APPENDIX E

COMMENT-RESPONSE DOCUMENT

APPENDIX E: COMMENT-RESPONSE DOCUMENT

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LIST OF TABLES

E.1 OVERVIEW

This appendix discusses the public participation process for the U.S. Department of Energy's (DOE's) *Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride* (*Draft DU Oxide SEIS*). DOE prepared this appendix in accordance with the *National Environmental Policy Act* (NEPA), the Council on Environmental Quality regulations that implement NEPA (40 CFR Parts 1500 to 1508), and DOE's procedures for implementation of NEPA (10 CFR Part 1021), as applicable.

E.2 PUBLIC PARTICIPATION

E.2.1 Issuance and Availability of the Draft *DU Oxide SEIS*

On December 28, 2018, the U.S. Environmental Protection Agency and DOE published notices in the *Federal Register* announcing the availability of the *Draft DU Oxide SEIS* (83 FR 67282 and 83 FR 67250). A 45-day comment period, ending February 11, 2019, was announced to provide time for interested parties to review and comment on the *Draft DU Oxide SEIS.* In response to public requests, DOE extended the public comment period by 21 days, through March 4, 2019 (84 FR 1716, February 5, 2019). During the public comment period, DOE held three web-based public hearings to provide interested members of the public with opportunities to hear DOE representatives present the results of the *Draft DU Oxide SEIS* analyses and to provide oral comments. The public hearings were held on the following dates: January 22, 2019, from 2 to 4 pm, January 23, 2019, from 4 to 6 pm, and January 24, 2019, from 7 to 9 pm. All times are Eastern time.

In addition, Federal agencies, state and local governmental entities, American Indian tribal governments, and members of the public were encouraged to submit comments via email and the U.S. mail. All comments received by DOE, including late comments, were considered in preparing this *Final DU Oxide SEIS*.

E.2.2 Public Comments Received

DOE received 24 comment documents containing 115 comments during the public comment period. Comments were received electronically through the *DU Oxide SEIS* project website, personal email to DOE officials, and via transcript during the three public hearings. Scanned transcripts and copies of the public comment documents are provided at the end of this appendix.

E.3 HOW DOE CONSIDERED PUBLIC COMMENTS

DOE assessed and considered public comments on the *Draft DU Oxide SEIS*. Some comments led to SEIS modifications; others resulted in a response to explain DOE policy, to refer readers to information in the SEIS, to answer technical questions, to explain technical issues, to correct reader misinterpretations, or to provide clarification.

A number of comments provided valuable suggestions on improving the SEIS. As applicable, the responses in this chapter identify where changes were made to the SEIS as a result of comments.

To aid in the identification and tracking of comments, DOE used a two-part numbering system. The first part of a specific comment number corresponds to the document within which the comment was identified. The second part of a specific comment number identifies its relative order within the comment document. For example, Comment 1-2 identifies the second comment in the first comment document DOE received. Table E-1 lists the commenter names, their affiliations (when provided), and the comment document number assigned to their comment letter. Table E-2 provides the comment number, commenter's name and affiliation, the comment (retyped verbatim from the comment document), and DOE's response.

E.3.1 Methodology

The following list highlights key aspects of the DOE approach to capturing, tracking, and responding to public comments on the *Draft DU Oxide SEIS*:

- DOE read all comment documents and any attachments to identify and extract comments. As a part of this process, DOE reviewed technical attachments (for example, reports) for potential applicability to this *DU Oxide SEIS*. Then, subject matter experts formulated response to the comments. Senior-level subject matter experts reviewed each response to ensure technical and scientific accuracy, clarity, and consistency, and to ensure that the response addressed the comment.

- To the extent practicable, this Comment-Response Document presents the comments extracted from comment documents as stated by the commenters (see next bullet).

- DOE did not modify certified transcripts of public hearings. However, some transcripts (and letters, emails, and faxes) contained obvious errors (for example, misspelled names or words). For this Comment-Response Document, DOE corrected such errors in the extracted comments. Similarly, DOE deleted extraneous material (such as repeated words) from extracted comments whenever such a deletion would not alter the meaning of the comment.

- If the meaning of a comment was not clear, DOE made a reasonable attempt to interpret the comment and respond based on that interpretation.

Table E-1 Public Commenter Names and Affiliation, When Provided, and Comment Document Number

Comment Document Number	Commenter	Affiliation
1	Rodney Mike	Duckwater Shoshone Tribe
2	Vern Rogers	Energy*Solutions*
3	Lee Blackburn	None Provided
4	Rusty Lundberg	Utah Department of Environmental Quality, Division of Waste Management and Radiation Control
5	Tony Baker	Texas Commission on Environmental Quality
6	Christine Andres	Nevada Department of Conservation and Natural Resources, Division of Environmental Protection, Bureau of Federal Facilities
7	Stephen Cowne	URENCO
8	April Webb	Kentucky Energy and Environment Cabinet, Department for Environmental Protection, Hazardous Waste Branch
9	Jeri Higginbotham	Kentucky Department for Environmental Protection
10	Christine Andres	Nevada Department of Conservation and Natural Resources, Division of Environmental Protection, Bureau of Federal Facilities
11	Chris Shaw	Waste Control Specialists
12	L. Darrell Lacy	Nye County, Nevada
13	Christopher Militscher	U.S. Environmental Protection Agency, Region 4, Resource Conservation and Restoration Division
14	Reverend Dr. Noon	Visions for Angels Research Think Tank
15	Patricia Marida	Ohio Sierra Club Nuclear Free Committee, National Sierra Club Nuclear Free Core Team
16	Patricia Marida	See above
17	Vina Colley	Portsmouth/Piketon Resident for Environmental Safety and Security (member group of Alliance for Nuclear Accountability), National Nuclear Workers for Justice, A Call to Actions Nuclear Whistleblowers Alliances
18	Vina Colley	See above
19	Vina Colley	See above
20	Vina Colley	See above
21	Vina Colley	See above
22	Vina Colley	See above
23	Vina Colley	See above
24	Vina Colley	See above

Table E-2 Comment Document Number with Commenter Name and Affiliation, When Provided, Comment and DOE Response

Comment Number	Commenter and Affiliation	Comment	Response
1-1	Rodney Mike, Duckwater Shoshone Tribe	After reviewing the Draft SEIS the Duckwater Shoshone Tribe is very concerned on the fact that in this draft SEIS there is no mention on the cultural impacts of transportation and long term storage of DU, DUF, CaF and the other radioactive waste materials that want to be stored on the NNSS and the other facilities. Transportation and long term storage: The transportation and storage of the radioactive waste, that crosses through multiple states, through use of railcars and trucks for the next 25 years poses numerous threats, if there is an accident on transporting or storage of said materials to where a spill or leakage may occur, could significantly do major harm to Native American cultural sites not only in Western Shoshones traditional territories but other tribes as well. There is no mention on how this would impact: American Indians Freedom of Religious Act (AIFRA), Traditional Cultural Properties (TCP), and other ceremonial/spiritual sites that Native Americans hold sacred. The contamination of the air, water, and the ground itself of such an accident would have high impacts on traditional ceremonies, hunting, plant gathering for medicinal and food. These Places would be highly impacted if there was severe contamination and would be no longer accessible thus compromising the integrity of the sites and violating Native Americans AIFRA rights.	DOE evaluated the potential environmental impacts resulting from transportation of the materials to alternative disposal facilities, including the NNSS. Incident-free transportation would not have the potential to impact cultural resources along the transportation routes because there would be no significant construction, ground disturbance, or inadvertent releases of radioactive materials. The *DU Oxide SEIS* also analyzed the potential for accidents associated with this transportation. Chapter 4, Section 4.3.2, of this SEIS evaluates the potential impacts associated with shipments to the NNSS. As stated in Section 4.3.2, the probability of a maximum foreseeable accident scenario is 1 chance in 1.8 million each year, making the accident highly unlikely. It would be highly speculative to quantify potential impacts on known cultural resources sites along the routes from the gaseous diffusion plants to the disposal facilities (approximately 2,000 miles), considering the low probability of such a scenario. Impacts of transportion to Energy*Solutions* and WCS are discussed in Sections 4.2.2 and 4.4.2 respectively. With regard to the potential impacts on cultural resources from the long-term storage (or disposal) of the materials at each of the disposal facilities, this *DU Oxide SEIS* relies on the existing or amended licenses and NEPA document of the disposal facility. These are all existing facilities, two of which have licenses granted under 10 CFR Part 61. The low-level radioactive waste (LLW) disposal at NNSS (including any consultations involving American Indians Freedom of Religious Act, traditional cultural properties, and other ceremonial/spiritual sites) has been evaluated under the NNSS SWEIS. Any potential impacts

Comment Number	Commenter and Affiliation	Comment	Response
			associated with the disposal of these materials were addressed in the existing or amended licenses or NEPA documents.
1-2	Rodney Mike	In closing the Duckwater Shoshone Tribes cannot concur with the purposed alternative actions on the transportation and storage of the depleted uranium at the Nevada National Security Site. The Tribes hopes that the Department of Energy will take these concerns and comments into considerations. Thank you.	DOE acknowledges your comment.
2-1	Vern Rogers, Energy*Solutions*	Energy*Solutions*' supports the additional disposal option considered in the Draft Supplemental Environmental Impact Statement and has no specific concerns with either the content in the original Environmental Impact Statement or additional substance proposed in the Draft Supplement.	DOE acknowledges your comment.
3-1	Lee Blackburn	Per the three choices for disposal in the SEIS, it would be best to dispose of the uranium oxide at the Nevada National Security Site as it is a publicly controlled site that wouldn't be subject to bankruptcy and should have better oversight than a private facility.	DOE acknowledges your preference for disposal of DU oxide at NNSS.
4-1	Rusty Lundberg, Utah Department of Environmental Quality, Division of Waste Management and Radiation Control	1) Table 2-4, p. 2-26: The text states that DU oxide released in potential cylinder breaches due to corrosion would result in a very small likelihood (about 1 in 1,700 at Paducah and 1 in 10,000 at Portsmouth) of any additional cancer fatalities in the general population. In the case of the Paducah site, the Draft SEIS should explain how a cancer fatality of 1 in 1,700 (slightly less than 10-3) would be an acceptable risk with regard to additional cancer fatalities in the general population.	Chapter 4, Section 4.1.1.6, of this *DU Oxide SEIS* provides a more complete explanation of the results of the analyses presented in Chapter 2, Table 2-4. Section 4.1.1.6 states, "For the 100 years of DU oxide storage assumed for the No Action Alternative, this population dose rate would correspond to a total population dose of 1.0 person-rem. This population dose would result in an estimated 0 (6×10^{-4}) LCF, indicating that there is a very small likelihood, 1 chance in about 1,700, of an additional cancer fatality in the general population." Therefore, zero LCFs are expected in the entire analyzed population of 534,000 people. In that entire population, there is about a 1 in 1,700 chance of an additional LCF. DOE's public dose limits are based on individual exposure; no population exposure limits are identified. Note that the population dose of 0.01 person-rem per year yields an average individual dose several orders of magnitude below any DOE and EPA

Comment Number	Commenter and Affiliation	Comment	Response
			limit (see the discussion for the maximally exposed individual dose in Table 2-4 of this *DU Oxide SEIS*). Also, the purpose of the SEIS is to analyze and disclose the potential environmental and human health impacts from the Proposed Action. It does not determine the "acceptability" of the increased risk. Chapter 2, Table 2-4, and Chapter 4, Section 4.1.1.6, of this *DU Oxide SEIS* were revised to clarify that no LCFs are expected in the general population.
4-2	Rusty Lundberg	2) Please be advised that the state of Utah is writing a safety evaluation report regarding the disposal of DU-oxide waste at Energy*Solutions*' waste disposal facility at Clive, Utah. We expect the report to be available at the end of the second quarter of 2019 and will be posted on our web site at the following address: https://deq.utah.gov/legacy/businesses/e/energysolutions/depleted-uranium/performance-assessment/index.htm	DOE acknowledges your comment. DOE expects that the State's safety evaluation report would be considered in any license amendment proceedings for the Energy*Solutions* facility. Any waste material shipped to Energy*Solutions* will comply with any waste acceptance criteria imposed as a result of these proceedings.
4-3	Rusty Lundberg	3) The Draft SEIS refers several times to the possible disposition of heel cylinders at the Energy*Solutions* Clive site, the NNS site, and/or the WCS site. Storage or disposal of a heel cylinder, whether or not it contains DU-oxide waste, is currently prohibited by statute, in the state of Utah, if the heel consists of Class B, Class C, or Greater than Class C (GTCC) waste (see Utah Code 19-3-103.7, 19-3-301, and 19-3-302). Utah is currently evaluating the effects of heels located within DU waste cylinders as part of its review of Energy*Solutions*' Performance Assessment. The Safety Evaluation Report will address this specific issue and should be completed by late spring.	DOE expects that most of the heel cylinders will contain material consisting of depleted uranium and uranium daughters as the radiological constituents and will be Class A LLW, as defined in 10 CFR Part 61 (LLW per DOE Order 435.1). The radiological characteristics of the majority of the heel cylinders will be consistent with the DU oxide radionuclide content assumed for analysis in this *DU Oxide SEIS*. However, a small population of cylinders could contain transuranic (TRU) isotopes or technetium-99 (Tc-99). These isotopes would be dispersed material within the depleted uranium entrained in the heel. Cylinders suspected of containing transuranic isotopes or Tc-99 will be subjected to sampling and analysis to determine the levels of these isotopes. Cylinders deemed not acceptable for use as oxide shipping packaging (e.g., exceed disposal facility waste acceptance criteria) will be evaluated for any further actions, such as additional processing, that may be required to meet disposal facility waste acceptance criteria. DOE will only ship DU oxide and emptied cylinders off site for disposal

Comment Number	Commenter and Affiliation	Comment	Response
			that meet the receiving disposal facility's waste acceptance criteria.
4-4	Rusty Lundberg	4) The Draft SEIS on Page 3-51 characterizes groundwater at Energy*Solutions* as being saline, nonpotable, and chemically impure, implying that the groundwater at the site may not be a significant resource and may not require much, if any, protection. This characterization does not necessarily apply to groundwater produced from the aquifer systems at Energy*Solutions*. There exists only limited data regarding the hydraulic relationship between the shallow groundwater at Energy*Solutions* and the deeper basal aquifer system. The Division recognizes groundwater from the basal aquifer system (e.g., at 460 to 1,000 feet in depth) as being a valuable resource, one that requires protective effort. Two industrial facilities near Energy*Solutions* have historically pumped groundwater from the basal aquifer system, treated it to reduce total dissolved solids, and then employed it for human as well as industrial purposes. The groundwater is potable after treatment. Aquifers in the system produce groundwater at significant rates. The groundwater is valued in part because it has been used for decades at these two facilities for drinking/culinary purposes as well as for industrial purposes. The facilities have generally found it more economical to pump this groundwater locally than to bring in water from other locations. See additional information on this topic in Appendix A. The shallow groundwater in Utah's West Desert is also used for industrial uses, including the production of minerals.	Chapter 3, Section 3.3, of this *DU Oxide SEIS* was revised to clarify the discussion of groundwater quality in the upper aquifer system beneath the disposal facility.
5-1	Tony Baker, Texas Commission on Environmental Quality	1. Page 1-21, first paragraph states "In August 2014, WCS was granted a license amendment that allows disposal of bulk uranium." For clarification, suggest striking this sentence and replace with: "In May 2013, WCS was granted a license amendment that authorized disposal of bulk low-level radioactive waste and in August 2014, WCS was granted a license amendment that authorized disposal of depleted uranium in its original metal canister."	Chapter 1, Section 1.2, of this *DU Oxide SEIS* was revised to reflect the requested change.

Comment Number	Commenter and Affiliation	Comment	Response
5-2	Tony Baker	2. Page 2-17, last paragraph states "The Federal Waste Disposal Facility is licensed through September 2024, with provision for 10-year renewals thereafter under Texas Commission on Environmental Quality (TCEQ) Radioactive Material License CN60061689." Comment: The number CN60061689 represents the customer number, a TCEQ-distinct regulatory identification number for compliance purposes. The Radioactive Material License number is R04100.	Chapter 2, Section 2.2.2.2, of this *DU Oxide SEIS* was revised to reflect the updated information.
5-3	Tony Baker	Energy*Solutions*, NNSS, and WSC disposal sites, and nationwide impacts from transportation and on climate change." Comment: The acronym WSC should be WCS.	Chapter 2, Section 2.4.3, of this *DU Oxide SEIS* was revised to reflect the requested change.
5-4	Tony Baker	4. Pages 3-58, last paragraph, states "Groundwater occurs in two principal aquifer systems in the vicinity of the WCS site: the High Plains Aquifer and the Dockum Aquifer (DOE 2011). The High Plains Aquifer of west Texas, the principal aquifer in west Texas, consists of water bearing units within the Tertiary Ogallala Formation and underlying Cretaceous rocks. The Ogallala Formation, if present, is not water bearing in the WCS- permitted area. The Cretaceous Antlers Formation has been identified in the subsurface immediately below the WCS site; however, it is unsaturated but for a few isolated perched lenses. The shallowest water-bearing zone is about 225 feet (69 meters) deep at the site. The nearest downgradient drinking water well is approximately 6.5 miles (10 kilometers) to the east of the site ewes 2016a)." Comment: Suggest striking "The Ogallala Formation, if present, is not water bearing in the WCS-permitted area. The Cretaceous Antlers Formation has been identified in the subsurface immediately below the WCS site; however, it is unsaturated but for a few isolated perched lenses. The shallowest water-bearing zone is about 225 feet (69 meters) deep at the site." Replace with:	Chapter 3, Section 3.5, of this *DU Oxide SEIS* was revised to address these comments. A portion of the suggested text was not included for brevity.

