

**U.S. NUCLEAR REGULATORY COMMISSION
DOCKET NO. 70-0036
ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT RELATED
TO THE ISSUANCE OF AMENDMENT NO. 60 TO MATERIALS LICENSE NO. SNM-0033,
WESTINGHOUSE ELECTRIC COMPANY, LLC HEMATITE DECOMMISSIONING PROJECT
LOCATED IN FESTUS, MISSOURI (TAC NO. J00357)**

1. Introduction

The U.S. Nuclear Regulatory Commission (NRC) is considering the issuance of a license amendment to special nuclear material (SNM) license number SNM-33. This license was issued to Westinghouse Electric Company, LLC (WEC or Westinghouse) for the former Hematite Fuel Cycle Facility in Hematite, Missouri. Fuel cycle facility operations ceased in 2001 and the Hematite site is presently undergoing decommissioning. The facility is now referred to as the Hematite Decommissioning Project (HDP).

In addition, the NRC is considering the issuance of an exemption to the US Ecology Idaho, Inc. (USEI) Resource Conservation and Recovery Act (RCRA) Subtitle C disposal facility which is a hazardous waste disposal facility permitted by the Idaho Department of Environmental Quality (IDEQ) and is located near Grand View, Idaho in the Owyhee Desert. USEI is not an NRC licensed facility.

On January 16, 2012, WEC requested from the NRC (1) approval of an alternate disposal request pursuant to Section 20.2002 of Title 10 of the *Code of Federal Regulations* (10 CFR 20.2002), "Method of Obtaining Approval of Proposed Disposal Procedures," and (2) exemptions from the requirements of 10 CFR 30.3 and 10 CFR 70.3 pursuant to 10 CFR 30.11(a) and 10 CFR 70.17(a). WEC's request can be found in the NRC's Agencywide Documents Access and Management System (ADAMS) (ADAMS Accession Nos. ML12017A188, ML12017A189, and ML12017A190).

On October 4, 2012, USEI requested that they be considered a party to WEC's January 16, 2012, alternate disposal request and requested exemptions from the requirements of 10 CFR 30.3 and 10 CFR 70.3 (ADAMS Access No. ML12313A014).

WEC's request involves the disposal of source, byproduct and special nuclear material contained in building slabs, asphalt, soils, buried piping and miscellaneous equipment associated with the HDP. The NRC's approval of the 10 CFR 20.2002 request, along with the requested exemptions, would allow WEC to transfer the specific waste for disposal at USEI's disposal facility.

The NRC is considering authorizing the disposal of approximately 23,000 m³ of low activity (LA) low-level radioactive waste (LLRW) in the forms and the types of material noted above. If approved, this action would permit WEC to transfer byproduct and SNM to a non-NRC licensed facility and would permit USEI to receive, acquire, own and possess byproduct material and SNM.

In response to WEC's January 16, 2012, request, the NRC published notice of the request and an opportunity to provide comments, request a hearing, or to petition for intervention in the

Federal Register (77 FR 16077; March 19, 2012). The NRC received no comments or requests for intervention or hearing.

Previously, on October 13, 2011, the NRC issued Amendment 57 to the Hematite license. License Amendment 57 (ADAMS Accession Nos. ML112101630, ML112101640, and ML112101699) approved the Hematite Decommissioning Plan (DP). Associated with the issuance of License Amendment 57 was the Notice of Availability of an Environmental Assessment (EA) and the Finding of No Significant Impact (ADAMS Accession No. ML111440868).

On October 27, 2011, the NRC issued Amendment 58 to the Hematite license (ADAMS Accession Nos. ML111441087, ML112560105, and ML112560193). This amendment approved WEC's request for alternate disposal of radioactive material soil and debris containing source, byproduct and SNM. Also associated with the issuance of License Amendment 58 were the Notice of Availability of Environmental Assessment and the Finding of No Significant Impact (ML112850677).

This EA and the EA associated with the approval of the May 2009 alternate disposal request both address the environmental impact of disposing soil and various debris containing source, byproduct and SNM constituents at the USEI facility. However, this EA will also address the cumulative impacts on the USEI facility and surrounding environment resulting from the receipt of both the waste material described in the May 2009 request and the waste material contained in January 2012 request.

2. Need for the Proposed Action

The WEC HDP is a decommissioning and environmental restoration project that will generate, among other types of waste, approximately 23,000 m³ (30,000 yd³) of LA LLRW in the form of soil, concrete/asphalt, buried piping, miscellaneous equipment including ductwork and air filters and other debris containing low concentrations of source, byproduct and SNM. About 5% of the LLRW will contain hazardous chemicals. The need for the proposed action is the safe and permanent disposal of HDP LLRW.

3. The Proposed Action

Under 10 CFR 20.2002, WEC proposes to dispose of about 23,000 m³ (30,000 yd³) of LA-LLRW from the HDP that contains source, byproduct and SNM. Disposal would occur at the USEI hazardous waste disposal facility near Grand View, Idaho. The facility occupies Section 19 (2.59 square kilometers or 640 acres) of Township 4 South and Range 2 East in Owyhee County Idaho. This disposal is in addition to the 23,000 m³ (30,000 yd³) of LLRW which was approved for alternate disposal by Hematite License Amendment 58. The LLRW associated with this proposed action will be generated as part of WEC's continued decommissioning activities at Hematite. The waste material consists of concrete slabs from buildings which were previously demolished at Hematite, buried piping, miscellaneous equipment including ductwork and air filters, asphalt from roadways and pads, and soil from beneath the slabs and asphalt.

In 2002, WEC and the Missouri Department of Natural Resources (MDNR) entered into a Letter Agreement, which, among other things, provided for MDNR oversight of certain studies and response actions in accordance with the National Oil and Hazardous Substances Pollution

Contingency Plan (NCP) under the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. §§ 9601 et seq. (Westinghouse MDNR Review Draft Remedial Design Work Plan, 2002 (ADAMS Accession No. ML020880266))

Subsequently, Missouri and WEC entered into a Consent Decree, and the Letter Agreement was terminated. The Consent Decree provides for MDNR oversight of those portions of the investigation and selection of the remedy for Operable Units at the site that are not preempted by the Atomic Energy Act of 1954, as amended. The Selected Remedy for Operable Unit 1 at the HDP is Alternative 4: Removal, Treatment of Volatile Organic Compound Waste, and Off-site Disposal of Low-Level Radioactive Waste and Non-Hazardous Treatment Residues (WEC, May 2009).

