114m} In, ¹²⁵ Sn, ^{127m} Te, ^{128m} Te, ¹³¹ I, ¹³¹ Ba, ¹⁴⁴ Ce, ¹⁵³ Gd, ¹⁸¹ W, ²⁰³ Hg, ²⁰² TI, ²²⁵ Ra, ²³⁰ Pa, ²³³ Pa, ²³⁶ U, ²⁴¹ Pu, ²⁴² Cm, and others ^b	10	300
Group 4 Low-energy beta-gamma emitters: ³ H, ³⁵ S, ⁴⁵ Ca, ⁵¹ Cr, ⁵³ Mn, ⁵⁹ Ni, ⁶³ Ni, ⁶⁶ Rb, ⁹¹ Y, ⁹⁷ ^m Tc, ^{115m} Cd, ^{115m} In, ¹²⁵ I, ¹³⁵ Cs, ¹⁴¹ Ce, ¹⁴⁷ Nd, ¹⁷⁰ Tm, ¹⁹¹ Os, ²³⁷ Pu, ²⁴⁹ Bk, ²⁵³ Cf, and others ^b	100	3,000
Group 5 Low-energy beta emitters: ⁵⁵ Fe, ⁷³ As, ⁸⁹ Sr, ¹²⁵ Te, ¹⁴⁷ Pm, ¹⁵¹ Sm, ¹⁷¹ Tm, ¹⁸⁵ W, and others ^b	1,000	30,000

Attachment 1. Screening levels for volumetric clearance^a

^aThe screening levels for clearance have been rounded to one significant figure and are assigned for volume radioactivity.

^bTo determine the specific group for radionuclides not shown, a comparison of the screening factors, by exposure scenario, listed in Tables B. 1, C.1, and D.1 of NCRP Report No. 123I (NCRP 1996) for the radionuclides in question and the radionuclides in the general groups above will be performed and a determination of the proper group made, as described in ANSI/HPS N13.12-2013, Annex A.

^cBecause of potential ground-water concerns, the volume radioactivity values for ¹²⁹I when disposal to landfills or direct disposal to soil is anticipated is assigned to Group 0.

^dFor decay chains, the screening levels represent the total activity (i.e., the activity of the parent plus the activity of all progeny) present.

^eThe natural uranium screening levels for clearance *shall* be lowered from Group 2 to Group 1 if decay-chain progeny are present (i.e., uranium ore versus process or separated uranium, for example, in the form of yellowcake). The natural uranium activity equals the activity from uranium isotopes (48.9% from ²³⁸U, plus 48.9% from ²³⁴U, plus 2.2% from ²³⁵U). This approach is consistent with summing radionuclide fractions discussed in ANSI/HPS N13.12-2013, Section 4.4.



The Secretary of Energy Washington, DC 20585 July 13, 2000

MEMORANDUM FOR HEADS OF DEPARTMENTAL ELEMENTS

FROM:

BILL RICHARDSON

SUBJECT:

Release of Surplus and Scrap Materials

The Department of Energy's (DOE) management of surplus and scrap materials has evolved over many years. Effective management of these materials has become more complicated over the past decade because the Department has begun generating them in larger quantities as it closes many facilities and expands its environmental management activities. Moreover, since much of this material was once used in nuclear operations, our management of it must continue to take into account safety and security issues, but we also want to address recently voiced public concerns that are not faced by most other Federal Agencies or by private industry.

For several months, we have been actively reviewing ways to improve our management of materials which might be released from departmental control. My goal has been to identify ways to better ensure protection of public health and the environment, openness and public trust, and fiscal responsibility.

I thank the Reuse and Recycling Task Force I established last winter for their contribution to the Department's review. While the work of the task force is now complete, many of its members will be involved over the coming months further developing and implementing changes to our policies and procedures.

On January 12, 2000, I placed a moratorium on the Department's release of volumetrically contaminated metals pending a decision by the Nuclear Regulatory Commission (NRC) whether to establish national standards. The NRC continues to review the issue, and the moratorium remains in effect.

Today, I am hereby directing further action in four areas: improvement of the Department's release criteria and monitoring practices; expansion of efforts to promote reuse and recycling within the complex of DOE facilities; improvement of the Department's management of information about material inventories and releases; and the accelerated recovery of sealed sources. Also, I am suspending the unrestricted release for recycling of scrap metals from radiation areas within DOE facilities. This suspension will remain in effect until improvements in our release criteria and information management have been developed and implemented as described below.



Our existing release criteria, described in DOE Order 5400.5, limit the potential for radiation exposure to the public to levels well below applicable requirements. Our experience using these criteria, however, demonstrates that even this very low potential exposure is not fully acceptable to the public. Our experience with existing criteria also shows that most scrap metal released is either not contaminated at all or has residual levels of surface contamination well below the current DOE standard.

Henceforth, the Department will not allow the release of scrap metals for recycling if contamination from DOE operations is detected using appropriate, commercially available monitoring equipment and approved procedures. To implement this decision, I am directing the Assistant Secretary for Environment, Safety and Health, with appropriate resource support, to revise DOE directives and associated guidance documents applicable to scrap metal releases through a public process, as described below, by December 31, 2000.

The Department will publish proposed changes to DOE directives and guidance for at least sixty days of public review and comment. The changes will describe conditions whereby the Department uses appropriate, commercially available technology and the most appropriate monitoring and decontamination procedures to ensure that no detectable contamination from DOE operations remains on any scrap metal released into commerce for recycling from any portion of our facilities. The revised DOE directive will establish a review cycle to develop future updates to guidance consistent with lessons learned, advances in monitoring or decontamination technology and procedures, and new information such as any future rulemaking activity by the NRC.

Changes will also be made to DOE's requirements and guidance to improve the collection, maintenance, and reporting of information associated with releases of surplus equipment, scrap metals, and other excess personal property. We need better records on inventories of these materials; contamination, security, and other concerns associated with them; and the basis for decisions authorizing their release. This information needs to be maintained in a way that makes it easily accessible to the public (consistent with classification and other security requirements) and readily available to meet the needs of project and program managers.

Once the revised directives and guidance are in place, the Department will require each DOE site to have local public participation before the site may resume the unrestricted release for recycling of scrap metals from radiation areas. These public participation requirements must address each of the above mentioned elements associated with release criteria and information management. In addition, the Department will require individual sites to certify, through the responsible Program Secretarial Officer (PSO), that they have met all requirements of the revised order before the release of scrap metal from radiation areas for recycling can resume. In addition, each affected PSO will implement an independent verification program to ensure that site activities continue to comply with the new requirements.

While updated release criteria and record keeping procedures are being developed and implemented, the Department will undertake several activities to promote internal reuse and recycling. All DOE programs and sites should expand their efforts to reuse and recycle materials within the Department. I direct the Assistant Secretary for Energy Efficiency and Renewable Energy to lead completion of a feasibility study on the potential use of a dedicated mill to recycle steel for reuse within the DOE complex. The study is to be completed within ninety days, after which I will receive the study's recommendations and determine if the Department will pursue the project further. Also, I direct the Chief Financial Officer to develop a set of proposed actions that will institutionalize incentives for internal reuse and recycling when such activities are cost-effective and protective of workers, the public, and the environment. The Chief Financial Officer will forward these recommended actions to me within 120 days for approval.

Finally, I direct the Assistant Secretary for Environmental Management to accelerate the Department's program to recover radioactive sources. The goal should be to recover over the next four years the backlog of commercial sources for which the Department has authority.