Comment Number	Commenter and Affiliation	Comment	Response
		"On the WCS site, the formations that comprise the High Plains Aquifer consists of the Ogallala-Antlers-Gatuna <OAG) unit, which includes the Antlers and Gatuna formations as well as the Ogallala. The OAG unit is not water bearing in the WCS licensed area. Groundwater, when present, is monitored in several transmissive zones: the Ogallala- Antlers-Gatuna unit, the 1 25-foot zone (dry), the 180-foot zone, and the 225-foot zone. The 225-foot zone of the Dockum Group is considered the uppermost regulated groundwater zone at WCS. "	
5-5	Tony Baker	5. Page 4-75, fourth full paragraph, states "Table 4-44 shows the waste volumes and percent of disposal capacity under the Disposal of Waste at Waste Control Specialists Alternative. As shown in Table 4-43, delivery of all DU oxide to WCS would represent about 40 percent of the disposal capacity of the FWF. In addition, if DU oxide were disposed of in bulk bags, it would result in a similar disposal volume as DU oxide in cylinders, and therefore similar impacts on the capacity of the disposal facility. The volume-reduced empty and heel cylinders generated as a result of disposal of DU oxide in bulk bags would generate an additional waste stream estimated at 38,600 cubic yards or 4 percent of disposal capacity at WCS." Comment: At the beginning of the second sentence, suggest striking "As shown in Table 4-43" or revise to read "As shown in Table 4-44."	Chapter 4, Section 4.4.3, of this *DU Oxide SEIS* was revised to reflect the requested change.
6-1	Christine Andres, Nevada Department of Conservation and Natural Resources, Division of Environmental Protection, Bureau of Federal Facilities	The Nevada Division of Environmental Protection (NDEP) is currently reviewing the Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride (*Draft DU Oxide SEIS*) and will submit Agency comments on or before the extended review period deadline of March 4, 2019. However, during the current review, the	DOE responded to the commenter's request and provided the requested references as quickly as possible to allow NDEP to complete its review of the *Draft DU Oxide SEIS* before the end of the public comment period. NDEP's comments are included in this appendix as Comment Document 10.

Comment Number	Commenter and Affiliation	Comment	Response
		following documents have been found to be heavily referenced yet they are not available for public viewing on the World Wide Web (WWW). To aid in the NDEP's review of the Draft SU Oxide SEIS, please accept this letter as a request for access to the following documents in order that they may be reviewed in conjunction with the *Draft DU Oxide SEIS* during the current comment period. 1. PPPO (Portsmouth/Paducah Project Office) 2018, Data Call for Depleted Uranium (DU) Oxide Disposal Supplemental Environmental Impact Statement (SEIS). This reference is listed as "Official Use Only/Predecisional Draft" in the Draft SU Oxide SEIS yet is cited throughout the Draft SU Oxide SEIS extensively. 2. DOE (U.S. Department of Energy) 1999, Final Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride, DOE/EIS-0269, Office of Nuclear Energy, Science and Technology, April, 1999. While the Summary of this document is available on the WWW, in attempting to access the full document, a message of the document being a "Secure NEPA Document" was received and access to the document was denied. Again, this document is referenced extensively in the Draft SU Oxide SEIS and appears to provide much background for decisions that were made in 1999 and have been carried through to the present time. 3. Any documentation that specifically describes any risk calculations that were performed, along with the underlying assumptions and parameters that were used, to arrive at the conclusions presented in the *Draft DU Oxide SEIS*.	

Comment Number	Commenter and Affiliation	Comment	Response
7-1	Stephen Cowne, URENCO	Appendix C of the Draft Supplemental Environmental Impact Statement - Depleted Uranium Oxide analyzes the management of an additional 150,000 metric tons (approximately 12,500 cylinders) of commercial DUF6. The SEIS assumed that the entire mass of commercial DUF6 (150,000 metric tons) could be managed at Paducah or Portsmouth. In the event a Licensee extends the term of their operating license, therefore increasing the amount of DUF6 for disposal to exceed 150,000 metric tons, does the DOE intend to re-analyze the impacts of commercial DUF6 management to adjust for the increased quantities?	Additional NEPA documentation would need to be prepared to evaluate the impacts of DOE management of additional quantities of commercial DUF_6 beyond the 150,000 metric tons analyzed in Appendix C of this *DU Oxide SEIS*.
8-1	April Webb, Kentucky Energy and Environment Cabinet, Department for Environmental Protection, Hazardous Waste Branch	The total transportation risks for moving waste containers from Portsmouth and Paducah to Energy*Solutions* are presented in Tables 4-17 to 4-22; to the Nevada National Security Site in Tables 4-27 to 4-32 and to Waste Control Specialists in tables 4-37 to 4-40. These tables contain quite detailed calculations comparing risks for truck and rail transportation over the project timeframe. Based on a comparison of the number of shipments, dose for crew members and public, accident risk and traffic fatalities, the rail transportation option (if applicable) seems to present the least overall risk.	DOE acknowledges your comment.
8-2	April Webb	Please insure that all referenced hypertext links in the document are functional.	DOE reviewed all of the hyperlinks for this *Final DU Oxide SEIS* to ensure that they were functional at the time of issuance. In addition, all the references for this *Final DU Oxide SEIS* are available upon request.
8-3	April Webb	Public and Occupational Safety and Health Under Accident Conditions, Page 4-12, 2nd Paragraph "… but DU oxide stored in 55-gallon (208-liter) drums would be protected from the elements by storing the drums in intermodal containers (BWXT 2016b)." Is this the most cost-effective and logistically efficient way to store the drums? Standard intermodal containers are 8 feet wide, 8.5 feet high and are either 20 or 40 feet long. Which size is being considered and how many drums can effectively and	Storage of drums in intermodal containers is a safe, cost-effective, and flexible solution. Chapter 2, Table 2-3, of this *DU Oxide SEIS* assumes 220 drums at Portsmouth and 365 drums at Paducah. Typical storage containers are 20, 30 and 40 feet. As an example, Portsmouth is currently using 20-foot containers to store drums of DU oxide. Portsmouth stores up to 32 drums per 20-foot container. This configuration allows access for routine inspections and retrieval as needed. The estimated drum inventory generated per site would

Comment Number	Commenter and Affiliation	Comment	Response
		safely be stored in each intermodal? Is there a calculation of how many intermodals may be required? Since these drums could remain in long-term storage of up to 100 years, is this the most efficient and cost-effective storage solution? How would the intermodals be situated for loading/unloading access, rainwater drainage and inspection events? Would an overarching protective structure be less expensive, more accessible and safer than the intermodal storage option? As a note, the underside of an overarching structure could be equipped with fire detection/suppression devices, gas monitors or security cameras, for example. Additionally, rainwater runoff could also be controlled and would not contribute to the degradation of the storage containers. Drums could also be vertically stored (in concrete saddles or equivalent), which would add to storage density without affecting loading or inspection access.	require the following number of 20-foot storage containers: about 7 at Portsmouth and about 12 at Paducah. Storage containers are located in the cylinder storage yards with access to load/unload. The containers are located on pads away from standing water and are easily accessible for inspection. Constructing overarching structures at the conversion facilities would be more costly and would add to the cost of decontamination and decommissioning. Chapter 2, Section 2.1.3, of this *DU Oxide SEIS* was revised to reflect this additional information.
8-4	April Webb	Public and Occupational Safety and Health - International Destructive Act Scenarios, Page 4-15, 3rd Sentence "However, should an intentional destructive act occur, the consequences of the accident scenarios…would either bound or be comparable to the consequences from the act." The reviewer believes this is an overly optimistic assessment of human destructive capabilities as well as the statement that the DU oxide is not an attractive target. An intentional, destructive act could be orders of magnitude greater than the relatively small accidents (on the order of kilograms) that have occurred historically. This section should address security measures to be implemented over the storage timeframe for the DU oxide stated to end in 2110.	The safety analysis reports for Paducah and Portsmouth include an evaluation of potential aircraft crash scenarios. This evaluation is considered bounding analysis for intentional destructive acts. Chapter 4, Section 4.1.1.6, of this *DU Oxide SEIS* was revised with this additional information.
8-5	April Webb	Public and Occupational Safety and Health - International Destructive Act Scenarios, Page 4-38 This section, and comments to it, are similar to Comment #3.	See the response to Comment 8-4.

Comment Number	Commenter and Affiliation	Comment	Response
8-6	April Webb	Table 5-1, Page 507, 3rd Row The third row/fourth column of Table 5-1, Groundwater Protection Plan, states that "A groundwater protection plan has been developed and implemented for the Paducah Site." The Groundwater Protection Plan for the Paducah Gaseous Diffusion Plant, listed in Section 6 - References, Page 6-11, document code PAD-PROJ-0018/R2, states that it is a 2015 LATA document. The Division's records indicate that the cover letter for document code PAD-PROJ-0018/FR2 is dated July 23, 2018 and is a Four Rivers Nuclear Partnership document. Please reference the correct (and likely the most recent) document in both Table 5-1 and Section 6 – References	The reference citation has been corrected.
8-7	April Webb	Appendix B, Section B.6.1, Page B-15, Fourth Paragraph "Based on the radionuclide concentrations shown in Table B-3, a dose rate of 1 millirem per hour at 1 meter (3.3 feet) was assigned to packages containing DU oxides. This is a conservative dose rate assumption based on a maximum dose rate of 2 millirems per hour, at a 30-centimeter (1-foot) distance from the surface of the DU oxide cylinder (PPPO 2016)." a. The citation, PPPO 2016, was not found in the reference section at the end of Appendix B but was found elsewhere in the document, PPPO (Portsmouth/Paducah Project Office) 2016, "Portsmouth Waste Disposal," at http://energy.gov/pppo/portsmouth-waste-disposal (accessed Novem 15, 2016). When access was attempted the reviewer received an "Access Denied: You are not authorized to access this page." message. It is difficult to check the given dose rate for accuracy or understand how it was determined if the supporting document is not publicly available. b. Furthermore, the dose rate is called an assumption instead of an estimate. Was there no effort to quantify the dose?	The reference callout was corrected in this *Final DU Oxide SEIS* to PPPO 2018 (Data Call for Depleted Uranium [DU] Oxide Disposal Supplemental Environmental Impact Statement [SEIS]). This reference is not OUO; the reference has been updated. The dose rate is a conservative estimate based on information collected at Paducah and Portsmouth during many years of cylinder monitoring.

Comment Number	Commenter and Affiliation	Comment	Response
8-8	April Webb	Appendix B, Section B.7.3, Page B-20, Next-to-Last Paragraph "The release fractions used are those reported in NUREG-0170 (NRC 1997) for both LSA drums and NRC Type A packages. It is assumed that for the higher severity categories all materials within the cylinders involved in an accident would be released and 1 percent of these materials would be aerosolized in all accidents with 5 percent of the aerosolized particles being in the respirable size range (NRC 1977; DOE 2002b). These assumptions are driven by the nature of the DU oxide which is a powder-like material." a. This discussion needs to be expanded to provide the reader with some assurance that the "assumptions" used are indeed conservative. b. There is no NRC 1997 in the reference section. c. Please define what is meant by "respirable size range" d. The link provided for DOE 2002b is not accessible. e. A particle size distribution analysis should be performed on the DU oxide with size range presented in micrometers.	The following responses are provided for the five elements in the comment: a. Additional detail related to the conservative assumptions used in this *DU Oxide SEIS* is provided in a reference for Appendix B, *A Resource Handbook on DOE Transportation Risk Assessment, DOE/EM/NTP/HB-01* (DOE 2002b). The physical form of the waste determines the aerosolized and respirable fractions. Many solid materials are difficult to release in particulate form and are, therefore, relatively nondispersible. Conversely, liquid or gaseous materials are relatively easy to release if the container is compromised in an accident. DOE-HDBK-3010-94, *DOE Handbook –Airborne Release Fractions/Rates and Respirable Fractions for Nonreactor Nuclear Facility* (DOE 1994) is an assembly of a compendium of experimental data from which airborne release fractions and respirable fractions may be derived for specific materials. Because the materials transported in this *DU oxide SEIS* analysis are not combustible or in pressurized containers, any potential release in an accident would be in the form of spill from a relatively low height. Experimental data on the airborne release fraction (ARF) and respirable fraction (RF) in DOE HDBK-3014-94 for a free-fall powder indicate a range of ARF×RF values of 3.6×10^{-4} to 6.0×10^{-4}. The ARF×RF value considered in this *DU Oxide SEIS* is 5.0×10^{-4}. The accident consequence risks as calculated in this *DU Oxide SEIS* (shown in Appendix B, Table B-5) are very small, and even if the ARF×RF values were increased by a factor of 10, the radiological accident risks would not lead to any expected latent cancer fatalities. b. Appendix B, Section B.7.3, of this *DU Oxide SEIS* cites NRC 1977 in multiple places. NRC 1977 is

Comment Number	Commenter and Affiliation	Comment	Response
			correct; the citation to NRC 1997 was incorrect and was corrected in this *Final DU Oxide SEIS*. The full title presented in the references is *Final EIS on Transportation of Radioactive Materials by Air and Other Modes, NUREG-0170*. c. Page 4-85 of the *DOE Handbook –Airborne Release Fractions/Rates and Respirable Fractions for Nonreactor Nuclear Facility*, DOE-HDBK-3010-94 (DOE 1994) defines respirable size range and provides the definition of respirable fraction. In general, the respirable size is the particle aerodynamic equivalent diameter (AED) that could easily pass through the human respiratory system, and is defined as a particle with 10 micrometer AED and less. Information available for the DU oxide produced from conversion operations at Paducah and Portsmouth indicates that the particle sizes are an order of magnitude larger. It should be noted that all dose conversion factors for the inhalation doses are based on a particle size of one micrometer AED. d. The link has been corrected. e. Figure 4-19 of the *DOE Handbook –Airborne Release Fractions/Rates and Respirable Fractions for Nonreactor Nuclear Facility*, DOE-HDBK-3010-94 (DOE 1994), provides the weight-percent versus particle diameter in micrometers for DU oxide. Note that the experiments that led to this size distribution were made with finely divided DU oxide powders. Assuming the use of finely divided DU oxide powder is very conservative because the DU oxide powder that results from conversion operations at Paducah and Portsmouth is roll-compacted with particle sizes generally much larger.

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9-1	Jeri Higginbotham, Kentucky Department for Environmental Protection	1. The following appears on page B-15 in the fourth paragraph of Section B.6.1, "Based on the radionuclide concentrations shown in Table B-3, a dose rate of 1 millirem per hour at 1 meter (3.3 feet) was assigned to packages containing DU oxides. This is a conservative dose rate assumption based on a maximum dose rate of 2-millirem per hour, at a 30-centimeter (1-foot) distance from the surface of the DU oxide cylinder (PPPO 2016)." a. The citation, PPPO 2016, was not found in the reference section at the end of Appendix B but was found elsewhere in the document, PPPO (Portsmouth/Paducah Project Office) 2016, "Portsmouth Waste Disposal," at http://energy.gov/pppo/portsmouth-waste-disposal (accessed November 15, 2016). When access was attempted the reviewer received an "Access Denied: You are not authorized to access this page." message. It is difficult to check the given dose rate for accuracy or understand how it was determined if the supporting document is not publicly available. b. Furthermore, the dose rate is called an assumption instead of an estimate. Was there no effort to quantify the dose?	See response to Comment 8-7.
9-2	Jeri Higginbotham	2. The following appears on page B-20 in the next to the last paragraph of Section B.7.3, "The release fractions used are those reported in NUREG-0170 (NRC 1997) for both LSA drums and NRC Type A packages. It is assumed that for the higher severity categories all materials within the cylinders involved in an accident would be released and 1 percent of these materials would be aerosolized in all accidents with 5 percent of the aerosolized particles being in the respirable size range (NRC 1977; DOE 2002b). These assumptions are driven by the nature of the DU oxide which is a powder-like material." a. This discussion needs to be expanded to provide the reader with some assurance that the "assumptions" used are indeed conservative. b. There is no NRC 1997 in the reference section.	See response to Comment 8-8.