4. Alternatives to the Proposed Action

4.1 Alternative One - No-Action

The no-action alternative involves discontinuing ongoing decommissioning activities at the HDP and leaving decommissioning waste, including concrete slabs, asphalt, soil, buried piping and miscellaneous equipment such as ductwork and air filters at the HDP site. This action would require an exemption from the requirement in 10 CFR 70.38(d) that decommissioning of facilities specifically licensed for possession and use of special nuclear material be completed and approved by the NRC after licensed activities cease. The no-action alternative would result in leaving approximately 23,000 m³ of total waste volume onsite.

As was previously noted, the radiologically contaminated remediation waste, regulated by the NRC is co-mingled with chemically contaminated waste regulated under CERCLA. The “no action alternative” would not be in accordance with the July 2009 CERCLA Record of Decision for removal as described in Section 3 above and subsequent treatment of the chemically contaminated waste.

The no action alternative would not allow the WEC to meet the requirements of 10 CFR 20.1402 for unrestricted release. Selection of this alternative would require the WEC to continue environmental monitoring/surveillance and to maintain administrative and engineered controls to ensure facility safety and security. Environmental impacts of the no-action alternative would be similar to the impacts which existed prior to the start of decommissioning of the facility and could escalate if groundwater contamination spreads and material such as Tc-99 continues to leach into the soil. The environmental impacts which were occurring prior to remediating the site were those associated with maintaining the Hematite facilities. There were discharges from the sanitary waste facility, traffic associated with workers traversing to and from the site and vehicular traffic associated with entities providing services and supplies to the Hematite facility and their associated emissions.

4.2 Alternative Two - Disposal or Storage of LA LLRW at a Licensed Facility

Another alternative to the proposed action is to dispose of the LA LLRW in a facility licensed by an NRC Agreement State for the storage and/or disposal of LLRW. For this EA, the NRC evaluated the EnergySolutions, LLC (EnergySolutions) Clive Utah facility as the alternative disposal site for the radioactive and chemically hazardous waste. This is the same facility that

was evaluated as an alternative disposal site in the 10 CFR 20.2002 request approved in Hematite License Amendment 58.

The EnergySolutions LLRW disposal facility at Clive, Utah is located 128 kilometers (80 miles) west of Salt Lake City, Utah and 70 kilometers (45 miles) east of Wendover Nevada. The site is arid with an annual precipitation of approximately 20 centimeters (8 inches). The facility is licensed by the State of Utah to dispose of Class A radioactive waste only (Utah License 2300249) and 11e.(2) byproduct material (UT2300478) and is issued a Part B Resource Conservation and Recovery Act (RCRA) solid waste permit (EPA ID No. UTD982598898).

The EnergySolutions LLRW facility routinely manages the disposal of Class A LLRW containing low concentrations of SNM in above ground disposal cells. SNM quantities, below what the NRC would consider to be a critical mass (i.e., 350 grams of U-235) do not require an NRC SNM license under 10 CFR Part 70. In this particular case, regulation would be by the State of Utah, as an agreement state authorized under 10 CFR Part 150, "*Exemptions and Continued Regulatory Authority in Agreements States and in Offshore Waters Under Section 274.*" EnergySolutions, however, operates under a concentration based SNM limit instead of a total mass limit of 350 grams of SNM. This revision to the EnergySolutions license was approved after the NRC independently confirmed that the concentration limits ensured that all potential criticality safety concerns had been met. The SNM concentration limits are specified in the facility's radioactive materials license (Utah License 2300249). The U-235 concentration limit is 1,900 pCi/g for enrichments below 10% and 1,190 pCi/g for enrichments above 10% thus allowing the facility to routinely operate above a mass limit of 350 grams of SNM.

The selection of this alternative would allow WEC to meet the requirements of 10 CFR 20.1402 for unrestricted release. In addition, this site is environmentally similar to USEI. However, this alternative was not selected by the licensee.

5. Affected Environment

This assessment of the affected environment pertains to those environments which are affected either by the transportation of the material to USEI or burial activities at the USEI facility itself. The impact of loading the waste material at Hematite was previously addressed in the October 24, 2011, EA associated with License Amendment 58. This impact includes noise, visual, and potential radiological doses to operators and offsite personnel.

5.1 Land Use

The USEI facility occupies Section 19 (2.59 square kilometers or 640 acres) of Township 4 South and Range 2 East in Owyhee County Idaho in the Owyhee Desert of southwestern Idaho. The county is sparsely populated with an average population of 0.4 persons/ km² (1.4 persons/mile²). This region has an arid climate. The USEI site is located on a 1.6 kilometers (1 mile) wide plateau. Maximum surface relief on the facility is 27 m (90 feet) and the mean surface elevation is 790 m (2,600 feet) above sea level. The nearest residence is 1.6 kilometers (1 mile) southwest of the site. Land adjacent to the facility is utilized for dry land ranching. It is the only land use activity in the immediate vicinity of the USEI facility. The nearest town is Grandview, Idaho, approximately 17 kilometers (10.5) miles southeast of the

disposal site and the nearest city is Boise, Idaho, approximately 113 kilometers (70 miles) to the northwest of the site.

The Natural Resource Conservation Service maintains a national resource inventory data base that includes the category of grazing land on Federal and private lands. Over the past 25 years there has been no observable trend in the grazing land acreage category. The USEI site is almost totally encompassed by federally-owned grazing land and there is no information available or reason to suggest that there has been a land use change since October 24, 2011, when the EA associated with Hematite License Amendment 58 approving the May 2009 10 CFR 20.2002 request was issued to Westinghouse.

5.2 Transportation

The WEC plans to transport the LA LLRW generated by the proposed action to the USEI facility by gondola railcar. This mode of waste transportation would be the same as that approved in the October 27, 2011, Amendment No. 58 license amendment.

