Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

16-AMRP-0078

JAN 2 0 2016

Ms. J. A. Hedges, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
3100 Port of Benton
Richland, Washington 99354

Dear Ms. Hedges:

PROPOSAL TO RE-DESIGNATE SEVEN LOW-LEVEL BURIAL GROUNDS WASTE CONTAINERS FROM MIXED WASTE TO RADIOACTIVE, NON-DANGEROUS WASTE

The U.S. Department of Energy Richland Operations Office (RL) requests that the Washington State Department of Ecology provide concurrence to the re-designation of seven waste containers in the Low-Level Burial Grounds (LLBGs) from mixed waste to radioactive, non-dangerous waste.

The LLBGs consist of trenches where mainly radioactive, non-dangerous waste is buried. 268 containers of mixed waste were disposed in the LLBGs after the effective date of Resource Conservation and Recovery Act regulation, August 19, 1987. Seven of these containers, mistakenly designated as dangerous waste, are proposed to be re-designated as low-level waste. The seven containers are large and collectively weigh over 1 million kilograms (2.2 million pounds). Supporting information is contained in the attached Mixed Waste Disposed of in the Low-Level Burial Grounds, DOE/RL-2014-43, Revision 1.

Discrete areas of mixed waste disposed to the LLBGs have historically been referred to as "Green Islands." Regulatory justification for re-designation of seven Green Islands and their seven containers of mistakenly designated waste is summarized in Attachment 2.

A description of all Green Islands in the LLBGs and a numbering system to identify each Green Island is shown in Table G-1 in Appendix G of DOE/RL-2014-43, Revision 1.

If you have any questions, please contact me, or your staff may contact, Mike Cline, of my staff, on (509) 376-6070.

Sincerely,

Ray J. Corey, Assistant Manager
for the River and Plateau

AMRP:RDH

Attachments

cc w/attachs:
D. B. Bartus, EPA
G. Bohnee, NPT
R. Buck, Wanapum
D. A. Faulk, EPA
S. Hudson, HAB
R. Jim, YN
N. M. Menard, Ecology
K. Niles, ODOE
J. B. Price, Ecology
D. Rowland, YN
D. G. Singleton, Ecology
R. Skeen, CTUIR
E. R. Skinnarland, Ecology
Administrative Record
Environmental Portal

cc w/o attachs:
J. V. Borghese, CHPRC
R. E. Day, CHPRC
B. J. Dixon, CHPRC
M. H. Doornbos, CHPRC
W. R. Faught, CHPRC
G. M. Hanson, CH2
M. N. Jaraysi, CHPRC
C. P. Noonan, MSA
R. E. Piippo, MSA
M. J. Turner, MSA

Attachment 2

Regulatory Justification for Re-Designation of Seven Green Islands and their Seven Containers of Mistakenly Designated Waste

The purpose of DOE/RL-2014-43, Revision 1, Mixed Waste Disposed of in the Low Level Burial Grounds is to provide a recommendation on the regulatory path for the disposition of 268 containers of Green Island waste currently buried in the 200-SW-2 Radioactive Landfills Group Operable Unit (OU). Green Islands consist of waste designated as mixed waste, i.e. containing a dangerous waste component as defined in WAC 173-303 and buried in unlined trenches after the effective date of RCRA regulation in Washington State of such wastes, August 19, 1987. Green Island waste derives its name from its appearance on drawings of the OU, which historically show the locations of mixed waste burials in green.

Seven of the 268 containers were incorrectly designated as mixed waste at the time of burial. This document recommends that they be reclassified as low-level waste (LLW). DOE/RL-2014-43, Revision 1 does not recommend changes to the regulatory status of the remaining 261 waste containers in the Green Islands. The purpose of the discussion with respect to these containers is to describe their waste contents and to provide a preliminary discussion of possible regulatory paths.

This discussion is given in the context of the ongoing preparation of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA) documentation for the RCRA Facility Investigation/Corrective Measures Study/Remedial Investigation/Feasibility Study to be conducted on the waste sites (landfills) in the 200-SW-2 OU. Disposition of Green Island waste is a consideration in the remedial planning for this OU. Included in this discussion is basic information on the landfills, detailed information on the contents of the Green Island burials, and recommendations for the regulatory pathway to determine disposition of these burials.

The following is a basic physical description of the Green Island wastes:

- Nine trenches within five landfills contain Green Island waste
  - 218-E-10, Trench 9
  - 218-W-3A, Trenches 6S and 19
  - 218-W-3AE, Trenches 5 and 8
  - 218-W-4C, Trenches NC, 14, and 58
  - 218-W-5, Trench 22
- There are 24 Green Islands, containing a total of 268 waste containers
- Waste containers range in size from 55 gallon (208 L) drums to boxes 40 ft (12 m) in length and in weight from 71 to 1,800,000 pounds (32 to 820,000 kg)
- Each Green Island contains from one to 63 containers of waste

The seven waste containers recommended for re-designation fall outside of regulation under WAC 173-303 under one of the following criteria:

1. The waste was designated as mixed waste at the time of burial due to the presence of di-octyl phthalate. The weight percent of this constituent falls below regulatory levels as a Washington State toxic.