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		c. Please define what is meant by "respirable size range". d. The link provided for DOE 2002b does not work. e. A particle size distribution analysis should be performed on the DU oxide with size range presented in micrometers.	
10-1	Christine Andres, Nevada Department of Conservation and Natural Resources, Division of Environmental Protection, Bureau of Federal Facilities	1. The State of Nevada does not support transporting the conversion product of DU oxide to Energy*Solutions*, Waste Control Specialists or the Nevada National Security Site, because there are far less potential adverse environmental impacts under the No Action Alternative. Information presented in Tables 2-1 and 2-5 and Section 2.4.3, Waste Disposal Facilities and Transportation, of the *Draft DU Oxide SEIS* and information presented in the F*inal Programmatic EIS for Alternative Strategies for the Long Term Management and Use of Depleted Uranium Hexafluouride* (PEIS) Summary show there are far less potential environmental impacts in regards to transportation under the No Action Alternative than any of the three Action Alternatives. The cover sheet for the *Draft DU Oxide SEIS* states: "Under the Action Alternatives and the No Action Alternative, container storage, maintenance, and handling activities would occur within the industrialized areas of Paducah and Portsmouth; there would be no construction or ground disturbance, minor employment, minor utility use, and no routine releases of DU oxide or other hazardous materials. Therefore, potential impacts on site infrastructure; air quality and noise; geology and soils; water resources; biotic resources; public and occupational health and safety (during normal operations, accidents, and transportation); socioeconomics; waste management; land use and aesthetics; cultural resources; and environmental justice at Paducah and Portsmouth would be expected to be minor. A potential release of DU oxide from a container breach would be expected to result in uranium concentrations below benchmark levels, and therefore	DOE acknowledges the commenter's preference for the No Action Alternative. As described in Chapter 4, Section 4.1, of this *DU Oxide SEIS*, the No Action Alternative does not meet the purpose and need for agency action as described in Chapter 1, Section 1.3, and would only defer a final decision on the ultimate disposition of the DU oxide.

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		would have minimal impacts on soils, surface and groundwater quality, biotic resources, and human health." Section 2.2.1 of the *Draft DU Oxide SEIS* also states: "Under the No Action Alternative, DOE would ensure the continued safe storage of the DU oxide containers for as long as they remain in storage by providing site security, and by monitoring and inspecting the storage yards and containers in accordance with the Cylinder Surveillance and Maintenance Plan (MCS 2017) described in Section 2.1.3. The surveillance and maintenance activities include routine surveillance and maintenance of the cylinder yards, container inspections, and repair or replacement of corroded or damaged storage cylinders." DOE's continual Cylinder Surveillance and Maintenance Plan ensures the cylinders are monitored and maintained and as such, there are no reasons or benefits to moving approximately 69,000 cylinders of DU oxide across the country.	
10-2	Christine Andres	2. Because the *Draft DU Oxide SEIS* relies on prior EIS documents that were not provided to Nevada for review previously, Nevada was not afforded the opportunity to review the analysis and information as required by 40 CFR 1503.1(a)(2)(i). Because the DOE's Depleted Uranium Hexafluoride / Depleted Uranium Oxide Program (Program) has spanned at least the past twenty (20) years, beginning even before the publication of the PEIS, Nevada has not been able to complete a thorough review of all information relevant to and referenced in the current *Draft DU Oxide SEIS* within the time provided. As the environmental agency of a state that could be affected by any decision DOE ultimately announces in regards to the management of Program materials/wastes, NDEP should have been afforded the opportunity to review and comment on earlier draft documents that are	As documented in the Records of Decision (RODs) for the 2004 EISs (69 FR 44654 and 69 FR 44649), "The State of Nevada indicated that it had no comments on the Final EISs and that the proposal was not in conflict with state plans, goals, or objectives." As described in Chapter 1, Section 1.5, of this *DU Oxide SEIS*, on December 28, 2018, the EPA and DOE published notices in the *Federal Register* announcing the availability of the *Draft DU Oxide SEIS* (83 FR 67282 and 83 FR 67250). A 45-day comment period, ending February 11, 2019, was announced to provide time for interested parties to review and comment on the *Draft DU Oxide SEIS*. In response to public requests, DOE extended the public comment period by 21 days, through March 4, 2019 (84 FR 1716, February 5, 2019). All

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		relied on by the current *Draft DU Oxide SEIS*, as required by 40 CFR 1503.1(a)(2)(i). DOE's reliance on tiering as provided for under 40 CFR 1502.20 should not prevent an affected state from reviewing or commenting on matters previously discussed, since the state was not notified and did not have adequate opportunity to comment on the matter in the first instance. Nevada notes that the following questions or comments are submitted on the *Draft DU Oxide SEIS* although they may or may not have been adequately addressed in earlier documents. If DOE indicates that the questions are outside the scope of the current *Draft DU Oxide SEIS* it must reference specifically where these matters were addressed in prior documents.	comments received by DOE, including late comments, were considered in preparing this *Final DU Oxide SEIS*. Additionally, any LLW that would be disposed of at the NNSS as a result of this proposal would meet the waste acceptance criteria for the site. The potential impacts of the disposal of LLW at NNSS were evaluated and presented in the NNSS SWEIS. The State of Nevada actively participated in the review of that EIS.
10-3	Christine Andres	3. Access to heavily-referenced documents should be available and additional adequate time should be granted for their review(s). a. One specific document which is cited in every document reviewed by NDEP in order to gain a context for review of the *Draft DU Oxide SEIS* is the PEIS. While the Final Programmatic Environmental Impact Statement for Alternative Strategies for the Long- Term Management and Use of Depleted Uranium Hexafluoride – Summary, April 23, 1999 was reviewed, attempts to access the entire PEIS on the World Wide Web were met with a message that the document is considered a "Secure NEPA Document" and could not be accessed. A request for this document was emailed on February 11, 2019 and the document was received, via email on February 14, 2019. Every attempt was made to review the rather large file by the review deadline but some of the answers to comments/questions below may indeed be contained in the full PEIS. b. A second specific document that is cited throughout the Draft SU Oxide SEIS extensively is the PPPO (Portsmouth/Paducah Project Office) 2018, Data Call	DOE provided hard copies of the requested references as quickly as possible to allow the NDEP to complete its review of the *Draft DU Oxide SEIS* prior to the end of the public comment period. In response to public requests, DOE extended the public comment period by 21 days, through March 4, 2019 (84 FR 1716, February 5, 2019). The 2018 data call references have been revised, and unclassified versions are now available upon request.

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		for Depleted Uranium (DU) Oxide Disposal Supplemental Environmental Impact Statement (SEIS). In the reference section of the *Draft DU Oxide SEIS*, this reference is listed as "Official Use Only/Predecisional Draft." A request for this document was emailed on February 11, 2019 and, while appreciated, the files were received, via email, on March 1, 2019. If decisions are ultimately going to be made based on information in this document, reviewers of the *Draft DU Oxide SEIS* should be able to access and have adequate time to review it. In order to allow time to fully review these two documents any decision on the *Draft DU Oxide SEIS* should be postponed until the end of a reasonable review and comment period granted for the review of these documents.	
10-4	Christine Andres	4. There has been no readily-apparent or accessible documentation of any analyses performed to determine that the Uranium Hexafluoride / Depleted Uranium Oxide cannot be beneficially reused and must be disposed of off-site. The Record of Decision for Long-Term Management and Use of Depleted Uranium Hexafluoride, August 10, 1999 (1999 ROD) states that DOE's preferred alternative in the Draft PEIS: "…was to begin to convert the depleted UF6 inventory to uranium oxide or depleted uranium metal only as uses for the material became available. Several reviewers expressed a desire for DOE to start conversion as soon as possible. After consideration of the comments, DOE revised the preferred alternative in the Final PEIS to call for the prompt conversion of the material to depleted uranium oxide, depleted uranium metal, or a combination of both and long-term storage of that portion of the depleted uranium oxide that cannot be put to immediate use. … DOE expects that in the future, uses would be found for some portion of the converted material. …DOE plans to continue its support for the development of Government applications for depleted uranium products	As described in Chapter 2, Section 2.3, of this *DU Oxide SEIS*, the DUF_6 PEIS (DOE 1999) and the 2004 EISs (DOE 2004a, 2004b) considered and dismissed a number of alternatives and options. This *DU Oxide SEIS* does not repeat the descriptions of those dismissed alternatives and options. Recycling and beneficial reuse alternatives were considered in the DUF_6 PEIS (DOE/EIS-0269). Reuse of DU oxide as shielding was evaluated in the DUF_6 PEIS as a representative reuse option. These uses have not proven commercially viable, so DOE is preparing for the possible decision that most of the DU oxide will need to be disposed of. As described in Chapter 1, Section 1.1 of this *DU Oxide SEIS*, RODs were published in the *Federal Register* for the 2004 EISs on July 27, 2004 (69 FR 44654 and 69 FR 44649). In the RODs, DOE decided that the DU oxide

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		and to continue the safe management of its depleted uranium inventory as long as such inventory remains in storage prior to total conversion." While the potential disposal of depleted uranium in its various forms was mentioned throughout the PEIS Summary, disposal was not mentioned in DOE's preferred alternative stated in the Abstract of the PEIS Summary document nor the 1999 ROD. With respect to disposal, both the Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Paducah, Kentucky, Site – Summary, June 2004 (EIS) and the Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Portsmouth, Ohio, Site – Summary, June 2004 (EIS) state the two EISs evaluated: "the impacts from packaging, handling, and transporting depleted uranium conversion products from the conversion facility to a LLW disposal facility that would be (1) selected in a manner consistent with DOE policies and orders and (2) authorized or licensed to receive the conversion products by DOE (in conformance with DOE orders), the NRC (in conformance with NRC regulations), or an NRC Agreement State agency (in conformance with state laws and regulations determined to be equivalent to NRC regulations). Assessment of the impacts and risks from on-site handling and disposal at the LLW disposal facility is deferred to the disposal site's site-specific NEPA or licensing documents. However, this EIS covers the impacts from transporting the DUF6 conversion products to both the Envirocare of Utah, Inc., facility and the NTS. DOE plans to decide the specific disposal location(s) for the depleted U3O8 conversion product after additional appropriate NEPA review. Accordingly, DOE will continue to evaluate its disposal options and will consider any further information or comments relevant to that	conversion product would be reused to the extent possible or packaged in empty and heel cylinders for disposal at an appropriate disposal facility. The *DU Oxide SEIS* leaves open the option that some of the DU oxide could be put to beneficial use and evaluates alternatives and options for disposal of DU oxide that cannot be reused. Chapter 1, Section 1.3, states, "If a beneficial use cannot be found for the DU oxide, all or a portion of the inventory may be characterized as waste and need to be disposed of."

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		decision. DOE will give a minimum 45-day notice before making the specific disposal decision and will provide any supplemental NEPA analysis for public review and comment." While each EIS does evaluate the impacts from packaging, handling, and transporting depleted uranium conversion products from the conversion facility to a LLW disposal facility, the Preferred Alternative selected in each EIS was to construct and operate the proposed DUF6 conversion facility at alternative Location A for both the Paducah and Portsmouth sites. Nothing was mentioned in regards to a final disposal of the conversion product. While the full document has not yet been reviewed in its entirety, Section 1.5, DOE DUF6 Management Program, of the Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Portsmouth, Ohio, Site, Volume 1: Main Text and Appendixes A−H, June 2004 states: "DOE is committed to exploring the safe, beneficial use of depleted uranium and other materials that result from the conversion of DUF6 (e.g., HF and empty carbon steel cylinders) in order to conserve more resources and increase savings over levels achieved through disposal. Accordingly, a DOE research and development (R&D) program on uses for depleted uranium has been initiated. This program is exploring the risks and benefits associated with several uses for depleted uranium, such as a radiation shielding material, a catalyst, and a semiconductor material in electronic devices." The Record of Decision for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Paducah, Kentucky, Site, July 2004 and the Record of Decision for Construction and Operation of a Depleted Uranium Hexafluoride Conversion facility at the	

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		Portsmouth, Ohio, Site, July 2004 (2004 RODs) both state that "DOE has decided to implement the actions described in the preferred alternative from the FEIS at Location A." In part, this decision also included the following action: "The depleted U3O8 conversion product will be reused to the extent possible or packaged for disposal in emptied cylinders at an appropriate disposal facility." The cover sheet from the *Draft DU Oxide SEIS* states that DOE decided in the 2004 RODs: "…that the DU oxide conversion product would be reused to the extent possible or packaged in empty and heel cylinders for disposal at an appropriate disposal facility. Emptied cylinders would also be disposed of at an appropriate facility." and "The purpose and need for this action is to identify and analyze alternatives for the disposition of DU oxide. If a beneficial use cannot be found for the DU oxide, all or a portion of the inventory may need to be disposed of. The proposed scope of this *DU Oxide SEIS* includes an analysis of the potential impacts from three Action Alternatives and a No Action Alternative (in accordance with 40 CFR 1502.14). Under the Action Alternatives, DU oxide would be disposed of at one or more of the three disposal facilities: (1) the Energy*Solutions* LLC site near Clive, Utah; (2) the Nevada National Security Site (NNSS) in Nye County, Nevada; and (3) the Waste Control Specialists, LLC (WCS) site near Andrews, Texas. Under the No Action Alternative, transportation and disposal would not occur, and DU oxide containers would remain in storage at Paducah and Portsmouth. All other aspects of the DUF6 conversion activities remain as described previously in the 2004 EISs and RODs and are not within the scope of this *DU Oxide SEIS*." Section 1.3 of the *Draft DU Oxide SEIS* states: "If a beneficial use cannot be found for the DU oxide, all or a portion of the inventory may be characterized as waste and need to be disposed of."	

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		a. What analyses have been done since the issuance of the 2004 EISs and RODs to determine the depleted U3O8 conversion product cannot be reused? b. What processes and steps were taken for determining which beneficial use options either do or do not exist for material now proposed to be disposed of as a waste?	
10-5	Christine Andres	c. Environmental impacts of beneficial use options should be analyzed as a reasonable alternative to alternatives that involve managing the material as a waste.	See the response to Comment 10-4. Additionally, DOE has modified this *DU Oxide SEIS* to acknowledge the potential for beneficial reuse.
10-6	Christine Andres	d. What is the supporting reasoning and rationale for why the conversion product needs to be transported from the generating sites and disposed of off-site?	See the response to Comment 10-1 regarding the No Action Alternative and the response to Comment 10-4 regarding reuse of the DU oxide. Disposal at Paducah or Portsmouth is not an authorized option. The Portsmouth On-site Waste Disposal Facility (OSWDF) was the selected remedy in a ROD in accordance with the Ohio EPA Director's Final Findings and Orders and pursuant to DOE's CERCLA authority. The DUF_6 Project and the activities evaluated in this *DU Oxide SEIS* are not being performed under CERCLA. As such, the DU oxide is not authorized for disposal in the Portsmouth OSWDF. DU oxide and other waste would only be disposed of at permitted, licensed, or approved facilities where the waste would meet the waste acceptance criteria.
10-7	Christine Andres	5. The 2004 EISs address the construction and operation of DUF6 conversion facilities. How has the effectiveness and consistency of the actual conversion process been measured and documented to ensure the conversion process is consistent and the conversion product is stable and that any hazard characteristics of the converted DU are known and documented?	DOE added information to Chapter 2, Section 2.1.1, of this *DU Oxide SEIS* to explain that the conversion facility operating contractor routinely samples and analyzes the depleted uranium oxide conversion product to determine radiological, chemical, and physical characteristics. Analytical results provide feedback on conversion effectiveness and consistency and are the basis for determining if the DU oxide would meet the waste acceptance criteria of a disposal site.