The LA LLRW waste will be entirely enclosed in an approved U.S. Department of Transportation (DOT) packaging suitable for the shipment of the waste and transported by rail to an existing USEI rail spur. At the spur, the waste will be offloaded into trucks and transported approximately 58.4 kilometers (36.5 miles) to the USEI disposal facility following the same route for all rail shipments. LA LLRW shipped under this proposal would require no changes in USEI's infrastructure, mode of transportation or in the routing of the waste shipments.

5.3 Geology and soils

There are five major geologic units at the USEI site: (1) the uppermost Bruneau Formation that ranges up to 30 meters (100 feet) in thickness; (2) the Glens Ferry Formation that ranges in thickness from 80 to 240 meters (260 to 800 feet); (3) the Chalk Hills formation that ranges in thickness from approximately 240 to 700 meters (800 to 2,300 feet); (4) the Banbury Basalt ranging in from 700 to 760 meters (2,300 to 2,500 feet) in thickness; and (5) the Poison Creek Formation that is over 760 meters (2,500 feet) in thickness.

Soils in the vicinity of the site are composed primarily of layers of silty sands, sandy silts, silts, and massive clays. The top 9 to 12 meters (30 to 40 feet) are composed primarily of silty and gravelly sands, which are underlain by silty sands and clays to a depth of 45 meters (150 feet). Below 45 meters (150 feet), thick beds of inorganic silts and clays are encountered.

The geology and soil characteristics at the USEI site have not changed since approval of the October 27, 2011, License Amendment No. 58.

5.4 Water Resources

The groundwater resources were extensively characterized and documented in the previous 10 CFR 20.2002 EA and have not changed since the October 27, 2011, License Amendment No. 58 was approved. The most significant source of groundwater, referred to as the Lower Aquifer, is found in the Poison Creek geologic formation at a depth of approximately 3,000 feet. The groundwater is considered to be fossil groundwater and has been dated as being approximately 10,000 to 12,000 years old and the recharge is thought to originate south southwest at an elevation approximately 1,000 feet higher than Castle Creek west of the site. The groundwater flow direction is from the south southwest to north northeast of the site. The aquifer is considered to be a deep artesian thermal aquifer with an estimated flow rate of 300 gallons per minute (gpm) and a water temperature of 170 degrees Fahrenheit. There are two perched saturated water zones approximately 200 to 300 feet below the site and are referred to as the Upper Aquifer. The groundwater in this formation is also considered to be fossil water and has been dated as being approximately 1,000 years old. The groundwater flow direction is from the north northwest to the south southeast of the site. Both aquifers are of poor quality with total dissolved solid (TDS) concentrations of approximately 900 mg/L and low yields of 5 gallons per minute (gpm) and 0.5 gpm for the two perched saturated water zones. Neither aquifer is considered to be a viable or economically significant resource (American Geotechnics, 2006).

The average annual precipitation at the site is approximately six inches per year and the evapotranspiration rate is approximately 57 inches per year, consequently, precipitation at the site is not considered to be a potential source of aquifer recharge. To-date there has been no groundwater contamination from site operations (American Geotechnics, 2006).

There are no surface water resources at the site and there are no surface streams or springs within 762 meters (2,500 feet) of the facility in accordance with U. S. Ecology Idaho RCRA Permit EPA ID. No. IDD073114654.

5.5 Ecological Resources

Previously, the U.S. Fish & Wildlife Service and the Idaho Fish and Game Department had concluded that there were no federally-listed endangered or threatened species on or near the USEI site. USEI had also completed a consultation with the U.S. Fish & Wildlife Service, which described several protected species in the general area. However, the Idaho Fish and Game Department had concluded that no federally-listed endangered or threatened species were located on, or near, the USEI site (American Geotechnics, 2006). To the west, north, and east of the USEI site is the Morley Nelson Snake River Birds of Prey National Conservation Area (SRBPNCA), established in 1993 by Public Law 103-65. It contains 196,000 hectares (485,000 acres) of public lands set aside by the Bureau of Land Management (BLM) as part of

its National Landscape Conservation System. The SRBP NCA hosts about 800 pairs of falcons, eagles, hawks and owls that arrive each spring to mate and raise their young (BLM, 2008).

The ecological resources have not changed at any of the sites since the October 27, 2011, License Amendment No. 58 was approved.

5.6 Air Quality

The USEI site is located in an attainment area for National Ambient Air Quality Standards (NAAQS) and the air emissions from USEI are permitted under and in compliance with the June 2006 permit issued by the Idaho Department of Environmental Quality (IDEQ) (Permit No. 073-00004). There has been no change in the attainment area status since License Amendment No. 58 was approved on October 27, 2011.

By permit, the USEI site is required to submit an annual environmental report to the IDEQ. Radionuclide concentrations for airborne particulates are required to meet applicable NRC requirements in Appendix B of 10 CFR 20. Data from 2010 and 2011 annual environmental reports (US Ecology Idaho – IDD073114654 “2011 Environmental Monitoring Summary Report – Radiological” and US Ecology Idaho – IDD073114654 “2010 Environmental Monitoring Summary Report – Radiological - Revised”) are representative of the air quality at the site. Investigative levels are set at 10% of the permit or regulatory limit. Historically the site has not exceeded the 10% limit and has been below regulatory limits.

5.7 Noise

As noted in Section 5.1, the USEI site is located in the Owyhee Desert nearly 1.6 kilometers (1 mile) from the nearest residence, 16 kilometers (10 miles) from the nearest school, 29 kilometers (18 miles) from the nearest airport, and nearly 48 kilometers (30 miles) from the nearest hospital. Therefore, noise levels are significantly attenuated in populated areas outside the USEI site. The current noise levels at the USEI site result from use of heavy vehicles and earth-moving equipment used to construct disposal cells and manage and transport wastes as part of their normal day-to-day activities.

The ambient noise at the USEI site has not changed since the October 27, 2011, approval of Amendment No. 58 to the Hematite license.

5.8 Historic and Cultural Resources

At the USEI site, one small potentially significant historic site had been identified at the southern boundary. The Bureau of Land Management inspected and inventoried the site, declared that no further cultural work was necessary, and granted full cultural resource clearance. According to the State Historical Preservation Office (SHPO), the site contains no property eligible for the National Register of Historic Places (American Geotechnics, 2006).