Attachment 2

Regulatory Justification for Re-Designation of Seven Green Islands and their Seven Containers of Mistakenly Designated Waste

2. The waste was designated as mixed waste at the time of burial due to the presence of lead. Upon further review of the burial records, it has been determined that the lead is used for its intended purpose as radiological shielding.
3. The waste was designated as mixed waste due to the presence of lead. Calculations were performed that showed that the small quantity of lead in the overall waste matrix resulted in a concentration of less than 100 parts per million. The weight percent of this constituent falls below regulatory levels.

The seven waste containers recommended for re-designation are listed in Table ES-1.

Green Island No.	Landfill and Trench No.	Generator	Container Identification Number	Container Size and Weight	Waste Information
02	218-E-10-T09	Hanford B Plant/221B	221B-87-0100S (221B-WHC-87-2)	Standard concrete burial box 22′ 7″ × 11′ 8″ × 10′ 68,000 lb	• Contains paper products, plastic, cloth, stainless steel, other metal, and lead • Container originally designated as mixed waste due to lead; re-designated due to small quantity (4.8 lb) of lead (<100 ppm) • Additional information is provided in the burial record(s) in Appendix A
04	218-E-10-T09	Hanford B Plant/221B	221B-87-0118S (221B-WHC-87-3)	Standard concrete burial box 22′ 7″ × 11′ 8″ × 10′ 68,000 lb	• Contains paper, plastic, cloth, wood, concrete, asbestos, stainless steel, other metal, and lead • Container originally designated as mixed waste due to lead; re-designated due to small quantity (2.2 lb) of lead (<100 ppm) • Additional information is provided in the burial record(s) in Appendix A
06	218-E-10-T09	Hanford B Plant/225B (WESF)/271B Support Bldg	271B-91-000289	Burial box made of plastic and fiberboard placed in trench and grouted 19′8″ × 7′ 8″ × 10′ 8″	• HEPA filters, rags, paper, plywood, plastic, rubber, grout, and stainless steel • Originally designated as mixed waste due to the presence of Di-octyl Phthalate (CAS# 117-84-0) as a Washington state carcinogen. The regulatory status of this chemical has changed since the carcinogenic criteria was removed from WAC 173-303 and is now regulated as a toxic constituent (Toxic B). The weight percent of this

Attachment 2

Regulatory Justification for Re-Designation of Seven Green Islands and their Seven Containers of Mistakenly Designated Waste

				148,000 lb including added grout	constituent (6.53 kg [0.0097 wt%]) falls below regulatory levels as a Washington State toxic and therefore no longer designates as mixed waste. • Additional information is provided in the burial record(s) in Appendix A
07	218-E-10-T09	Hanford B Plant/225B (WESF)/271B Support Bldg	271B-91-000290	Burial box made of plastic and fiberboard placed in trench and grouted 19'8" × 7' 8" × 10' 8" 148,000 lb including added grout	• HEPA filters, rags, paper, plywood, plastic, rubber, grout, and stainless steel. • Originally designated as mixed waste due to the presence of Di-octyl Phthalate (CAS# 117-84-0) as a Washington state carcinogen. The regulatory status of this chemical has changed since the carcinogenic criteria was removed from WAC 173-303 and is now regulated as a toxic constituent (Toxic B). The weight percent of this constituent (6.53 kg [0.0097 wt%]) falls below regulatory levels as a Washington State toxic and therefore no longer designates as mixed waste. • Additional information is provided in the burial record(s) in Appendix A
08	218-W-3A-TS6	Bettis Atomic Power Lab	BETTS-MIN-87-1 (6511-4)	Metal box 10'4" × 5' 4" × 5' 9" 9,755 lb	• Dry coolant pump, filters, metal tubing, asbestos, vent screens, fission chambers, wood bracing, and uncontaminated lead (730 lb) as shielding. • Originally designated as mixed waste due to the presence of lead. However, the lead is used for its intended purpose as radiological shielding; therefore, this container is no longer designated as mixed waste. • Additional information is provided in the burial record(s) in Appendix B
21	218-W-4C-T14	Shipping Port	8901-02-1	17' × 40' – non containerized equipment 1.8M lb	• The waste is a non-containerized reactor pressure vessel containing lead shielding (8,000 lb). • Originally designated as mixed waste due to the presence of lead. However, the lead is used for its intended purpose as radiological shielding; therefore, this container is no longer designated as mixed waste. • Additional information is provided in the burial record(s) in Appendix D
22	218-W-4C-T58	Hanford 300 Area/324	324-88-0010S	Lead shielded box with carbon	• Rubber, mild steel, stainless steel, carbon steel, and lead (15,800 lb)

Attachment 2

Regulatory Justification for Re-Designation of Seven Green Islands and their Seven Containers of Mistakenly Designated Waste

				steel 11'6" × 5'1" × 5'2" 39,500 lb	• Originally designated as mixed waste due to the presence of lead. However, the lead is used for its intended purpose as radiological shielding; therefore, this container is no longer designated as mixed waste. • Additional information is provided in the burial record(s) in Appendix D

CAS = Chemical Abstracts Service
HEPA = high-efficiency particulate air
ppm = parts per million
WESF = Waste Encapsulation and Storage Facility