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10-8	Christine Andres	6. a. What criteria are used to make the determination as to whether used cylinders or bulk bags will be used to contain the conversion product? b. Who will make this decision and when will it be made?	As described in Chapter 1, Section 1.1, of this *DU Oxide SEIS*, RODs were published for the 2004 EISs on July 27, 2004 (69 FR 44654 and 69 FR 44649). In the RODs, DOE decided that the DU oxide conversion product would be reused to the extent possible or packaged in empty and heel cylinders for disposal at an appropriate disposal facility. DOE could reconsider this decision and allow disposal in bulk bags in its ROD. As described in Chapter 2, Section 2.5, of this *DU Oxide SEIS*, DOE will consider cost, schedule, worker and public safety, environmental impacts, public comments, and strategic and policy considerations in making the decision.
10-9	Christine Andres	7. Section S.6 of the *Draft DU Oxide SEIS* Summary states: "In accordance with guidance at 10 CFR 1021.311(f), no scoping process was conducted for this *DU Oxide SEIS* because the scope of this SEIS is not appreciably different from the 2004 EISs; hence, DOE determined that a scoping period was not needed." However, 40 CFR 1502.19(a) requires states be provided copies of EISs. It has been stated throughout NEPA documents related to the Program that the reason DOE did not make its disposal decision at the time of issuance of the 2004 RODs for construction and operation of the two DUF6 conversion facilities is that it discovered that it had, through an oversight, not served copies of the draft and final site-specific EISs to the States of Utah, home of Energy*Solutions*, and Nevada, home of NNSS, as required in 40 CFR 1502.19. Because Nevada never received the 2004 EIS, it never had the opportunity to request a public scoping process and likely would have done so to discuss the option of disposal at the generation site since.	Notices of Intent to prepare the DUF_6 PEIS and the 2004 EISs, along with the details of the scoping processes, were announced in the *Federal Register*. These activities preceded publication of the Draft EISs. The RODs for the 2004 EISs (69 FR 44654 and 69 FR 44649; Comments on Final EIS) states, "The State of Nevada indicated that it had no comments on the Final EISs and that the proposal was not in conflict with state plans, goals, or objectives." Also, see the response to Comment 10-2.
10-10	Christine Andres	Section 2.3.2 of the Draft DU Oxide EIS states: "Disposal of DU oxide as LLW on site at Paducah or Portsmouth would require site-specific studies and	Chapter 2, Section 2.3.2, of this *DU Oxide SEIS* was revised to better explain why on-site disposal at Paducah and Portsmouth was considered but was dismissed. Disposal of DU oxide was analyzed in the DUF_6 PEIS

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		technical analyses to identify suitable on-site disposal locations and to develop design, construction, and operational parameters for the proposed disposal units to ensure that releases of radionuclides to the environment, particularly radon isotopes, and impacts on members of the public would be maintained within regulatory-prescribed limits for potentially thousands of years following disposal. Several years could be required to complete the required studies and analyses, as well as the processes for regulatory review and permitting before construction could begin. Because of uncertainties about the timing for availability of on-site disposal capacity specifically for DU oxide, and the expected availability of disposal capacity at the three off-site disposal facilities evaluated in this *DU Oxide SEIS* (see Section 2.4), on-site disposal for DU oxide is eliminated from detailed analysis in this *DU Oxide SEIS*." As stated earlier in this letter, this Program has been in existence for at least the past 20 years. Site-specific studies and technical analyses at each of the generating sites to locate suitable on-disposal locations and then construct them could have been accomplished during the last two decades. The availability of off-site disposal facilities should not automatically negate the DOE doing their due diligence in determining if on-site disposal is indeed technically possible. Why has on-site disposal not been considered as an option for the conversion product?	(DOE/EIS-0269). As described in Section 5.6, of the DUF_6 PEIS, disposal of DU oxide was analyzed in shallow earthen structures, vaults and mines, in dry and wet settings. In dry settings, no radiation or chemical exposure to the public would be expected within 1,000 years of disposal. In a wet setting, radiation and chemical exposure to contaminated groundwater could exceed regulatory standards for a member of the public within 1,000 years of disposal. Energy*Solutions*, NNSS, and WCS are considered "dry" settings, while Paducah and Portsmouth are considered "wet." Therefore, disposal of DU oxide at Paducah or Portsmouth was not analyzed in the DUF_6 PEIS and subsequent tiered NEPA documents, including this *DU Oxide SEIS*. Additionally, see the response to Comment 10-6 regarding disposal in the Portsmouth OSWDF.
10-11	Christine Andres	8. What, if any, are the limitations Energy*Solutions* or WCS may have on accepting any of the conversion products deemed wastes?	Acceptance of waste at either facility would be consistent with safety and environmental assessments, such as long-term performance assessments addressing disposal of DU oxide, and with the waste acceptance criteria for the facilities. These waste acceptance criteria include requirements such as limitations on free liquids, chelating agents, and void spaces within waste containers. Both facilities can accept waste in a variety

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			of package configurations including soft-sided bags, cylinders, drums, and boxes. The long-term stability of the disposal units would be a consideration for disposal; long-term disposal unit stability of disposal units containing containers of waste from Paducah or Portsmouth can be assured by a variety of methods such as those outlined in the response to comment 10-15. In the case of Energy*Solutions*, the State of Utah recently passed legislation that established a framework on acceptance of depleted uranium at the site. Acceptance of waste at Energy*Solutions* would be compliant with any requirements that may be imposed in accordance with this legislation or regulatory analyses made pursuant to this legislation.
10-12	Christine Andres	9. As required by 40 CFR 1502.24, documentation that specifically describes any risk calculations that were performed, along with the underlying assumptions and parameters that were used, to arrive at the conclusions presented in the *Draft DU Oxide SEIS* should be made available for review.	Appendix B of this *DU Oxide SEIS* explains the methodology and input information used to develop the transportation analyses for shipment of wastes from Paducah and Portsmouth to Energy*Solutions*, NNSS, or WCS. Appendix B references analyses from previous NEPA documents, such as the 2004 EISs.
10-13	Christine Andres	10. a. What will trigger the start of any shipping campaign? b. Will it start immediately after the ROD for the Final DU Oxide is issued or after conversion of the defense and/or commercial DU is complete?	A shipping campaign would only begin after the following milestones have been met: (1) determination that the material is waste and requires disposal, (2) completion of the NEPA process for potential disposal sites, (3) congressional appropriations and funding availability, and (4) completion of a procurement action with the disposal facility. It is unlikely the shipping would be delayed until all defense and/or commercial depleted uranium hexafluoride is converted.
10-14	Christine Andres	11. a. What is the basis for assuming the conversion process for commercial DUF6 in Appendix C is going to be same as the conversion process for defense DUF6? b. How will the effectiveness and consistency of the actual conversion process for commercial DUF6 be measured and documented to ensure the conversion process is consistent and the conversion product is stable that any	As described in Appendix C, Section C.2, DOE would process the DUF_6 through the same conversion facilities at Paducah or Portsmouth. In addition, DOE expects that commercial DUF_6 would be similar to the DUF_6 already in inventory because the materials would be generated using similar processes. If the commercial DUF_6 was substantially different, DOE would determine the need for additional NEPA documentation—to assess the

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		hazard characteristics of the converted DU are known and documented?	differences in environmental impacts of managing the commercial material versus the existing DOE material. Also, see the response to Comment 10-7 regarding the routine sampling and analysis of the depleted uranium oxide conversion product to determine radiological, chemical, and physical characteristics.
10-15	Christine Andres	12. What are the physical and radiological characteristics of the following and how do each of the waste streams compare to that analyzed in the 2013 Site-wide EIS for the NNSS and the current NNSS Waste Acceptance Criteria? a. Converted DOE DU b. Converted commercial DU c. Heel material (and stability) both commercial and DOE d. "off-normal" event material stored in up to 585 55-gallon drums, both commercial and DOE e. Any other waste streams envisioned in the Draft SEIS	DOE expects that all LLW evaluated in this *DU Oxide SEIS* may be acceptable for disposal at NNSS, consistent with the waste acceptance criteria in place at the time of disposal. Mixed low-level radioactive waste (MLLW) generated at Paducah or Portsmouth would need to be treated at a permitted treatment facility in accordance with EPA land disposal requirements before transfer to disposal. DU oxide proposed in the SEIS for disposal is the same material analyzed for disposal in the NNSS SWEIS. Regarding the specific questions: a. The DU oxide to be produced is powder that is a mixture of depleted uranium oxides such as triuranium octaoxide (U_3O_8) and uranium dioxide, but would primarily consist of U_3O_8. The U_3O_8 form of uranium oxide is the most stable form and is the form most commonly found in nature. Uranium oxide has low solubility in water, has an average density of approximately 2.7 grams per cubic centimeter, and is relatively stable over a wide range of environmental conditions (PPPO 2018). Current analytical results show a density between 2.02 and 2.07 g/cm^3. Depleted uranium is defined as being less than 0.7 weight-percent uranium-235 (U-235). Most of DOE's DU inventory contains between 0.2 and 0.4 weight-percent U-235 (ANL 2016). Current analytical results show U-235 levels between 0.2037 and 0.2332 weight-percent. The DU oxide at Paducah and Portsmouth is approximately 99.7 percent U-238, 0.25

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			percent U-235, and 0.001 percent U-234. Appendix B of this *DU Oxide SEIS*, Table B-3, shows the assumed isotopic content of the DU oxide including minor impurities. b. The characteristics of converted commercial DU are the same as those of DOE-converted DU. It is expected that all of the commercial DUF_6 for conversion will be well below 0.707 weight-percent U-235 and bounded by the analytical results for DOE DU. c. The heel within emptied cylinders is stabilized using a stabilizing chemical, potassium hydroxide, which is injected into the cylinder through the cylinder valve. The cylinder is then rotated to coat the interior of the cylinder. Chemical stabilization is necessary to ensure the cylinder heels do not contain reactive or corrosive material that would exceed waste disposal criteria. An absorbent determination is prepared to assess the amount and type of absorbent needed to ensure compatibility. Absorbent is added to ensure no free liquid remains. Most emptied cylinders will contain heel material, consisting of depleted uranium and uranium daughters as the radiological constituents, and will be Class A LLW, as defined in 10 CFR Part 61 (LLW per DOE Order 435.1). The radiological characteristics of the majority of the heel cylinders are bounded by the uranium analytics evaluated in this *DU Oxide SEIS*. However, a small population of the heel cylinders could contain TRU isotopes or Tc-99 contaminants. These contaminants would be dispersed within the depleted uranium within the heel. Cylinders suspected of containing TRU or Tc-99 isotopes will be subjected to sampling and analysis. Cylinders deemed not acceptable for use as oxide shipping packaging (e.g., exceed disposal facility waste acceptance criteria) will be evaluated for further

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			actions such as shipment to a waste processor, as may be required to meet disposal facility waste acceptance criteria. d. Drummed DU oxide has the same physical, chemical, and radiological characteristics as other converted DU oxide. Currently, there are approximately 205 drums of oxide generated and in storage for potential future use or reuse (i.e., conversion bed seed material, other DOE projects use). The potential exists to generate additional drums (conservatively estimated up to 585 drums), all of which would fall within defined physical, chemical, and radiological characteristics. e. Other waste streams consist of minor amounts of LLW and MLLW. This *DU Oxide SEIS* analyzes these small amounts of ancillary LLW and MLLW. The potential radiological and nonradiological impacts from transport to NNSS of DU oxide and other LLW and MLLW, as well as subsequent management of the waste at NNSS, was evaluated in the NNSS Site-Wide EIS (DOE/EIS-0426). The NNSS Site-Wide EIS analysis addressed projected shipments of LLW and MLLW from throughout the DOE complex, including DU oxide from Paducah and Portsmouth, over a 10-year period. The quantity of all LLW (including DU oxide and other LLW) and all MLLW from Paducah and Portsmouth that was addressed in the NNSS Site-Wide EIS is shown in Table A-6 of that EIS. The impacts from transporting this LLW and MLLW to NNSS are shown in Tables E-13 and 6-4 of the NNSS Site-Wide EIS. No latent cancer facilities would occur among transport crews or populations along the transport routes under incident-free or accident conditions.

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11-1	Chris Shaw, Waste Control Specialists	WCS operates one of the most robust and technologically superior Low-Level Radioactive Waste disposal facilities in the United States, and due to the superior geology and performance of our site WCS was able to demonstrate safe and compliant disposal through a license amendment request and aided by a radiological performance assessment that 400,000 cubic meters of DOE DU, including the DU oxide from the draft SEIS, could be disposed of at WCS. The amendment request authorizing the disposal of large quantities of DU was approved in Radioactive Materials License R04100 in amendment 26 on August 28, 2014. Since the approval of amendment 26, WCS has continued to work at constantly improving our facilities and processes as better information and technology has come available. Furthermore, we have continued to demonstrate that large quantities of DU can be disposed of in our robust, arid, and technologically advanced disposal facilities in a manner that is both compliant and safe to Human Health and the Environment based on our latest updated performance assessment submitted to the State of Texas in 2018.	DOE acknowledges your comment.
11-2	Chris Shaw	In addition to the robustness and advantages of our facilities as outlined in the DOE's Draft SEIS WCS is the closest alternative facility listed which also represents the lowest possible risk to the public and the waste transporters for the proposed DU oxide as comparted with all of the other listed alternative facilities. Which means that along with WCS advantages as a superior disposal option we also offer the lowest potential risk from the transportation perspective of the DU oxide to WCS.	DOE acknowledges your preference for disposal at WCS.
11-3	Chris Shaw	WCS believes that compared to the other listed alternatives we provide the best option for the disposal of all of the DOE's DU oxide.	DOE acknowledges your preference for disposal at WCS.
11-4	Chris Shaw	In summary WCS is currently authorized to dispose of Large Quantities of DU and has demonstrated that disposal of this waste can be done safely and compliantly. WCS provides the lowest risk as compared to other listed alternative facilities in the Draft SEIS for the	DOE acknowledges your preference for disposal at WCS.

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		transportation of the DU oxide. WCS' commitment to offering superior disposal options, unparalleled customer service and our focus on the protection of Human Health and the Environment makes WCS the best solution to the DOE's alternative disposal needs.	
12-1	L. Darrell Lacy, Nye County, Nevada	1. U-238 in the concentrations and form described are not covered by 10 CFR Part 61 or anticipated that these materials would be disposed in a LLW facility licensed under part 61. Low-level waste is defined by law and regulation by what it is not. For example, Department of Energy Order 435.156[1] states: "low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in Section 11 e (2) of the Atomic Energy Act of 1954[2], as amended), or naturally occurring radioactive material." Disposal of commercial low-level waste is governed by the Nuclear Regulatory Commission under their regulation 10 CFR Part 61[3]. While not strictly applicable to Department of Energy low level waste disposal activities on Department of Energy sites, that regulation is cited as a source of requirements in the Nevada National Security Site Waste Acceptance Criteria document[4], specifically sections of the rule addressing waste characteristics. The Nuclear Regulatory Commission regulation also addresses waste classification; while the Department of Energy does not use the Nuclear Regulatory Commission waste classification system, the logic behind it is of interest to the issue of disposal of depleted Uranium at the Nevada National Security Site low level waste facility. The two other facilities evaluated in this EIS as potential disposal sites are both commercial LLW sites regulated by the NRC. Nye County staff would expect that even though the NNSS Area 5 site is not regulated by the NRC, the analysis would be at least as rigorous as that used in an	Chapter 5, Section 5.4, of this *DU Oxide SEIS* discusses the regulatory framework for disposal of DU oxide. The U.S. Nuclear Regulatory Commission (NRC) has made a determination that depleted uranium is classified as LLW (Memorandum and Order CLI-05-20, October 19, 2005). DU oxide declared as a waste is classified as LLW for disposal under the requirements in DOE Manual 435.1-1, *Radioactive Waste Management Manual*, which documents the process for waste classification. Agreement State requirements, including performance objectives consistent with 10 CFR Part 61, must be satisfied prior to disposal at a commercial facility. DOE disposal requirements, including performance objectives and performance measures similar to those in 10 CFR Part 61, must be satisfied based on a site-specific performance assessment prior to approval of disposal at a DOE facility.