5.9 Visual/Scenic Resources

The USEI site complies with the Idaho Administrative Code for the Department of Environmental Quality in IDAPA 58.01.06-013.01.g, which specifies that the boundaries of the active portions of the facility “shall not be located closer than 1,000 feet from the boundary of any state or

national park, or land reserved or withdrawn for scenic or natural use including, but not limited to, wild and scenic areas, national monuments, wilderness areas, historic sites, recreation areas, preserves and scenic trails.”

Bruneau Dunes State Park is located approximately 48 kilometers (30 miles) southeast. The SRBPNCA occupies several miles of the Snake River and adjacent lands to the northwest, but the boundaries of the area are greater than 300 meters (1,000 feet) from any portion of the facility. The site also maintains a 150 meter (500 foot) inactive buffer zone between active facilities on USEI property, and adjacent BLM-owned land to ensure that monitoring wells and associated access roads would not be required on BLM-owned land adjacent to the site.

Neither the site boundary nor the type of operations has changed at the USEI facility since License Amendment 58 was approved. Consequently, the view shed around the USEI site has not changed since the October 27, 2011, License Amendment No. 58 was approved.

5.10 Socioeconomics

The USEI site is located Owyhee County, Idaho. The 2011 population of Owyhee County was 11,438, an increase of approximately 7.5% in population from the 2000 census population of 10,644. The unemployment rate as of January 2012 was 5.5% in contrast to an unemployment rate of 4.0% in 2000.

USEI continues to be the largest property tax payer in the Bruneau-Grand View School District and is the largest private non-agricultural employer. The 2010 census population of Grand View is 452 people and is a 3.8% decrease in population from the 2000 census population of 470. The largest city near the site is Boise. The 2010 census population of Boise is 205,671 and is a 11.7% increase in population from the 2000 census population of 185,787.

The socioeconomic significance of the USEI site has not changed since the October 27, 2011 License Amendment No. 58 was approved. USEI commissioned an economic impact study in 2005 (Section 6.2 of Attachment 7 of ADAMS Accession No. ML100320540), the results of which are provided in Table 1.

Table 1. Economic Impact of USEI in Owyhee County, Idaho

Description	Economic Impact
Jobs provided	250
Payroll	\$14.8 million
Direct spending	\$12.5 million
Indirect spending	\$19.1 million
Taxes paid (Elmore & Owyhee County & State of Idaho)	\$1.75 million
Fees paid	\$3.0 million

5.11 Public and Occupational Health

There is no known public health effects associated with current operations at the USEI site. The activities associated with USEI disposal operations continue to comply with applicable non-NRC regulated requirements under the Occupational Safety and Health Administration (OSHA), the EPA, the Toxic Substances and Control Act (TSCA) or their state equivalents. The USEI facility

was designated as a “Star” site by OSHA for the period 2007 to 2012. This designation is the highest level of safety performance recognition by OSHA and exempts the facility from OSHA program inspections. On March 23, 2012, USEI received its second award that will encompass the period from 2012 to 2017.

Table 2 Work-related Injuries at USEI

Year	Work Hours	Injuries	OSHA Cases	Fatalities	Injuries per 10,000 hours
2001	87,362	9	5	0	1.0
2002	81,707	8	3	0	1.0
2003	93,490	18	2	0	1.9
2004	94,872	16	3	0	1.7
2005	121,048	20	4	0	1.6
2006	158,800	22	5	0	1.4
2007	180,683	40	7	0	2.2
2008	179,072	30	3	0	1.7
2009	138,005	18	3	0	1.3
2010	117,151	14	2	0	1.2
2011	133,366	5	2	0	0.4
Total	1,397,480	198	39	0	1.42

IDEQ conducts annual RCRA facility inspections. There were no violations from 2002 – 2005. There were minor violations from 2006 to 2011. The violations were resolved through informal enforcement warning letters with no monetary fines. There were five EPA Toxic Substances and Control Act (TSCA) inspections from 2004 – 2011 and no violations. There has been only one radioactive waste management audit. The IDEQ audit was in 2004 and no violations were identified. There has been only one air quality permit inspection. The IDEQ inspection was in 2008 and a warning letter was issued which has since been resolved.

The EPA conducted a Toxics Release Inventory inspection and determined that USEI had failed to report for 2009 the on-site disposal for 20 chemicals and 20 chemical categories. A Consent Agreement and Final Order were filed on March 12, 2012, when USEI agreed to pay an \$184,400 civil penalty.

5.12 Waste Management

The USEI facility is a hazardous waste, polychlorinated biphenyl (PCB) and LA LLRW disposal facility that provides treatment and disposal services to both government and private industry waste generators. The land disposal of the facility is regulated by the State of Idaho under RCRA permit IDD073114654. The permit, in part, allows for the facility to receive and dispose of NRC exempted LA fission and activation products and SNM. LA LLRW waste is currently disposed of in Cell 15. As of April 30, 2012, approximately 846,000 cubic meters (1.1 million cubic yards) of capacity remained in Cell 15. Cell 15 has a projected life of approximately 2.5 years based on a monthly disposal rate of 30,852 cubic meters (40,000 cubic yards) per month (ADAMS Accession No. ML12207A392, page 2). On May 22, 2012, the IDEQ approved a permit modification that will allow USEI to construct and operate Cell 16. Cell 16 has a design capacity of 7.6 million cubic meters (10 million cubic yards) and a projected life of approximately

20 years based on an average monthly disposal rate of 30,852 cubic meters (40,000 cubic yards) per month.

The facility permit specifies that the total concentration of source, byproduct and special nuclear material in waste must be less than 3,000 pCi/gram. The total amount of SNM that can be onsite at any given time, prior to being disposed of, is 350 grams. USEI stated that the average concentration of radioactive material in waste disposed of at the USEI facility between 2009 and 2011 was approximately 76 pCi/g and is well below the site's concentration based limit of 3,000 pCi/g. The average concentration was based on all regulated and unregulated radioactive materials (naturally occurring radioactive material or NORM, technically enhanced NORM, formerly utilized sites remedial action program or FUSRAP waste and regulatory exempt waste that includes any waste approved by the NRC under 10 CFR 20.2002).