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		NRC regulated sites with input by the State of Nevada and Nye County. While 10 CFR Part 61 notes that consideration must be given to the concentration of long-lived radionuclides … whose potential hazard will persist long after such precautions as institutional controls, improved waste form, and deeper disposal have ceased to be effective, Uranium is not listed in the tables of nuclides to be considered. The reason for that is found in the Environmental Impact Statement[5] prepared by the Nuclear Regulatory Commission to support development of that regulation. The double negative in the definition of low-level waste created by the exclusion of special nuclear material and source material from the definition of byproduct material creates a question of whether the Nuclear Regulatory Commission intended for special nuclear material and source material to be disposed as low-level waste.[6] Enriched Uranium and depleted Uranium were originally candidate isotopes considered for limits for waste classification purposes in the low-level waste regulation Environmental Impact Statement.[7] To ease the burden of compliance, the number of isotopes treated generically in the waste classification table was reduced to those judged to be needed on a generic basis for waste classification purposes. An explanation can be found in the Environmental Impact Statement prepared by the Nuclear Regulatory Commission to support development of its regulation. In the discussion on isotopes considered for waste classification purposes in the draft Environmental Impact Statement, a total of twenty-three different radionuclides were considered in the numerical analysis; these were nearly all moderately or long-lived radionuclides. Concentration limits were proposed in the draft Environmental Impact Statement for eleven individual	

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		radionuclides plus alpha-emitting transuranics, enriched Uranium and depleted Uranium. In response to public comments, however, limits for enriched Uranium, depleted Uranium, and 135Cesium were eliminated, as were limits for 59-Nickel and 94-Niobium except as contained in activated metal. A separate limit was provided for 242-Curium, a transuranic nuclide with a 162.9-day half-life. These changes were principally in response to comments in the proposed 10 CFR Part 61 regarding the costs and impacts of compliance with the proposed waste classification requirements of the draft Environmental Impact Statement. In particular, many commenters were concerned that they would have to directly measure every isotope in every waste package, which would be difficult to do because measurement of many of the listed isotopes, which would usually be present only in trace quantities, could not be performed except by complex radiochemical separation techniques by laboratories. Commenters expressed concerns that cost and personnel radiation exposures would be significantly increased. Thus, to ease the burden of compliance, the number of isotopes treated in the waste classification table was reduced to those judged to be needed on a generic basis for waste classification purposes. In other words, Uranium is not regulated in the disposal of low-level waste either because no generators thought they would be disposing of meaningful quantities of Uranium as low-level waste, or it was not thought to be low-level waste. The final Environmental Impact Statement noted that other isotopes could be added at a later time to those with limits. The Nuclear Regulatory Commission has examined amending its regulations to establish new requirements for the disposal of certain low-level radioactive wastes, including primarily large quantities of depleted Uranium from uranium enrichment operations that were not included when the current regulations were developed.[8]	

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		10 CFR 61.55 includes two tables, reproduced below, to guide the classification of low level waste. Classification is effectively determined by long-lived radionuclides. If radioactive waste contains only the radionuclides listed in Table 1 of that regulation, classification shall be determined as follows: (i) If the concentration does not exceed 0.1 times the value in Table 1, the waste is Class A. (ii) If the concentration exceeds 0.1 times the value in Table 1 but does not exceed the value in Table 1, the waste is Class C. (iii) If the concentration exceeds the value in Table 1, the waste is not generally acceptable for near-surface disposal. Failure to include a radionuclide in the Part 61 tables is not a sufficient basis for concluding that wastes can be disposed as low-level waste, regardless of whether or not a performance assessment demonstrates that disposal can be done safely. [1] U.S. Department of Energy. *Radioactive Waste Management.* DOE Order 435.1. July 9, 1999 [2] Atomic Energy Act of 1946, *Public Law 79–585* [3] 10 CFR part 61. *Licensing Requirements for Land Disposal of Radioactive Waste.* Readily Available. [4] U.S. Department of Energy. *Nevada National Security Site Waste Acceptance Criteria.* DOE/NV-325-Rev. 16. June 2016. [5] U.S. Nuclear Regulatory Commission. 1982. Final Environmental Impact Statement on 10 CFR Part 61: Licensing Requirements for Land Disposal of Radioactive Waste. NUREG-0945. [6] Michael D. Voegele, Joseph Ziegler, and Darrell Lacy, Disposal of U-233 as Low Level Waste at the Nevada	

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		Nuclear Security Site. Paper 14175. Waste Management Conference, March 2-6, 2014, Phoenix, Arizona. [7] U.S. Nuclear Regulatory Commission. 1982. Op. Cit. [8] Nuclear Regulatory Commision, Depleted Uranium and Other Waste Dispoal. Fact Sheet, Office of Public Affairs, August 2009.	
12-2	L. Darrell Lacy	2. NRC has not completed a rulemaking or evaluation for the disposal of DU Oxide materials. DOE should not make any decisions until NRC regulations are in place. Recently, the Nuclear Regulatory Commission has acknowledged that it intends to amend its rules for the disposal of some low-level radioactive wastes. These wastes include depleted Uranium left over from the Uranium enrichment process. The Commission suggests that depleted Uranium meets the Nuclear Regulatory Commission's definition of low-level waste.	There is no need to delay making a decision about the Proposed Action in this *DU Oxide SEIS*. The NRC has, for several years, been developing amendments to 10 CFR Part 61 to address disposal of this material. During this time, draft versions of these amendments were revised a number of times and discussed at public meetings; the most recent version of these proposed amendments was published in the *Federal Register* on March 26, 2015 (80 FR 16082). When the 10 CFR Part 61 amendments are promulgated in final form, DOE will review and compare disposal requirements to ensure continued safety to the public and environment.
12-3	L. Darrell Lacy	3. The half-life for U-238 is 4.5 Billion Years and peak dose from daughter products occurs at approximately 1 million years. This long time period requires a rigorous safety analysis not typical of a LLW facility. Institutional controls and inadvertent intruder analysis are difficult challenges to address in shallow burial facilities. However, depleted Uranium is unique because the products produced by radioactive decay make it more radioactive as it decays over thousands of years. With a half-life of nearly 4.5 billion years, its daughter products include several Uranium isotopes, radium, radon, mercury, and other isotopes with alpha and beta decay modes. Depleted Uranium, which has an alpha decay mode, also includes a small fraction of 235-Uranium.	Depleted uranium oxide can be safely disposed of as Class A LLW in a near-surface disposal facility. NRC's proposed rulemaking to amend 10 CFR Part 61 to address disposal of waste containing large quantities of long-lived radionuclides such as depleted uranium is in the context of disposal of this material as Class A LLW. There is no intent to reclassify this waste as Class B or Class C waste, for example, or to consider the material as any other type of waste other than LLW. Commercial facilities such as EnergySolutions and WCS must demonstrate compliance with NRC Agreement State requirements, including performance objectives consistent with 10 CFR Part 61, prior to disposal.

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		The Commission acknowledges that these wastes did not exist in large quantities and were not analyzed when the current rules were put in place. Before they can be disposed, the Commission has noted that new rules will require an analysis of the specific disposal facility and the specific wastes. This analysis would show whether the overall system can safely contain the wastes. The new rules would also apply to other wastes that have not been considered, such as from future spent-fuel reprocessing or other fuel cycle facilities.[9] Before proceeding to dispose depleted Uranium as low-level waste, it is crucial that there be a technical basis supporting the supposition that depleted Uranium is in fact low-level waste. This will require the Nuclear Regulatory Commission to revisit the Environmental Impact Statement supporting 10 CFR Part 61, and, strictly speaking, revise Part 61's Table 1 and 2. The Nye County technical staff support a risk based approach to disposal regulations and support the Draft Nuclear Regulatory Commission proposal to amend 10 CFR Part 61. The staff support a risk-based approach to handling nuclear waste and agree that many of the waste streams not necessarily definitively categorized as low-level waste may have cheaper and easier solutions than disposal as high-level waste. One possibility that should be analyzed is the use of some or all of the Depleted Uranium in other beneficial uses. A cursory literature search identifies DU as a promising candidate for radiation shielding and other uses. However, as noted, the long half-life, increasing radioactivity, and toxicity of the depleted Uranium merit special considerations should it be considered for disposal in a low-level waste facility. Meeting the performance	As discussed in Section 4.1.11.1.1.3 of the NNSS SWEIS, DOE implements a detailed program to assure safe waste disposal at NNSS that addresses operational procedures; compliance with the NNSS waste acceptance criteria; compliance with the site radioactive waste acceptance program (including compliance with requirements for waste characterization, certification, and quality assurance); risk assessments; air, groundwater, and soil monitoring; and disposal unit closure. Radioactive waste disposal occurs at the NNSS in accordance with authorizations issued by DOE/NNSA that consider analyses of possible long-term impacts to the public and the environment after the disposal facilities are closed. For disposal of LLW (and the radioactive component of MLLW), DOE requires the preparation and maintenance of site-specific performance assessments and composite analyses in compliance with DOE Order 435.1. Additional information about these long-term analyses is provided in Section 5.1.12.1.4 of the NNSS SWEIS, and as shown in Table 5-55 in this *DU Oxide SEIS*, disposal of LLW and MLLW will be compliant with all DOE Order 435.1 performance objectives. DOE recognizes that the NRC has, for several years, been developing amendments to 10 CFR Part 61 to address disposal of large quantities of waste containing long-lived radionuclides such as large quantities of depleted uranium oxide. During this time, draft versions of these amendments were revised a number of times and discussed at public meetings; the most recent version of these proposed amendments was published in the *Federal Register* on March 26, 2015 (80 FR 16082). When the 10 CFR Part 61 amendments are promulgated in final form, DOE will review and compare disposal requirements to ensure continued safety to the public and environment for disposal of large quantities of long-lived radionuclides.

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		objectives of a disposal facility as demonstrated through a performance assessment conducted in accordance with applicable regulatory requirements for low level waste provides no guarantee of safety for the long lived radionuclides contained in depleted Uranium; in fact, such nuclides are realistically more isolated and contained if examined with the rigor required of disposal of high-level waste. The performance assessment requirements for low level wastes lack the rigor of those for high-level waste and spent nuclear fuel. The standards[10] governing disposal of high-level waste and spent nuclear fuel not only have longer times for demonstration of compliance, they also require much more rigorous evaluations of features, effects, and processes that can potentially affect isolation and containment than does the regulation governing disposal of low-level waste. Given the long half-lives of the isotopes comprising depleted uranium, the approach of a 10,000-year compliance period of 10 CFR Part 60[11] is likely the minimum necessary and that of the Yucca Mountain standards of 10 CFR Part 63[12] are probably more relevant. This is not inconsistent with the Nuclear Regulatory Commission's proposed revisions to 10 CFR Part 61. The Nuclear Regulatory Commission is proposing to amend Part 61[13] to require site specific analyses for disposal that would: • Add new analyses that would include a 10,000-year protective assurance period and annual dose minimization target; • Add a new analysis for certain long-lived Low-Level radioactive waste that would include a post-10,000-year performance period; • Add new analyses that would identify and describe the features of the design and site characteristics that provide defense-in-depth protections;	

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		In addition to its radioactive nature, depleted Uranium and its daughter products are heavy metals - dense metals that are toxic at low concentrations. Realistically, given the half-lives of the 238Uranium ($4.468x10^9$ years), and its daughter products 234Uranium (245,000 years) and 230Thorium (75,400 years), it is imperative that some consideration be given to the material's toxicity. One potential approach was used in the Final Environmental Impact Statement: Management of Commercially Generated Radioactive Waste.[14] The results of that analysis are consistent with the 10,000-year compliance period of 10 CFR Part 60. Hazard indices are based on estimates of potential risk of released radionuclides compared to other risks. The hazard indices can show whether the quantities of toxic radioactive waste exceed the toxic quantities of other chemicals and substances routinely handled in our society. The total quantity of radioactive material to be isolated was compared to the isotope quantities that naturally occur in the earth's crust. This comparison was used to indicate the relative hazard that may result from the burial of radioactive waste. Early efforts to develop safety perspectives on geologic isolation led to the development of hazard indices. These indices attempted to combine those parameters that characterize waste isolation into an index on public health and safety. The indices use one or more of the following parameters: quantity of radioactive material, specific activity, decay properties, chemical and physical form, packaging, toxicity, time behavior, and pathways. A number of hazard indices have been developed which are useful in varying degrees in characterizing the risk. They are summarized in Appendix H of Volume 2 of that Environmental Impact Statement.	

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		One such hazard index is based on the amount of water required to bring the concentration of a substance to allowable drinking water standards. In the Environmental Impact Statement case the amount of water required to bring the quantity of Uranium ore necessary to make 1 metric ton of reactor fuel to drinking water standards was used as a basic hazard index. The hazard index for spent fuel and high-level waste is shown in Figure 3.4.1 of the Environmental Impact Statement, together with similarly developed hazard indices for ranges of common ores. As seen in Figure 3.4.1 the hazard index for spent fuel or reprocessing waste from Uranium-Plutonium recycle relative to the ingestion toxicity of the volume of 0.2% Uranium ore necessary to produce 1 metric ton of reactor fuel is on the order of that for rich mercury ores at about 1 year after removal of the spent fuel. The hazard index is on the order of that for average mercury ore at about 80 years. By 200 years the index is about the same as average lead ore. By 1500 years the relative hazard index for high-level waste is the same as the ore from which the fuel was made. For spent fuel the relative hazard index is about the same as the ore from which it came at about 10,000 years. This point is not to suggest that the illustrated curve is relevant for depleted Uranium, it is presented merely to illustrate that there are approaches for examining the toxicity of the long-lived depleted Uranium being considered for disposal as low-level waste. [9] U.S. Nuclear Regulatory Commission. 2015. *Backgrounder: Updating Disposal Rules for Low-Level Waste.* Office	

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		of Public Affairs. [10] 40 CFR Part 191, *Environmental Standards for the Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes*. And. 40 CFR Part 197, *Public Health and Environmental Radiation* *Protection Standards for Yucca Mountain, NV* [11] 10 CFR Part 60, *Disposal of High-Level Radioactive Wastes in Geologic Repositories.* [12] 10 CFR Part 63, *Disposal of High-Level Radioactive Wastes in a Proposed Geologic Repository at Yucca* *Mountain, Nevada* [13] U.S. Nuclear Regulatory Commission. 2015. *Low-Level Radioactive Waste Disposal. Proposed Rule.* Federal Register. vol. 80. No. 58. March 26, 2015 pp. 16082-16125. [14] U.S. Department of Energy, *Final Environmental Impact Statement: Management of Commercially Generated Radioactive Waste.* DOE/EIS-0046F. October 1980	
12-4	L. Darrell Lacy	4. The Area 5 waste facility does not have rail access, transportation issues need to be addressed with state and local jurisdictions. In addition, the fact that the NNSS does not have rail access should be addressed with appropriate mitigation for highway impacts or construction or rail access.	Coordination with state and local agencies would be in accordance with applicable regulations and agreements. As described in Appendix B, Section B.2.4, for rail shipment to NNSS, the DU oxide containers would be transferred to trucks from the railcars at an intermodal facility, which was assumed to be located at Barstow, California, and then delivered to NNSS by truck. Impacts of rail transport to NNSS (with loading onto trucks at an intermodal transfer facility) are not significant. Mitigation measures are not proposed in this *DU Oxide SEIS*.

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12-5	L. Darrell Lacy	5. The DU waste streams have very large quantities and would approach 50% or more of the capacity of the Area 5 LLW facility.	As described in Chapter 4, Section 4.3.3, of this *DU Oxide SEIS*, if all LLW associated with the Proposed Action were disposed of at NNSS, it would represent 39 percent of LLW disposal capacity.
12-6	L. Darrell Lacy	We think the FFACO agreement needs to be renegotiated and include additional mitigation and benefits for local government.	This comment is outside the scope of this *DU Oxide SEIS*.
12-7	L. Darrell Lacy	The waste packaging should also be evaluated with a goal to reduce worker and public exposure and minimize any potential ingestion hazards.	The *DU Oxide SEIS* evaluates disposal of DU oxide in steel cylinders or bulk bags, thus providing information to compare the impacts of disposal via these two packaging methods, including worker and public exposure. This information can be considered by the decisionmaker in deciding on the container used for transportation and disposal of DU oxide.
13-1	Christopher Militscher, Environmental Protection Agency, Region 4, Resource Conservation and Restoration Division	Issue: The DSEIS purpose and need for this action is to: identify and analyze alternatives for the disposition of DU Oxide, and that if a beneficial use cannot be found all or a portion of the DU Oxide inventory may need to be disposed of. However, the "Action Alternatives" focus on transporting the material by rail or truck to one of more of the three facilities. Recommendations: DOE may wish to elaborate on recycling and/or a beneficial use for the DU Oxide options. The EPA recommends that the evaluation for a beneficial use and the transportation of DU Oxide be considered as separate alternatives and titled as such, thereby, providing clear options for the decisionmaker and the public and allowing for a more comparative form. If the DOE evaluation demonstrates no ability to recycle or find a suitable beneficial use, then the DOE will proceed with the project alternative of transporting the depleted DU Oxide across the country using interstate highways and rail systems. The DOE may also want to consider vitrification and on-site disposal as an alternative option not discussed in the DSEIS. Vitrification and on-site disposal could provide	As described in Chapter 2, Section 2.3, the DUF_6 PEIS (DOE 1999) and the 2004 EISs (DOE 2004a, 2004b) considered and dismissed a number of alternatives and options. The descriptions of those dismissed alternatives and options are not repeated in this *DU Oxide SEIS*. Recycling and beneficial reuse alternatives were considered in the DUF_6 PEIS. Reuse of DU oxide as shielding was evaluated in the DUF_6 PEIS as a representative reuse option (Chapter 2, page 2-11 of the PEIS). These uses have not proven commercially viable, so DOE is preparing for the possible decision that most of the DU will need to be disposed of. The *DU Oxide SEIS* leaves open the option that some of the DU oxide could be put to beneficial use. This *DU Oxide SEIS* evaluates alternatives and options for disposal of DU oxide that cannot be reused. Chapter 1, Section 1.3, states, "If a beneficial use cannot be found for the DU oxide, all or a portion of the inventory may be characterized as waste and need to be disposed of."

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		considerable cost savings due to reduction in handling and transportation costs. An economic evaluation of the two options may provide additional information for the DOE to consider prior to the issuance of the Final SEIS or a Record of Decision (ROD).	DOE considered and dismissed vitrification and disposal of the DU oxide in the DUF_6 PEIS (see Chapter 2, page 2-23 of the PEIS). Section 2.3.2 of this *DU Oxide SEIS* explains why on-site disposal at Paducah and Portsmouth was considered but dismissed.
13-2	Christopher Militscher	Issue: The conditions of interstate transportation systems may have changed significantly since the 2004 EIS. The EPA is aware of DOE's work to assess the state of transportation infrastructure (e.g., functioning rail networks, low overhead crossings and clearance) required to move spent fuel from storage to disposal sites. The DSEIS does not state whether infrastructure requirements are the same for DU Oxide transport as spent fuel, nor does the DSEIS include information about what, if any, transportation upgrades are required to transport material along the selected routes. The DSEIS does refer to the 15-year old EISs and ROD for decisions related to transportation and disposition of DU Oxide at potential off-site disposal facilities. Recommendation: The Final SEIS should include updated information regarding the decision-making process following the Nuclear Regulatory Commission's 2014, Waste Confidence Rule in relationship to transportation and long-term storage. An analysis of the current infrastructure conditions (bridges, rail crossing, and roadways) along the corridor and identification of any potential risks and associated environmental impacts may be needed to ensure protection of human health and the environment. The Final SEIS should identify any required upgrades and resultant environmental impacts. The Final SEIS should include any rail and road infrastructure upgrades required to transport DU Oxide from the Paducah and Portsmouth sites to the disposal facilities.	The purpose of this *DU Oxide SEIS* is to support a decision on transportation and disposal of DU oxide. That decision is not dependent on transportation upgrades. The transportation infrastructure is suitable for shipping commodities including LLW in legal-weight trucks and railcars. The *DU Oxide SEIS* provides the current analysis and presentation of potential environmental impacts associated with transport and disposal of the DU oxide at Energy*Solutions*, NNSS, and WCS. The waste confidence rule addresses highly radioactive spent nuclear fuel. DU oxide, if determined to be waste, would be Class A LLW per 10 CFR Part 61 (LLW per DOE Order 435.1); therefore, the waste confidence rule is not applicable.

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13-3	Christopher Militscher	Issue: The DSEIS indicates that the DOE does not plan to convert additional depleted uranium hexafluoride (UF6) and dispose of additional DU Oxide cylinders beyond the current inventory. The DSEIS refers to the disposal and transportation decision made in the 2004 EISs and ROD. The DOE may wish to provide updated information to include any new advancements in the processing of low-level radioactive waste since the publication of the 15-year old EISs and ROD. Recommendation: The remaining UF6 product located onsite at the Paducah facility could be converted to the more stable oxide and kept at Paducah with the remaining DU Oxide. Transporting this material offsite over a period of years could create unnecessary environmental hazards. A robust storage facility meeting Nuclear Regulatory Commission design criteria could be built onsite. A criterion for this facility would include using state-of-the-art radiation dose models calculating the potential for release of DU Oxide to the environment via the water and air pathways and the resulting dose to the maximally exposed member of the public living near the site boundary. The EPA recommends that vitrification and disposal on-site be further evaluated in the Final SEIS and that this option could also provide a safer long-term solution for the storage of DU Oxide, thereby, reducing potential exposure to human health and the environment.	As described in Chapter 2, Section 2.1.1, of this *DU Oxide SEIS*, conversion of DUF_6 to DU oxide is currently underway at Paducah and Portsmouth. The process for converting DUF_6 to DU oxide has not changed since the publication of the 2004 EISs. As described in Chapter 2, Section 2.3 of this *DU Oxide SEIS*, on-site storage in buildings was evaluated in the DUF_6 PEIS (see Chapter 2, page 2-9 of the PEIS). As described in Chapter 1, Section 1.1 of this *DU Oxide SEIS*, RODs were published for the 2004 EISs on July 27, 2004 (69 FR 44654 and 69 FR 44649). In the RODs, DOE decided that the DU oxide conversion product would be reused to the extent possible or packaged in empty and heel cylinders for disposal at an appropriate disposal facility. Therefore, DOE has already evaluated on-site storage in buildings and decided against this approach. DOE is not revisiting that decision. DOE considered and dismissed vitrification and disposal of the DU oxide in the DUF_6 PEIS (see Chapter 2, page 2-23 of the PEIS). Section 2.3.2 of this *DU Oxide SEIS* explains why on-site disposal at Paducah and Portsmouth was considered but dismissed. On-site disposal of DU oxide is not authorized.
14-1	Reverend Noon	So the study should really be for the last hundred years that since it's manmade power that's being made we need to study the results of this power.	The *DU Oxide SEIS* evaluates the Proposed Action of transportation and disposal of the DU oxide that cannot be reused. Current environmental conditions are discussed in Chapter 3. Past decisions on uranium enrichment and nuclear power are outside the scope of this analysis. The social acceptability of nuclear power is outside the scope of this *DU Oxide SEIS*.

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14-2	Reverend Noon	So my question is what is your legal authority and where is it from? What is your moral authority and where is it from? Has there been an e-world communication? Has there been an e-world vote? Has there been research comparison, discussion, and result for this last 100 years of manmade power with -- versus the zillion, zillion years of natural power and energy and world research?	This comment is outside of the scope of this *DU Oxide SEIS*. Legal authority for DOE's activities is provided under NEPA (42 U.S.C. §§ 4321–4370h) and the Atomic Energy Act, as amended (42 U.S.C. §§ 2011–2021, 2022–2286i, 2296a–2297h-13).
14-3	Reverend Noon	The facts of burden, the facts of proof, and the burden of proof are facts. What are the results of using uranium, plutonium, and radioactive elements to this date? What are the results? This is a global question and answer. This is not just for local and state. This is for international. This is a global situation. This is a global problem that needs to be discussed. So we need to keep the rule of law which means respecting rules and law and culture, respecting everyone's lives. We need e-world communication and e-world votes. We need to educate each other e-world. Instead of warring together we can resolve problems locally. And then if not locally, then globally. So what is the legal authority, where is it from, what is the moral authority, and where is it from? I would just like to see a world -- e-conference of the world and research and discuss the -- how this man -- how this manmade power has proven to be a plus or a minus healthy or destructive. And I think it deserves a world opinion that we can do by internet.	This comment is outside of the scope of this *DU Oxide SEIS*. Legal authority for DOE's activities is provided under NEPA (42 U.S.C. §§ 4321–4370h) and the Atomic Energy Act, as amended (42 U.S.C. §§ 2011–2021, 2022–2286i, 2296a–2297h-13). Past decisions on uranium enrichment and nuclear power are outside the scope of this *DU Oxide SEIS*.
14-4	Reverend Noon	And one question I had to ask which is really interesting if there's an extra moment is in 1960s the United States gave up its draft. In lieu of having a military -- in lieu of having a military we hired out a military to protect the assets of the United States. So United States does not have a military. We only have a civilian volunteer Army and civilians to take care of. Now civilians aren't even getting healthcare. They're begging for a universal healthcare that the rest of the world has. We're begging to build our country, okay, make solar -- solar schools, you know, magnetic transportation roads, trains. We're begging -- instead of becoming the -- what produces the radioactive	This comment is outside the scope of this *DU Oxide SEIS*.

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		poison for the planet, okay, and selling it or whatever is going on I think there needs to be a discussion of its health benefits because I personally as a doctor don't see how anybody's going to live through this. And having come from and island that was bombed once a week by Bush and Reagan I know the effects of radiation poisoning. And let me tell you it's so painful that one wants to die. It's just horrible. And the more we destroy the iodine in the ocean like Fukushima's a blanket over the Pacific bottom. If we do not have sea vegetables creating iodine, we're dead.	
15-1	Patricia Marida, Ohio Sierra Club Nuclear Free Committee, National Sierra Club Nuclear Free Core Team	1) Why does Fluor-BWXT Portsmouth, and possibly DOE, favor WCS?	Fluor-BWXT Portsmouth (the Portsmouth Gaseous Diffusion Plant DD&D contractor) is not involved in work related to activities evaluated in this *DU Oxide SEIS*. DOE did not identify a preferred alternative in the *Draft DU Oxide SEIS*. Chapter 2, Section 2.5, of this *Final DU Oxide SEIS* identified and explained the choice of its Preferred Alternative. DOE will publish a ROD in the *Federal Register* no sooner than 30 days after publication of this *Final DU Oxide SEIS*.
15-2	Patricia Marida	2) Will some of the emptied cylinders remain onsite?	As described in Chapter 1, Section 1.4, of this *DU Oxide SEIS*, excess empty and heel cylinders would be transported off site and disposed of under all the evaluated alternatives.
16-1	Patricia Marida	So the first question that we have -- and it's essentially about the three alternative places that's being planned to send this off. Question 1: Johnny Reising of Fluor-BWXT Portsmouth made a recommendation to the site-specific advisory board subcommittees that this depleted uranium be sent to waste control specialists or a WCS. So our question is why is WCS being favored? Although DOE says they have not preference we presume that WCS is being favored by the Department otherwise why would they have added it to the list of choices?	DOE did not identify a preferred alternative in the *Draft DU Oxide SEIS*. Chapter 2, Section 2.5, of this *Final DU Oxide SEIS* identified and explained the choice of its Preferred Alternative. DOE will publish a ROD in the *Federal Register* no sooner than 30 days after publication of this *Final DU Oxide SEIS*.
16-2	Patricia Marida	Second question: Is sending this material to Utah or Nevada going to be any more problematic at this point than it was previously? In other words, what is -- is there	There have been some changes since the 2004 evaluation, including changes in population and accident rates along the analyzed routes, and the addition of the WCS disposal site as a reasonable

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		an additional problem now that they've missed this deadline?	alternative. This *DU Oxide SEIS* provides the current analysis and presentation of potential environmental impacts associated with transportation of the DU oxide to Energy*Solutions*, NNSS, and WCS.
16-3	Patricia Marida	Question three: Has DOE sent waste from Portsmouth to Energy*Solutions* in the past? And, if so, what did the major shipments contain?	The disposal of other wastes at Energy*Solutions* is outside the scope of this *DU Oxide SEIS*.
16-4	Patricia Marida	Question four: Texas is closer to Ohio, Utah next, and Nevada farthest. So are shipping costs a major factor in making this decision? The Sierra Club takes the costs of these alternatives very seriously. At the same time cutting corners, particularly when dealing with radioactive materials, can be far worse.	As described in Chapter 2, Section 2.5, of this *DU Oxide SEIS*, DOE will consider cost, schedule, worker and public safety, environmental impacts, public comments, and strategic and policy considerations in making the decision on a disposal location or locations.
16-5	Patricia Marida	Question five: Are all three of the proposed offsite disposal sites going to agree to take this waste?	DOE is evaluating three disposal sites to ensure redundancy and sufficient capacity for the volume of DU oxide and other wastes that may need to be disposed of. The disposal sites provide waste acceptance criteria that must be met before the waste will be accepted for disposal. Disposal sites are not forced to take DOE waste. DOE could decide to send waste to all three disposal facilities for flexibility and to not restrict the procurement process.
16-6	Patricia Marida	Question six: Assuming that one of these three sites will be chosen by DOE is it possible that some of the empty cylinders will remain on site?	This *DU Oxide SEIS* evaluates alternatives and options for the disposal of DU oxide that cannot be reused. Chapter 1, Section 1.3, of this *DU Oxide SEIS* states, "If a beneficial use cannot be found for the DU oxide, all or a portion of the inventory may be characterized as waste and need to be disposed of." As described in Chapter 1, Section 1.4, of this DU Oxide SEIS, the Proposed Action is to dispose of all DU oxide cylinders off site. As decided in the RODs for the 2004 EISs (69 FR 44649 and 69 FR 44654), under the No Action Alternative, DOE would ship the 14,000 intact empty and heel

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			cylinders (8,843 from Paducah and 5,517 from Portsmouth) for off-site disposal as LLW.
16-7	Patricia Marida	So the Sierra Club has a long history of opposing private radioactive dumps. Of course, new radioactivity should not be generated in the first place and uranium should be left in the ground where it is away from contact with the living bio. We reemphasize our caveat that this should never have been generated in the first place. And we recognize that this material will be either left in our back yard or sent to someone else's back yard. And that someone else is almost always the most marginalized and least politically powerful people.	DOE acknowledges your preference. The scope of this *DU Oxide SEIS* is the management of DU oxide and other wastes from conversion of DUF_6 to DU oxide. The generation of other radioactive waste and the social acceptability of uranium mining, nuclear energy, and radioactive waste generation are outside the scope of this *DU Oxide SEIS*.
16-8	Patricia Marida	Alas, it is not (inaudible) and it is a trying decision as to how to handle it not to mention expensive. The nation needs to come to grips with the reality of the cost of keeping people and the environment safe from the radioactivity that has been generated and whether or not our nation has the resources to deal with the enormity of this cost.	The scope of this *DU Oxide SEIS* is the management of DU oxide and other wastes from conversion of DUF_6 to DU oxide. The management of other radioactive waste and the social acceptability of radioactive waste generation are outside the scope of this *DU Oxide SEIS*.
16-9	Patricia Marida	At least in theory the public has some control over the quality -- some quality control on disposal times at the publicly-owned DOE site in Nevada. Energy*Solutions* and WCS are private dumps. At private dumps everything is proprietary. They can go bankrupt and leave a terrible mess for the public to clean up. We do not have confidence in having this material one step farther away from public oversight.	DOE acknowledges your preference for disposal at NNSS.
16-10	Patricia Marida	The Sierra Club strongly opposes moving this waste to the WCS site. WCS sites above the Ogallala Aquifer, a critical water resource. Before this radioactive waste dump was constructed maps showed the aquifer to be right underneath that site. With the stroke of a pen WCS' license application moved the location of the aquifer and presto, it was no longer beneath their location. So right now there -- WCS the same location they are wanting to put in an interim storage for high-level waste. So we will be submitting by paper a ten-page Geologic Review of this	Chapter 3, Section 3.5, of this *DU Oxide SEIS* provides a short description of groundwater conditions near WCS, stating that groundwater occurs in two principal aquifer systems in the vicinity of the WCS site: the High Plains Aquifer and the Dockum Aquifer (DOE 2011). The High Plains Aquifer of west Texas, the principal aquifer in west Texas, consists of water bearing units within the Tertiary Ogallala Formation and underlying Cretaceous rocks. On the WCS site, the formations that comprise the High Plains Aquifer

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		Interim Storage Partners Evaluation of the Consolidated Interim Storage Facility Environment -- Environmental Report. Let me repeat that again. The ten page tile is Geologic Review of Interim Storage Partners, LLC, WCS Consolidated Interim Storage Facility, Environment Report. This was written by Patricia Bobeck, Ph.D., October 25th of last year. Among some of the things the report says: "The environmental review does not clarify the connections between the Ogallala formation mapped at the site, its relationship to some other aquifers which will be" -- I will send along with the report, " or the Ogallala Aquifer or the hydraulic connections of the southern portion of the Ogallala to the central portion of the main Ogallala Aquifer located to the north," end of quote. So this very recent review being quoted is an evaluation of the environmental report that is part of a licensed application submitted by Interim Storage Partners for the proposed construction of a consolidated interim storage facility at Waste Control Specialists' property. The report goes on to say: "The Ogallala 20 and the Dockum Group lie beneath the consolidated Interim Storage Facility site. The Ogallala Aquifer is the largest aquifer in the United States and a major aquifer under the Texas High Plains. Availability of Ogallala is water is critical to the regional economy because it is used for irrigation and so on and so forth."	consists of the Ogallala-Antlers-Gatuna (OAG) unit, which includes the Antlers and Gatuna formations as well as the Ogallala. The OAG unit is not water bearing in the WCS licensed area. The 225-foot zone of the Dockum Group is considered the uppermost regulated groundwater zone at WCS. The nearest downgradient drinking water well is approximately 6.5 miles (10 kilometers) to the east of the site (WCS 2016). Also, as described in Chapter 5, Section 5.4.2, in August 2014, TCEQ approved an amendment to the LLW disposal license for WCS to authorize disposal of DU. The updated performance assessment for WCS' LLW disposal facilities demonstrated that the conditions at WCS are extraordinarily protective and isolate long-lived radionuclides, such as DU, from the biosphere for a period of at least one million years—the maximum measurement term of the performance assessment (WCS 2014). Also, see the response to Comment 5-4.
16-11	Patricia Marida	Likewise, Energy*Solutions* is well-known for radioactive releases at its locations, particularly at its site in Erwin, Tennessee.	DOE would only dispose of waste at facilities that are appropriately licensed/permitted. The performance of a waste treatment facility in Erwin, Tennessee, is outside the scope of this *DU Oxide SEIS*.
16-12	Patricia Marida	Therefore, the Sierra Club believes that the least problematic method of "disposing" -- and I put the word disposing in quotes -- of this extremely long-lived waste material would be at the Nevada National Security Site.	DOE acknowledges the commenter's preference for disposal at NNSS.
16-13	Patricia Marida	We also note that the word "nuclear" is now being taken out of DOE descriptions of sites. So the Nevada Nuclear Security Site was once the Nevada Nuclear Test Site and the Nevada Nuclear Security Site. Portsmouth is now the	The origin of the names of the DOE sites is outside the scope of this *DU Oxide SEIS*.