The total activity by radionuclide is routinely summarized by USEI and utilized to calculate the post-closure dose. The post-closure dose period is 1000 years. The post-closure dose is compared to the IDEQ permit limit of 15 mrem/year dose to a member of the public and then reported to the IDEQ. The calculated post-closure dose for the material at the site at the end of 2011 was 9.6 mrem/year based upon USEI's "2011 Environmental Monitoring Summary Report – Radiological."

6. Environmental Impacts

6.1 Proposed Action

The NRC evaluated whether there are significant environmental impacts related to the proposed action of shipping and disposing of 23,000 m³ (30,000 yd³) of LA LLRW at the USEI facility. The NRC considered adverse and cumulative impacts to each resource area, taking into account the impacts associated with the prior approval for the disposal of 23,000 m³ (30,000 yd³) of LA LLRW in License Amendment 58.

6.1.1 Land Use

The USEI site has a long operating history as a permitted waste disposal facility and has had a minimal impact to land use in the area surrounding the site. The expected operational life of the facility can only be estimated and is dependent on unknown waste volumes that will be shipped to the site in the future. In May 2012, the IDEQ approved a permit revision to construct and operate a new disposal cell that will allow the site to operate for an estimated additional 20 years. Any additional waste from the proposed 10 CFR 20.2002 request would have no impact on the land use at this site since the facility would continue to operate as a disposal facility with or without the waste from the proposed 10 CFR 20.2002 request.

6.1.2 Transportation

6.1.2.1 Transportation at the HDP Site

WEC plans to use existing rail lines to transport waste to USEI. Nearby St. Louis, Missouri, is the nation's third largest rail center, with over 85 Union Pacific trains passing through each day (Union Pacific, 2008). Union Pacific, one of seven national Class I rail service providers, originated an average of over 120,000 rail cars in Missouri during the period 2005 to 2008

(Union Pacific, 2008). The 400 gondola rail cars that are required to transport the HDP wastes over a period of about 2 years are a small fraction (< 0.4%) of the average number of rail cars originating in Missouri annually, and would not have a significant impact on rail transportation resources. Waste from the HDP will be shipped in compliance with NRC and DOT regulations for IP-1 packages containing LLRW. The waste packages will also be fissile exempt under 10 CFR Part 71.

At the Hematite site, WEC will load waste into gondola cars at an onsite rail spur. The risk to human health from the transportation of all radioactive material in the U.S. was evaluated in NUREG-0170, "Final Environmental Statement on the Transportation of Radioactive Materials by Air and Other Modes." The principal radiological environmental impact during normal transportation is direct radiation exposure to transport workers and nearby persons from radioactive material in the package. The average annual individual dose from all radioactive material transportation in the U.S. was calculated as approximately 0.005 mSv per year (0.5 mrem per year), well below the §20.1301 limit of 1 mSv per year (100 mrem per year) for a member of the public.

6.1.2.2 Transportation at the USEI Site

At the USEI facility the waste will be offloaded from the railcars onto trucks. It was estimated that eight individuals would be assigned to survey the waste prior to offloading from the gondola car to the trucks and that 14 drivers would transport the waste a total of 10 miles to the USEI site. WEC estimated that 1,056 truck loads will be required to transport the entire 23,000 m³ to USEI. Each trip was estimated to take 45 minutes. The 45 minute time estimate for the truck drivers includes the time to transfer the waste from the railcar to the trucks at the rail transfer facility. WEC estimated the dose to the surveyor to be 0.0021 mSv per year (0.21 mrem per year), while the dose to the truck drivers was estimated at 0.012 mSv per year (1.2 mrem per year). The doses to the cell operator and to the excavator operator were estimated to be 0.0013 mSv per year (0.13 mrem/yr) and 0.0018 mSv per year (0.18 mrem/yr), respectively.

6.1.3 Geology and Soils

Environmental impacts on USEI soils and geology will be small and temporary. The utilization of erosion controls to restrict the transport of sediment within the site area will ensure that disposal of wastes has a minimal affect on site geology and soils.

6.1.4 Water Resources

At the USEI site, there has been no groundwater contamination of the Upper or Lower aquifers due to facility operations and the disposal of hazardous and/or radioactive waste. However, it is assumed that the disposal of LLW from the HDP will result in contamination of the Upper and Lower Aquifers during the 1,000 year post-closure period of performance. Given the poor water quality and low yields, such contamination is not expected to result in degradation of important water resources in the human environment.

There are no surface water resources at the site and there are no surface streams or springs within 762 meters (2,500 feet) of the facility. The site maintains a runoff and runoff control system such that no surface water from precipitation events or processing leaves the site. Consequently, there are no impacts to offsite surface water.

In May 2012, the IDEQ approved a permit request that would allow the facility to continue to operate for a projected 20 years. As part of the approval process, the IDEQ performed RESRAD modeling to confirm that the EPA 15 mrem/year total effective dose equivalent to a member of the public requirement would be achieved during the 1,000 year post closure period of performance. The RESRAD model assumed a resident farmer scenario and radionuclide inputs based on the current radioactive waste acceptance criteria. The radionuclide waste acceptance criteria bounds the radionuclide characteristics of the waste in the proposed 10 CFR 20.2002 request. Consequently, there is a minimal impact to groundwater based on the EPA criteria.

6.1.5 Ecological Resources

There are no significant ecological resources that are likely to be affected by decommissioning and waste disposal operations at the USEI sites. A buffer area around the USEI site ensures protection of the SRBPNCA from waste disposal operations.

6.1.6 Air Quality

The facility RCRA permit requirements for dust control onsite and wind dispersal of dust offsite have been effective in maintaining emissions well below regulatory requirements. The type and volume of waste proposed for shipment under the proposed 10 CFR 20.2002 request would not require a change in operating procedures or air quality monitoring and would be considered part of normal operations. Consequently, there would be no impact to the site's air quality.

6.1.7 Noise

Noise levels associated with off-loading the waste, transportation to the disposal cell and disposal of a comparatively small quantity of waste (approximately 23,000 m³) would be no different than that currently being experienced as part of normal operations. Consequently, there would be no additional noise impact associated with the proposed 10 CFR 20.2002 request.