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		Portsmouth Site, recently changed from being the Portsmouth Nuclear Site.	
17-1	Vina Colley, Portsmouth/Piketon Resident for Environmental Safety and Security (member group of Alliance for Nuclear Accountability), National Nuclear Workers for Justice, A Call to Actions Nuclear Whistleblowers Alliances	Please summit this story to the Record [from Dayton Daily News]. I may speak a again today and tomorrow	DOE acknowledges receipt of the newspaper article.
18-1	Vina Colley, Portsmouth/Piketon Resident for Environmental Safety and Security (member group of Alliance for Nuclear Accountability), National Nuclear Workers for Justice, A Call to Actions Nuclear Whistleblowers Alliances	Portsmouth is the largest plant in the world and sitting on top of the largest aquifer in the Midwest with the bedrock fractured under the site. I have been told the aquifer beneath the site is contaminated.	Chapter 3, Section 3.2.4.2, of this *DU Oxide SEIS* describes the aquifer and contamination of the groundwater under the Portsmouth site.
18-2	Vina Colley	Dr. Rosalie Bertell my friend spoke of the Dangerous DU debris is credited by some with creating higher child cancer and other illness rates in Europe and the Middle East. DU's fine particles can be harmful as well to the kidneys, skin and the lenses of the eyes. And, when inhaled or swallowed by humans, animals or fish, that dust can create serious and permanent health hazards. Expended DU is a permanent terrain contaminant with a	Chapter 3, Sections 3.2.6.1 and 3.2.6.2, of this *DU Oxide SEIS* describe the existing radiation and chemical environment at the Portsmouth site, respectively. Chapter 4, Sections 4.1.6.6 and 4.2.1.6, of this *DU Oxide SEIS* discuss the potential health and safety impacts at Paducah and Portsmouth associated with the No Action Alternative and Action Alternatives, respectively.

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		half-life of 4.5 billion years. Uranium dust can linger in the lungs, the blood and other organs for years. It is reported to have caused some of the so-called mysterious ailments among the more than 350,000 US service members, many of whom unsuccessfully sought medical treatment after the first Gulf War. We are very worried about the Residue from the DU causing Kidney and other health issues.	
18-3	Vina Colley	Piketon workers had the highest exposure of all the Gaseous Diffusion Plants according to a 1985 GAO report.	The 1985 GAO report summarized worker exposure during operation of the Portsmouth Gaseous Diffusion Plant. Past exposure of employees to radiation during operation of the Portsmouth Gaseous Diffusion Plant is outside the scope of this *DU Oxide SEIS*. A described in Chapter 3, Section 3.2.6.1, of this *DU Oxide SEIS*, for 2016, less than 2 percent of Portsmouth workers received a measurable dose, and the total worker dose was estimated at 2.5 person-rem. The average worker dose for Portsmouth workers was 0.99 millirem. These results are significantly less than the DOE administrative limit of 2,000 millirem per year.
18-4	Vina Colley	A former employee told me the DUF6 Conversion purpose was to process the 24,000 cylinders of depleted uranium stored outside (19,000 generated from 50 years of uranium enrichment at Piketon and another 5,000 cylinders sent up from Oak Ridge, TN) for potential reuse or disposal. The intent was for the Conversion Plant at Piketon (and a similar plant at Paducah, KY) to convert the depleted uranium into a safer uranium oxide material to be transported in their modified 14-ton cylinders for shipment/disposal at a commercially licensed disposal facility in Utah or at the DOE National Nuclear Security Site disposal facility in Nevada in a dry environment. As part of the processing in Piketon the hydrofluoric acid would be pulled off and sold as a product, which has been ongoing. However there have been numerous delays due to safety and process design issues. The depleted oxide	The current RODs for the 2004 EISs (69 FR 44654 and 69 FR 44649) only allow for construction and operation of the conversion facilities. The RODs did not select a disposal facility(ies) for the DU oxide. As such, DOE currently cannot ship DU oxide for disposal. The *DU Oxide SEIS* is evaluating transportation and disposal. Shipments cannot be initiated until completion of the SEIS and ROD.

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		material that was to be shipped from Piketon to Utah or Nevada for disposal has yet to be done. And DOE has no schedule to fulfill the agreed upon plans based on their own programmatic environmental impact statement to move this material for disposal out west. The states of Utah and Nevada don't want this material so currently it's going nowhere and southern Ohio is again dealing with unfulfilled promises.	
18-5	Vina Colley	We received over 44 inches of rain every year we are well over 60 inches of rain in 2018 ground water is only 21 feet from the surface. Piketon is in the flood, earthquake and tornado zone.	Chapter 3, Section 3.2.2.1, of this *DU Oxide SEIS* describes the climate for the Portsmouth site, including precipitation and severe weather (e.g., tornados). Chapter 3, Section 3.2.3.1, describes geology, including earthquakes. Chapter 3, Section 3.2.4.1, describes water resources, including the potential for flooding.
18-6	Vina Colley	We are asking for a public meeting on the DUF6 because the community and workers haven't been told the truth about the extent of the Plutonium and Transuranic on site and offsite or the truth about the existing problems with the DUF6 at Portsmouth, Ohio or Paducah Ky. Piketon/Portsmouth, Ohio and Paducah Ky deserves pubic meeting on the DUF6 issue so much has changed since the last public meeting	This comment is outside of the scope of this *DU Oxide SEIS*.
18-7	Vina Colley	We need to know if you are considering putting waste from the DUF6 cylinders in the waste cell being built on the Portsmouth site. DUF6 cylinders on the Portsmouth, Ohio/Paducah KY site is giving off high Neutron exposure. These cylinders are stack three high in an open yards. We need to know if you are considering putting this DUF6 cylinders in the waste cell on site.	As described in Chapter 1, Section 1.1, of this *DU Oxide SEIS*, in the RODs for the 2004 EISs (69 FR 44654 and 69 FR 44649), DOE decided to convert DUF_6 to DU oxide and has no plans to dispose of DUF_6 before conversion. As stated in Chapter 4, Section 4.5.3.1, of this *DU Oxide SEIS*, DOE has no plans to dispose of DU oxide in the Portsmouth OSWDF. The Portsmouth OSWDF was the selected remedy in a ROD in accordance with the Ohio EPA Director's Final Findings and Orders and pursuant to DOE's CERCLA authority. The DUF_6 Project and the activities evaluated in this *DU Oxide SEIS* are not being

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			performed under CERCLA. As such, the DU oxide is not authorized for disposal in the Portsmouth OSWDF. Chapter 4, Section 4.1.1.6, of this *DU Oxide SEIS*, states that containers of DU oxide emit very low levels of radiation, resulting in a dose rate of about 2 millirem per hour at 30 centimeters.
18-8	Vina Colley	We never seem to get straight answers. We have a right to know.	The *DU Oxide SEIS* presents potential environmental impacts at Paducah and Portsmouth that could be associated with the Proposed Action and the No Action Alternative.
18-9	Vina Colley	We have the highest rate of cancer in the nation and kidney problems is running ramps here.	Chapter 4, Sections 4.5.2.6 and 4.5.3.5 (including associated tables), of this *DU Oxide SEIS* discuss cumulative cancer risks as applicable to the Proposed Action. As indicated in Chapter 2, Table 2-4, the storage and shipment of the DU oxide is not expected to result in any additional latent cancer fatalities in the populations around the two sites. Also, as stated in Chapter 4, Section 4.2.1.6, no adverse impacts are expected among the public from chemical exposure during uranium storage.
18-10	Vina Colley	We need a thorough analysis of the water in the streams and rivers in this area as well as a full investigation into the possible pollution of the drinking water.	Chapter 3, Sections 3.2.4.1 and 3.2.4.2, of this *DU Oxide SEIS* describe the water quality for surface waters and groundwater around the Portsmouth site, respectively. As analyzed in Chapter 4, Sections 4.1.1.4 and 4.2.1.4, and summarized in Chapter 2, Table 2-4, impacts on water quality from the alternatives evaluated in this *DU Oxide SEIS* would be minor, with concentrations of uranium in water from a potential cylinder breach below radiological benchmark levels.
18-11	Vina Colley	We are talking about opening the Centrifuge plant in Portsmouth, Ohio and this discussion could cause the production of more DUF 6 we don't have answers right now on the 25,000.00 cylinders so why create more.	As described in Chapter 1, Section 1.1, of this *DU Oxide SEIS*, DOE has been working on reuse or disposition of the DUF_6 since the 1990s and does have a disposition pathway for existing DUF_6 that cannot be reused. DOE is currently converting the DUF_6 to the

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			more stable DU oxide form at Paducah and Portsmouth and plans to dispose of unneeded DU oxide at off-site locations. Because of the possibility that DOE may need to process additional DUF_6 from commercial sources, this *DU Oxide SEIS* includes an analysis of the impacts of processing and disposal of an additional 150,000 metric tons of commercial DUF_6 (Appendix C).
18-12	Vina Colley	We are disappointed that no Representative or staff members were on this call.	DOE acknowledges your comment.
19-1	Vina Colley, Portsmouth/Piketon Resident for Environmental Safety and Security (member group of Alliance for Nuclear Accountability), National Nuclear Workers for Justice, A Call to Actions Nuclear Whistleblowers Alliances	This is a request that you open the record of decision about what is going into the waste cell in Piketon, Ohio. Until we are given all the facts. We cannot give a true decision on the impact of the DUF6. We question the amount of Plutonium in the DUF6 production and wonder how they can sell the contaminated hydrofluoric acid	As stated in Chapter 4, Section 4.5.3.1, of this *DU Oxide SEIS*, DOE has no plans to dispose of DU oxide in the Portsmouth OSWDF. The Portsmouth OSWDF was the selected remedy in a ROD in accordance with the Ohio EPA Director's Final Findings and Orders and pursuant to DOE's CERCLA authority. The DUF_6 Project and the activities evaluated in this *DU Oxide SEIS* are not being performed under CERCLA. As such, the DU oxide is not authorized for disposal in the Portsmouth OSWDF. Concerns about the Portsmouth OSWDF are outside the scope of this *DU Oxide SEIS*. Chapter 3, Section 3.2.8, and Chapter 4, Section 4.5.3.1, of this *DU Oxide SEIS* provide a description of the waste to be disposed in the OSWDF and also provide references for additional information. Appendix B, Table B-3, lists the isotopic composition of the DU oxide. Plutonium is present as an impurity. As described in Chapter 1, Section 1.1., hydrogen fluoride can only be sold/recycled into commerce if radionuclide and other contaminant concentrations are below authorized release limits.

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19-2	Vina Colley	We are asking that you have a public meeting so the community can give input on your decision about the plant in Piketon, Ohio. Please come here and tell us about the Plutonium on site and what will go in the waste cell. DOE has plans to sell the hydrofluoric acids. I told them it might be contaminated with Plutonium and with the residue from the chemical gas phosgene.	As described in Chapter 1, Section 1.3, of this *DU Oxide SEIS*, the purpose and need for this action is to dispose of DU oxide resulting from converting DOE's DUF_6 inventory to a more stable chemical form and to dispose of other LLW and MLLW (i.e., empty and heel cylinders, calcium fluoride, and ancillary LLW and MLLW) generated during the conversion process. Other activities at the Portsmouth Site are outside of the scope of this *DU Oxide SEIS*. See the response to Comment 19-1 related to the Portsmouth OSWDF. See the response to Comment 19-1 related to the sale of hydrogen fluoride.
19-3	Vina Colley	We spoke about the 1979 spill when a hot cylinder was dropped and over 20,000.00 lbs went to the air and water.	DOE acknowledges your comment.
19-4	Vina Colley	My co-worker Owen Thompson died from brain cancer at age 42 after cleaning up the spill.	DOE acknowledges your comment.
19-5	Vina Colley	In the Superfund report May 4, 1994, a plant had to score 28.5 to be placed on the National Priorities List. Portsmouth Gaseous Diffusion Plant scored 54.6 and Paducah scored 56.9. A 1985 GAO report states that the Portsmouth Gaseous Diffusion workers had the highest exposure. The community can't make a good decision until all the records are released. We need to know the amount of Plutonium and Transuranic on site. Until they release the records workers will have a hard time getting compensation. Workers are jumping through hoops and being turned down because of perceived loopholes in the coverage. It is as if the government were waiting for the workers to die so there would not have to be any compensation. In 1999, we were told the burden of proof was on the government; and when we went to D.C. in	The sites' Hazard Ranking System scores are outside of the scope of this *DU Oxide SEIS*. The 1985 GAO report summarized worker exposure during operation of the Portsmouth Gaseous Diffusion Plant. Past exposure of employees to radiation during operation of the Portsmouth Gaseous Diffusion Plant is outside the scope of this *DU Oxide SEIS*. A described in Chapter 3, Section3.2.6.1, of this *DU Oxide SEIS*, for 2016, less than 2 percent of Portsmouth workers received a measurable dose, and the total worker dose was estimated at 2.5 person-rem. The average worker dose for Portsmouth workers was 0.99 millirem. These results are significantly less than the

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		October of 2018 for a meeting, we were told the burden of proof is on the worker. How can we give proof when DOE hasn't released all the information about Plutonium, Uranium Hexafluoride and many other Transuranic elements.	DOE administrative limit of 2,000 millirem per year. The potential health impacts on workers at Portsmouth for the Proposed Action and the No Action Alternative are presented in Chapter 4, Sections 4.2.1.6 and 4.1.1.6 of this *DU Oxide SEIS*, respectively. See the response to Comment 19-1 related to plutonium as an impurity.
19-6	Vina Colley	Attached is a document Plutonium and Transuranic at Portsmouth, Ohio and Paducah KY	DOE acknowledges the document that you submitted. See the response to Comment 19-1 related to plutonium as an impurity.
20-1	Vina Colley	INTRODUCTION Depleted uranium (DU) is a byproduct of the process used to enrich natural uranium for use in nuclear reactors and in nuclear weapons. Natural uranium is composed of three isotopes; 234U, 235U, and 238U (see Table 1) [1]. The enrichment process concentrates both the 235U and the 234U isotopes in the product material, resulting in a waste product or byproduct depleted in both 235U and 234U. The resultant DU retains a smaller percentage of 235U and 234U, and a slightly greater percentage of 238U (99.8% by mass instead of 99.3%). Because of the shorter half-life of 234U and 235U compared to 238U, the radioactivity associated with DU is approximately 40% less than that of natural uranium. Table 1: Typical Isotopic Abundances in Natural and Depleted Uranium Isotope 234U 235U 238U Abundance (by weight) Natural Uranium 0.0058% 0.72% 99.28% Depleted Uranium 0.001% 0.2% 99.8% In the United States, DU is available mainly from the U.S. Department of Energy (DOE) and other government	DOE acknowledges the information provided in the comment. Appendix B, Table B-3, of this *DU Oxide SEIS* lists the isotopic composition of the DU oxide. Plutonium and other isotopes are present as impurities.

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		sources. DU occurs in a number of different compounds with different characteristics, which may have a significant impact on the management and disposition of this material. Because DU metal is 1.7 times more dense than lead, it is valuable for industrial uses. It has been used for civil and military purposes for many years. Detailed information on uranium, its chemical forms, manufacturing/enrichment processes, and uses of DU are further discussed in Appendix 1. 2.1 Characteristics of Uranium and Depleted Uranium Uranium is a naturally occurring radioactive metal in all rocks and soils in low concentrations (1 to several hundred picocuries per gram (pCi/g)). All three isotopes are radioactive and produce decay products upon radioactive disintegration. After purification (processing) of uranium, the decay products of all of the uranium isotopes will begin to accumulate very slowly, and traces of these decay products can be detected. Other trace isotopes that have been observed in depleted uranium, and are likely of anthropogenic origin, include plutonium-238 (238Pu), plutonium-239 (239Pu), plutonium-240 (240Pu), am ericium-241 (241Am), neptunium-237 (237Np) and technetium-99 (99Tc).	
21-1	Vina Colley	Please submit [from State of Nevada Nuclear Newsletter]	DOE acknowledges the receipt of the newsletter article.
22-1	Vina Colley, Portsmouth/Piketon Resident for Environmental Safety and Security (member group of Alliance for Nuclear Accountability), National Nuclear Workers for Justice, A Call to Actions Nuclear	Now Portsmouth is the largest plant in the world sitting on top of the largest aquifer in the Midwest. With the bedrock fractures under the site. I have been told that the aquifer beneath the site is already contaminated. My friend, Dr. Rosa Patel, spoke on the dangers of the DU debris is credited by some with creating higher cancer, childhood cancer, and other illnesses rated in the European and Middle Eastern countries. And DUs fine particles can be harmful as well as to the kidneys, skin, lens of the eyes, and lens in head or smaller, like, even animals or fish that dust can create a serious and permanent health hazard.	Chapter 3, Section 3.2.4.2 of this *DU Oxide SEIS* describes the contamination of the groundwater under the Portsmouth Site. Chapter 3, Sections 3.2.6.1 and 3.2.6.2, of this *DU Oxide SEIS* describe the existing radiation and chemical environments at the Portsmouth Site.