6.1.8 Historic and Cultural Resources

The waste shipped under the proposed 10 CFR 20.2002 request will be disposed of within the permitted area and will have no impact on the historical or cultural resources of the area.

6.1.9 Visual and Scenic Resources

The projected life of the disposal facility is approximately 20 years regardless as to whether the facility receives the relatively small volume of waste from this request. Consequently, there will be no impact to the visual and scenic resources from this action.

6.1.10 Socioeconomics

The disposal of a total of 46,000 m³ (60,000 yd³) from previously approved 10 CFR 20.2002 request and the proposed 10 CFR 20.2002 request is insignificant based on the current existing approved cell capacity. It is representative of a small fraction of the amount of waste USEI is

capable of receiving over the expected time period of the HDP shipments. This amount of waste is not anticipated to alter significantly the number of jobs or create significant beneficial economic effects, either directly or indirectly.

6.1.11 Public and Occupational Health

During transportation to the USEI site, the potential for exposure from airborne contamination is essentially eliminated since the contents of the gondola railcar will be enclosed in wrappers meeting DOT Industrial Type-1 Package (IP-1) requirements, which preclude dispersal of waste to the air or loss of material during transport.

To evaluate the potential dose to the public during transport of the waste to USEI, WEC calculated the maximum external dose at 1 m and 1 ft from a loaded gondola railcar using Microshield. It was found that the maximum radiation reading at 1 m is 0.18 $\mu\text{R/hr}$ and at 1 ft is 0.25 $\mu\text{R/hr}$. WEC stated that based on these dose rates, an individual would have to spend 1007 hours at 1 m from the gondola railcar or 793 hours at 1 ft from the railcar to receive a higher dose than a site worker. WEC stated that these exposure times are "orders of magnitude greater than the expected exposure times of less than 20 hours." (WEC, 2012, Enclosure 1).

The shipment of this material from the HDP to USEI will not have a measurable impact on the amount of rail traffic, consequently, there would be no impact to the probability of a rail accident and no increased risk to the public or occupational workers.

At the USEI site, NRC does not expect the small amount of additional waste received from HDP to significantly alter USEI's worker safety compliance record, as described in Section 5.11.2. Also, based on the nature of hazardous waste and LLW disposal operations, and, specifically, past industry experience, there is a very low likelihood of significant environmental impacts resulting from either accidents or malevolent acts against the USEI facility.

6.1.12 Waste Management

Through June 11, 2012 USEI has received 39 gondola cars of waste totaling approximately 2,900 cubic meters (3,800 cubic yards) of LA RLLW from the HDP. This waste is that approved for disposal in the October 27, 2011 License Amendment 58. The volume shipped represents approximately 13% of the volume approved in the previous 10 CFR 20.2002 request. As of June 11, 2012, all waste acceptance criteria as well as License Condition No. 18 of Hematite License Amendment 58 have been met. As of June 11, 2012 a total of approximately 0.107 Ci of Tc-99 have been received and disposed of and the 95th percentile value for the mean was 0.163 Ci of Tc-99 and represents approximately 10.2% of the limit associated with the Hematite License Condition No. 18 (ADAMS Accession No. ML12207A392).

Associated with the approval of this 10 CFR 20.2002 request will be the amending of the Hematite license to include License Condition No. 18 which will limit the total inventory of Tc-99 based on the average concentration and total mass shipped to USEI in Grandview, ID to below 1.3 Ci or 2.05 Ci based upon the 95th upper confidence limit.

The chemical composition and the target radionuclides of the waste are expected to be similar to the waste from the previously approved 10 CFR 20.2002 request. The concentrations are expected to be less. As noted previously, this request contains some waste forms which are

different than the original 10 CFR 20.2002 request. However, no changes in waste management practices would be anticipated as a result of the additional waste forms. Consequently, the October 27, 2011, License Amendment 58 Safety Evaluation Report (SER) would still be bounding relative to the sampling/analysis plan and associated quality assurance program, nuclear criticality, material control and accountability for SNM material as well as applicable physical security requirements and the potential for SNM reconcentration.

Table 3 contains estimates provided by WEC of the expected concentrations for the target radionuclides as they are shipped. In addition, WEC provided a bounding concentration for waste as it is shipped or emplaced in the USEI cell based upon a total radionuclide concentration corresponding to the total Waste Acceptance Criteria (WAC) for the USEI site.

Table 3 Expected Concentrations of Target Radionuclides in Waste

Radionuclide	Average (Expected) Concentration Shipped from Hematite (pCi/g)	Average Cell Concentration if Shipped at Expected Concentration (pCi/g)	USEI WAC Concentration in Rail Cars (pCi/g)
Tc-99	7.2	0.38	191
U-234	62	3.3	1648
U-235	2.8	0.15	75
U238	13	0.68	337

The anticipated total radioactive concentration (sum of all radionuclides and progeny) for this waste is 110 pCi/g, or about 4% of the 3,000 pCi/g disposal limit at USEI. WEC estimates that the peak public dose resulting from disposal of 23,000 m³ (30,000 yd³) of waste along with the waste to be sent to USEI as part of the License Amendment 58 10 CFR 20.2002 would be 0.008 mSv per year (0.8 mrem per year), or about 5% of the 0.15 mSv per year (15 mrem per year) post-closure limit contained in the USEI RCRA permit. The expected dose would double if the shipment of waste occurred at a faster rate. However, the actual estimate of projected future dose from disposal of HDP waste will be based on measurements of material actually received at the facility, and may be lower or higher than this projection. Therefore, disposal of HDP waste at the USEI site is a moderate to low impact on remaining LLW disposal availability at USEI.

6.1.13 Alternative Disposal at EnergySolutions LLRW facility.

As described in Section 4.2, beyond the no-action alternative, NRC also considered the environmental impacts associated with management of HDP wastes at the EnergySolutions facility in Clive, Utah.

Land use impacts at both the USEI and EnergySolutions waste disposal facilities are similar. The land on which each facility operates will be dedicated to waste operations and post-closure maintenance for the foreseeable future and there are no impacts on land use in the immediate vicinity of either site.

Transportation-related environmental impacts associated with transport by rail would be similar for each site. The distance to the USEI site from Hematite, MO is about 320 kilometers (200 miles) or about 15% further than the distance to the EnergySolutions' Clive site.

There is no significant difference in the impact to soils at the EnergySolutions site as compared to the USEI site. Operations at both sites involve disturbance of surface soils in order to dispose of LA LLRW.

At both the EnergySolutions and USEI sites, surface runoff is controlled such that there is no surface water runoff, consequently, there are no impacts on surface water. There is no groundwater contamination of potable or useable groundwater at either facility. Modeling at the EnergySolutions facility indicates that all NRC exposure requirements will be met during the 10,000 year period of post-closure performance. The NRC has verified the licensee's modeling of the effect of the disposal of the projected waste volume under various conservative scenarios. Consequently, the impacts of the disposal of the waste from the previously approved 10 CFR 20.2002 request and the proposed 10 CFR 20.2002 request are considered to be minimal.

Air quality impacts from waste management and disposal operations are expected to be similar at both sites. Impacts to site workers and potential offsite members of the public are well below required limits and the potential impact from the proposed 10 CFR 20.2002 request would not be distinguishable from ongoing operations.

For the same reason, at both sites, the environmental impacts on noise and visual and scenic resources would not change from what the sites are currently experiencing. Consequently, there would be no discernable impacts. No historic or cultural resources have been identified at either site, consequently, there would be no impacts.

The NRC compared the socioeconomic impacts of the disposal of 23,000 m³ (30,000 yd³) of LLW at the EnergySolutions facility with those impacts at the USEI facility. Based on information reported by EnergySolutions, gross revenues within its Logistics, Processing and Disposal business segment, most of which involves disposal operations at the Clive site, were \$293,025,000, \$262,801,000, \$246,810,000, \$244,217,000, \$265,739,000, and \$247,084,000 in calendar years 2006 - 2011, respectively. EnergySolutions has attributed the decrease over this period to processing of lower waste volumes and lower revenues at its Clive, Utah and Bear Creek, Tennessee facilities and the roll-off of stimulus funding received in 2010 that did not continue in 2011, and to the completion of certain large government projects in early 2011. (EnergySolutions, 2009 and 2012).

EnergySolutions Inc. is a diversified, multinational corporation with revenues exceeding \$1.8 billion for the year ending December 31, 2011. The company derives essentially 100% of its revenues from the provision of nuclear services and is divided into four business segments. The disposal facility located in Clive Utah is part of the Logistics, Processing and Disposal (LP&D) Division is one of the four business segments. Revenue from the Division is variable and has ranged from \$244 million to \$267 million over the past three years representing 13.6 to 15.2% of the company's gross income. Income within the Division is based on unit rate contracts and is based on volume or tonnage. Customers are required to sign a business-to-business contract whereby they will not disclose their unit rate costs; consequently, separate revenue figures for the Clive Utah facility are not publicly available. However, a rough

approximation can be made based on the average annual waste volume received for disposal (150,000 yd³ over the past four years) and the proposed waste volume in the 20.2002 request (30,000 yd³ over a two year period). Based on the assumptions used the proposed waste volume would represent approximately 10% of the annual waste volume of waste disposed of and roughly 10% of the division's most recent annual revenue of \$247.1 million or \$24.7 million. On the corporate level the \$24.7 million represents approximately 1.4% of the total revenue generated in 2011. EnergySolutions has stated that it has remaining capacity for Class A LLRW that would dispose of all Class A waste from the 104 operating nuclear power plants in the United States, from both on-going operations and ultimate decommissioning of these plants, and still have approximately 50 million cubic feet of capacity remaining (EnergySolutions, March 2009). Disposal of 23,000 m³ (30,000 yd³) from the HDP would have minimal impact on EnergySolutions' remaining disposal capacity.

The socioeconomic effects in the Salt Lake City region associated with this potential waste stream are expected to be low to moderate. With regard to worker and public health impacts from disposal operations, EnergySolutions is licensed by the State of Utah to receive Class A LLW as defined in Utah Administrative Code R313-15-1008, and Class A Mixed LLRW. EnergySolutions may also receive LLRW containing SNM below certain concentration limits, as specified in its State of Utah license. Under the radioactive materials license for the Clive disposal facility, EnergySolutions maintains site-wide safety and environmental protection programs, including a radiological control program, worker training, and a policy for maintaining worker radiation doses as low as reasonably achievable. As a result, worker and public health impacts from receipt of HDP LLRW at the Clive facility would be low.

Based on the foregoing, the NRC staff determined that, as with the proposed action, there are no significant environmental impacts associated with this alternative.

6.2 Cumulative Impacts Assessment

Section 20.2002 is available for use by licensees for wastes that typically are a small fraction of the Class A limits contained in Part 61, and for which the extensive controls in 10 CFR Part 61 are not needed to ensure protection of public health and safety. Waste disposal under 10 CFR 20.2002 has been determined to provide an alternative, safe, risk-informed disposal method for LA LLRW. Although the waste proposed for disposal under this request could be disposed of in a licensed low-level radioactive waste facility it can also dispose of the waste at the USEI facility at a much reduced disposal cost, while still providing for protection of public health and safety and the environment. In recent history, a number of NRC licenses have requested authorization for disposal of LLRW under 10 CFR 20.2002 at the USEI facility. As noted above, USEI's RCRA permit states that USEI must ensure that public dose must be less than 0.15 mSv per year (15 mrem per year) for a 1,000 year period of compliance post-closure. It is USEI's practice to verify compliance with this dose limit upon receipt of each waste consignment.

Even with the incremental increase in total activity the waste is still considered to be LA LLRW that is only a small fraction of the Class A limits. The 10 CFR Part 61 Class A limit for Tc-99 is 0.3 Ci/m³ of waste. The estimated total activity of the radionuclides in the § 20.2002 request is 0.3 Ci of Tc-99, 2.2 Ci of U-234, 0.1 Ci of U-235 and 0.4 Ci of U-238. The total estimated quantity of nuclides, based on the average expected concentrations, when added to the previously approved quantity of radionuclides, would be 1.3 Ci of Tc-99, 7 Ci of U-234, 0.3 Ci of U-235 and 1.2 Ci of U-238. The total estimated volume that is proposed for shipment for both

requests is 46,000 m³ of waste. Based on a total Tc-99 activity of 1.3 Ci, the average Curie content of a cubic meter of waste would be 0.002% of the Class A limit.

For the purposes of dose modeling, the radionuclide Tc-99 is the most limiting factor for making the determination that the TEDE contribution from the request would be only a “few millirem.” The NRC has independently verified that the licensee has met the guidance value in the SER for the original 10 CFR 20.2002. Moreover, USEI’s RCRA permit requires that USEI must ensure that the public dose limit must be less than 0.15 mSv per year for a post closure period of 1,000 years. USEI is required by their permit conditions to provide a running tally of the total quantities of Curie activity by radionuclide and the quantities are totaled on an annual basis and reported to the IDEQ. The total inventory is input into a RESRAD model and conservatively assumes a resident farmer scenario. The total activity of radionuclides from the disposal of the HDP site material is small when compared to that which has already been disposed and for anticipated future non-10 CFR 20.2002 disposals. Consequently, the cumulative radiological impacts associated with present and reasonably foreseeable future similar actions will be a few mrem/yr.

7. Mitigation Measures

Mitigation measures associated with the transportation of the waste from the HDP site to USEI will not change from the previously approved License Amendment 58 § 20.2002 request as the waste will be totally enclosed in DOT approved packaging which will prevent drying of the waste and the generation of airborne material during transport. Mitigation practices at USEI will remain unchanged as a result of the acceptance of this waste.

8. Monitoring

Monitoring activities at the USEI site currently include groundwater monitoring, worker medical surveillance, and maintenance of onsite contingency plans. These monitoring activities will remain unchanged as a result of the acceptance of this waste.

9. Agencies and Persons Consulted

For the EA associated with License Amendment 58, the NRC prepared a draft EA and sent it to the U.S. Fish and Wildlife Service by letter dated January 4, 2011 (ADAMS Accession No. ML103610359). Previously, the U.S. Fish and Wildlife Service stated, in its response letter (ML100070569) dated December 22, 2009, there are “...no federally listed, proposed or candidate species or critical habitat on or near the project site.” The NRC also contacted the Missouri Department of Conservation for information concerning Missouri Species of Conservation Concern (ML100760452). The NRC received a response dated March 25, 2010 (ML101040849). The Department of Conservation’s response stated, “Heritage records identify no wildlife preserves, no designated wilderness areas or critical habitats, no State or Federal endangered-list species records within two mile of the plant, or downstream until the confluence with the Mississippi River.” The NRC also provided a draft EA to MDNR and the Idaho Department of Environmental Quality (IDEQ) by letters dated December 29, 2010 (ML103570231 and ML103570126, respectively). In a letter dated January 27, 2011, MDNR (ML11390624) stated that they had no comment with respect to the draft EA. No comments were received from IDEQ.

The NRC provided a draft of this EA to the MDNR and the IDEQ by letters dated November 8, 2012, (ML12157A410 and ML12157A191, respectively). In a letter dated November 27, 2012 (ML12340A412), MDNR stated that “The Department has no comments on this draft EA but may have suggestions on future requests regarding the Hematite project.” IDEQ did not respond to the NRC’s request.

10. Conclusion

The NRC has concluded that the proposed action to grant a license amendment to the WEC HDP, and an exemption to USEI from the requirements for a license under 10 CFR 30.3 and 70.3 with respect to the HDP’s disposal of an 23,000 m³ (30,000 yd³) of soil, building slabs and asphalt material, buried piping and miscellaneous equipment and debris containing low concentrations of source, byproduct and SNM, is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest as it will allow WEC to complete decommissioning of the HDP for unrestricted release upon license termination.

The NRC has prepared this EA in support of the proposed action to issue an amendment the WEC HDP license allowing disposal of certain LLRW at the USEI hazardous waste disposal facility in Grand View, Idaho. On the basis of this EA, NRC has concluded that there are no significant environmental impacts and the issuance of a license amendment does not warrant the preparation of an Environmental Impact Statement. Accordingly, it has been determined that a Finding of No Significant Impact is appropriate.

11. Preparer

Philip Brandt is a Project Manager at the NRC. Mr. Brandt has a Bachelor of Science degree in Wildlife and Fisheries Science from Texas A&M University. Mr. Brandt has over 35 years of combined experience in the area of ecological studies; environmental monitoring; radiological characterization; decommissioning; radioactive and hazardous waste management; radioactive and hazardous waste characterization, packaging, transportation and disposal; and regulatory compliance.

12. Acronyms

ADAMS	Agencywide Documents Access and Management Systems
BLM	Bureau of Land Management
CERCLA	Comprehensive Environmental Response, Compensations and Liability Act
CFR	Code of Federal Regulations
DOT	Department of Transportation
DP	Decommissioning Plan
EA	Environmental Assessment
EPA	Environmental Protection Agency
FR	Federal Register
FUSRAP	Formally Utilized Sites Remedial Action Program
HDP	Hematite Decommissioning Project
IDEQ	Idaho Department of Environmental Quality

IP	Industrial Package
LA	Low Activity
LLRW	Low Level Radioactive Waste
MDNR	Missouri Department of Natural Resources
NAAQS	National Ambient Air Quality Standards
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NORM	Naturally Occurring Radioactive Material
NRC	Nuclear Regulatory Commission
OSHA	Occupational Health and Safety Administration
PCB	Polychlorinated Biphenyl
RCRA	Resource Conservation and Recovery Act
RESRAD	Residual Radioactivity
SER	Safety Evaluation Report
SHO	State Historical Preservation Office
SNM	Special Nuclear Material
SRBPNCA	Snake River Birds of Prey National Conservation Area
TDS	Total Dissolved Solids
TEDE	Total Effective Dose Equivalent
TSCA	Toxic Substances and Control Act
USEI	U.S. Ecology Idaho
WAC	Waste Acceptance Criteria
WEC	Westinghouse Electric Company, LLC

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