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	Whistleblowers Alliances	Extended DU is a permanent terrain contaminate with the half-life of 4.5 billion years. Uranium dust can linger in the lungs, the blood, and the other organs for years. It is reported to have caused some of the so-called mysterious ailments among the more than 350,000 U.S. Service members many of whom unsuccessfully sought medical treatment after the first Gulf War.	
22-2	Vina Colley	We are very worried about the residue from the DU causing kidney and other health issues. Piketon workers have the highest exposure of all the [gaseous diffusion] plant according to a 1985 GAO report. The DUF conversion purpose to process the 24,000 cylinders that the uranium stored outside, 19,000 generated from 50 years of uranium enrichment at Paducah and 5,000 cylinders sent up from Oak Ridge the potential reach -- reuse for disposal.	The 1985 GAO report summarized worker exposure during operation of the Portsmouth Gaseous Diffusion Plant. Past exposure of employees to radiation during operation of the Portsmouth Gaseous Diffusion Plant is outside the scope of this *DU Oxide SEIS*. A described in Chapter 3, Section 3.2.6.1, of this *DU Oxide SEIS*, for 2016, less than 2 percent of Portsmouth workers received a measurable dose, and the total worker dose was estimated at 2.5 person-rem. The average worker dose for Portsmouth workers was 0.99 millirem. These results are significantly less than the DOE administrative limit of 2,000 millirem per year. The potential health impacts on workers at Portsmouth for the Proposed Action and the No Action Alternative are presented in Chapter 4, Sections 4.2.1.6 and 4.1.1.6, of this *DU Oxide SEIS*, respectively.
22-3	Vina Colley	As part of the process in question, the hydrochloric acid would be pulled off and sold as a product. This has been ongoing. However, there have been numerous delays due to safety and process design issues. The deplete oxide materials that were shipped from Piketon to Utah or Nevada for disposal has yet to be done. And DOE has no schedule to fulfill the agreement or some plan safe on your own programmatic Environmental Impact Statement. To move this material for disposal out West the states of Utah and Nevada don't want this material so currently it is going nowhere. (Inaudible) dealing with an unfulfilled promise.	The 2004 EISs evaluated the conversion of DUF_6 to DU oxide and evaluated transportation of DU oxide to NNSS and Energy*Solutions* for disposal. This *DU Oxide SEIS* also considers disposal at WCS in Texas. The completion of this *DU Oxide SEIS* is an important step toward transportation of the DU oxide to these facilities for disposal.
22-4	Vina Colley	And the citizens in Paducah deserve to have a public meeting to discuss the changes that's being made and to see if this license makes it go into a proper place onsite.	This comment is outside of the scope of this *DU Oxide SEIS*.

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22-5	Vina Colley	We are asking for a public meeting on the DUF-6 because the community workers haven't been told the truth about the extent of the plutonium and transuranic onsite and offsite or the truth about the existing problems with the DUF-6 at Portsmouth, Ohio or Paducah, Kentucky. Workers here are considered as a Special Cohort Site meaning that they don't have to prove their illnesses because the government has plutonium here and they never told us. To this day, they still have not told us how much plutonium is at Piketon. We're asking for all records to be released and a full investigation. We have a right to know. So another public meeting for the community is well needed because there's a lot of things that changed in 2005. We were not informed. They don't hold public meetings here. They hold public posters and so the community doesn't really get to talk about what's going on.	Appendix B, Table B-3, lists the isotopic composition of the DU oxide. Plutonium and other isotopes are present as impurities. See the response to Comment 22-2 related to past worker exposure. The request for a public meeting on past practices and past worker exposure at Portsmouth is outside the scope of this *DU Oxide SEIS*.
22-6	Vina Colley	We need to know if you are considering putting waste from the DUF-6 cylinders in the waste cell being built onsite. We never seem to get straight answers. We have a right to know. We have the highest rate of cancer in the nation, kidney problems they're running ramped here.	As described in Chapter 1, Section 1.1, of this *DU Oxide SEIS*, DOE decided to convert DUF_6 to DU oxide and has no plans to dispose of DUF_6 before conversion. As stated in Chapter 4, Section 4.5.3.1, DOE has no plans to dispose of DU oxide in the Portsmouth OSWDF. Also see the response to Comment 18-7.
22-7	Vina Colley	We need a thorough analysis of the water and the streams and the rivers in this area as well as a full investigation into the possible pollution of the drinking water.	Chapter 3, Sections 3.2.4.1 and 3.2.4.2, of this *DU Oxide SEIS* describe the water quality for surface waters and groundwater around the Portsmouth site, respectively.
22-8	Vina Colley	And I'm also concerned that when I read about the posting of this meeting that there was a lot of foreign countries that were going to be calling in about this and I'm wondering why. Do they have -- do some of these cylinder belong to them? Does the product belong to them?	The public hearing on the SEIS was open to the public; however, DOE is unaware of any participants from foreign countries. None of DOE's DUF_6 inventory is foreign-owned.
22-9	Vina Colley	And I would like to say that I'm very disappointed that no representatives are here today giving input about the depleted uranium cylinders that is affecting so many people. Those cylinders are sitting outside stacked three high and it gives off the highest neutron exposures that you can get.	DOE acknowledges your comment. As described in Chapter 2, Section 2.1.3, of this *DU Oxide SEIS*, cylinders are stacked two high in the

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			cylinder storage yards. As described in Chapter 4, Section 4.1.1.6, of this *DU Oxide SEIS*, containers of DU oxide emit very low levels of radiation, resulting in a dose rate of about 2 millirem per hour at 30 centimeters.
22-10	Vina Colley	And can you imagine all the rain that we have and how much this has washed off into our local creeks and streams which winds up in the Scioto River which winds up in the Ohio River. It is a crime against the citizens of this area what they have done to us.	See the response to Comment 22-7 related to surface and groundwater quality.
23-1	Vina Colley, Portsmouth/Piketon Resident for Environmental Safety and Security (member group of Alliance for Nuclear Accountability), National Nuclear Workers for Justice, A Call to Actions Nuclear Whistleblowers Alliances	One of my questions I'd like to ask is the plan to extract the hydrogen fluoride is in jeopardy by contamination of plutonium and by the residue from the chemical gas (inaudible). So this is one of the reasons we've been asking for a public meeting for DOE and DoD to come here and tell us exactly what we have at Piketon. I read in our records that we've had plutonium here since 1953. So to sell this fluoride and to ship off some of the PCB oils and all that it was all radioactive also. So until the community is really informed about the plutonium at the Piketon site I don't know how we can go forward on any of the decisions until we are being told and given the true facts about how much plutonium has been at the Piketon site. I know X745 side plants at the Portsmouth site did experimental stuff with plutonium and it was so hot that they had to shut it down. And eventually they had to send the workers three or four at a time to Oak Ridge to get their body counts down. So it's kind of like we kind of think that the plutonium is being hid from the community and the workers which would help the workers where they don't have to step through all of these -- step through all these procedures to try to get compensated.	As described in Chapter 1, Section 1.1, of this *DU Oxide SEIS*, hydrogen fluoride can only be sold/recycled into commerce if radionuclide and other contaminant concentrations are below authorized release limits. Appendix B, Table B-3, of this *DU Oxide SEIS* lists the isotopic composition of the DU oxide. Plutonium and other isotopes are present as impurities.
23-2	Vina Colley	They're -- we have the highest rate of cancer. We had an incident here in 1978 that was compared to Three Mile Island. They dropped a hot cylinder and it busted open and 20-some-thousand pounds of uranium hexafluoride left the facility in the local creeks and the streams. One of the coworkers that I worked with and who helped me in	DOE acknowledges your comment about the incident that occurred in 1978.

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		the early years of trying to get the story out with the plutonium was Owen Thompson who died of a brain tumor at the age of 42. So we need for the DOE and the DoD to come here and tell us exactly how much plutonium and transuranium that we have here on site. All the local streams and the creeks that empty out into the Scioto River have been contaminated. Our fish, our Scioto Creek which -- Scioto River which runs into the Ohio River has been contaminated. They had admitted that it was contaminated but it seems like no one's paying attention.	The 1985 GAO report summarized worker exposure during operation of the Portsmouth Gaseous Diffusion Plant. Past exposure of employees to radiation during operation of the Portsmouth Gaseous Diffusion Plant is outside the scope of this *DU Oxide SEIS*. A described in Chapter 3, Section3.2.6.1, of this *DU Oxide SEIS*, for 2016, less than 2 percent of Portsmouth workers received a measurable dose, and the total worker dose was estimated at 2.5 person-rem. The average worker dose for Portsmouth workers was 0.99 millirem. These results are significantly less than the DOE administrative limit of 2,000 millirem per year. The potential health impacts on workers at Portsmouth for the Proposed Action and the No Action Alternative are presented in Chapter 4, Sections 4.2.1.6 and 4.1.1.6, of this *DU Oxide SEIS*, respectively. The comment related to outreach from DOE and the U.S. Department of Defense (DoD) is outside the scope of this *DU Oxide SEIS*. Chapter 3, Sections 3.2.4.1 and 3.2.4.2, of this *DU Oxide SEIS* describe the water quality for surface waters and groundwater around the Portsmouth site, respectively. As described in Chapter 4, Section 4.1.1.4, of this *DU Oxide SEIS*, the potential impacts of activities described in the SEIS on water resources at Portsmouth would be minor.
23-3	Vina Colley	The waste scale in Piketon that -- that land according to Marvin Resocof (ph) and press who went through the documents is contaminated already with plutonium. I'm	See the response to Comment 23-2 related to surface and groundwater quality.

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		concerned, the community's concerned. They came out last year about the bedrock fractures. We did a petition in 2000 -- well, no, around 1995 or '96 about the bedrock was fractured horizontal and vertical. So it is believed that the aquifers underneath this site is already contaminated.	
23-4	Vina Colley	Doctors here in the community are asking me what's going on out there because they're getting so many -- so much cancer here and they're getting, like, small-cell cancer that is a fast-growing cancer and people are passing away pretty fast. The other thing is the kidney dis- -- the kidney problem that we're having in this area. About a half a mile from me there's, like, 17 people right there that's got kidney problems. So we're feeling the effects of the depleted uranium and the highly enriched uranium to 97 percent. And the facility and the [gaseous diffusion] plant has gone up.	Past exposure of employees to radiation during operation of the Portsmouth Gaseous Diffusion Plant is outside the scope of this *DU Oxide SEIS*. See the response to Comment 23-2.
23-5	Vina Colley	We've had plutonium here in the way since '53 so it has to be in the product. So I'd like to know how we're going to sell this hydrogen fluoride asset if it's in jeopardy because it has plutonium. And we have a right to know.	See the response to Comment 23-1 related to plutonium as an impurity.
23-6	Vina Colley	So I'm begging you to please come to the community and let's talk and let's release documents so we can help these sick people. And we are begging you to please come here and hold a conference with these -- for us and let us have our say so and let us talk and give us the information. We would like DOE to talk or DoD to talk because we made weapons-grade uranium and mixed with plutonium so all DU cylinders have to be contaminated with plutonium. So we need to know, you know, what -- it shouldn't be considered as low level. It should be considered as high-level waste.	The comment related to outreach from DOE and DoD is outside the scope of this *DU Oxide SEIS*. See the response to Comment 23-1 related to plutonium as an impurity. No waste generated by the conversion process are considered high-level radioactive wastes. As described in Chapter 1, Section 1.1, of this *DU Oxide SEIS*, most of the heel material in the cylinders consists of depleted uranium and uranium daughters as the radiological constituents, and would be Class A LLW, as defined in 10 CFR Part 61 or LLW per DOE Order 435.1. The radiological characteristics of the majority of heel

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			cylinders is bounded by the DU oxide characteristics. However, a small population of cylinders could contain TRU isotopes and/or Tc-99 contaminants. TRU and Tc-99 suspect heel cylinders will be subjected to sampling and analysis to determine the levels of TRU isotopes and Tc-99. Heel cylinders deemed not acceptable for use as oxide containers (exceed disposal facility waste acceptance criteria) will be shipped to a waste processor for further action required to meet disposal facility waste acceptance criteria. DOE will only ship wastes that meet the disposal facility's waste acceptance criteria.
23-7	Vina Colley	We do not need a waste fill here at Piketon because it's setting on top of bedrock fractures which goes into the aquifers. And I think that we have been contaminated enough and our families and community friends are passing away so fast that you can't keep up with them. I went to eight funerals last -- in 2018 just from family members.	As stated in Chapter 4, Section 4.5.3.1, of this *DU Oxide SEIS*, DOE has no plans to dispose of DU oxide in the Portsmouth OSWDF. The Portsmouth OSWDF was the selected remedy in a ROD in accordance with the Ohio EPA Director's Final Findings and Orders and pursuant to DOE's CERCLA authority. The DUF_6 Project and the activities evaluated in this *DU Oxide SEIS* are not being performed under CERCLA. As such, the DU oxide is not authorized for disposal in the Portsmouth OSWDF.
23-8	Vina Colley	So we need help and we're begging that you do the right thing and stop this madness. Stop this conversion of the depleted uranium and selling it to people when it's full of contaminated stuff like plutonium, technetium, americium, californium, strontium.	Conversion of DUF_6 to DU oxide is outside of the scope of this *DU Oxide SEIS*. See the response to Comment 23-1 related to plutonium as an impurity. As described in Chapter 1, Section 1.1, of this *DU Oxide SEIS*, hydrogen fluoride can only be sold/recycled into commerce if radionuclide and other contaminant concentrations are below authorized release limits.
23-9	Vina Colley	It's the largest facility in the world. It's miles and miles and miles of Piketon. And these workers will not be compensated for their illnesses after '92. Any worker -- we need the facility cleaned up. And any worker who needs to be there and needs a job should be given a	See the response to Comment 23-2 related to past worker exposure.

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		medical card because they're going to suffer and their families are suffering.	
24-1	Vina Colley, Portsmouth/Piketon Resident for Environmental Safety and Security (member group of Alliance for Nuclear Accountability), National Nuclear Workers for Justice, A Call to Actions Nuclear Whistleblowers Alliances	We question the amount of plutonium in the DUF-6 production and wonder how it can sell the contaminated hydrofluoric acid. We are asking that you have a public meeting so the community can give input on your decision about -- about the Piketon, Ohio, site. Please come here and tell us about the plutonium on site and what will go into the waste cell. DOE has to have a plan to sell this hydrochloric acid. I told them it might be contaminated with plutonium and with the residue for the chemical gas (inaudible). The Superfund report May the 4th, 1994, a plant scored 28.5 to be placed on the National Priorities List. Portsmouth Gas and Diffusion Plant scored -- to be placed on it you had to have a 28.5. Portsmouth Gas and Diffusion Plant scored 54.6 and Paducah scored 56.9. So both sites doubled the Superfund list. A GOA report reportedly states that the Portsmouth Gas and Diffusion workers had the highest exposures. The community can't make a good decision until all records are released. We need to know the amount of plutonium and transuranic on site. Until they release the records workers will be -- will have a hard time getting compensation. Workers are jumping through hoops and being turned down because of the perceived loopholes in the coverage. It is as if the government are waiting for the workers to die so they will not have to have any compensation. In 1999 we were told that the burden of proof is on the government. And when we went to D.C. in October of 2018 for a meeting we were told that the burden of proof is on the workers. How can we get proof when the DOE hasn't released all the information about the plutonium, the transuranic, the uranium hexafluoride? How are we going to know the truth, you know, what -- what these workers are getting exposed to? In the book that I had given you, it was a public book, it was a third-party inspection of the plutonium. And Portsmouth showed evidence of radium, plutonium, neptunium, and other highly radioactive	Appendix B, Table B-3, of this *DU Oxide SEIS* lists the isotopic composition of the DU oxide. Plutonium and other isotopes are present as impurities. As described in Chapter 1, Section 1.1, of this *DU Oxide SEIS*, hydrogen fluoride would only be sold/recycled into commerce if radionuclide and other contaminant concentrations are below authorized release limits. As stated in Chapter 4, Section 4.5.3.1, of this *DU Oxide SEIS*, DOE has no plans to dispose of DU oxide in the Portsmouth OSWDF. The Portsmouth OSWDF was the selected remedy in a ROD in accordance with the Ohio EPA Director's Final Findings and Orders and pursuant to DOE's CERCLA authority. The DUF_6 Project and the activities evaluated in this *DU Oxide SEIS* are not being performed under CERCLA. As such, the DU oxide is not authorized for disposal in the Portsmouth OSWDF. The sites' Hazard Ranking System scores are outside of the scope of this *DU Oxide SEIS*. The 1985 GAO report summarized worker exposure during operation of the Portsmouth Gaseous Diffusion Plant. Past exposure of employees to radiation during operation of the Portsmouth Gaseous Diffusion Plant is outside the scope of this *DU Oxide SEIS*. A described in Chapter 3, Section 3.2.6.1, of this *DU Oxide SEIS*, for 2016, less than 2 percent of Portsmouth workers received a measurable dose, and the total worker dose was estimated at 2.5 person-rem. The average worker dose for Portsmouth workers was 0.99 millirem. These results are significantly less than

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		transuranic. There is plenty of documents now that's showing that there is contamination off site. In the Citizens lawsuit here in Piketon the pine needles six miles away from the plant showed radioactive material. Showed up six miles -- (inaudible) miles from the plant. So we have a huge problem here. And I'm asking the government to please do a thorough investigation and let the community give input. And let's make a -- take a second look at this waste disposal because it is sitting on top of the largest aquifer. The bedrock is fractured. And I have said that for the last three days, but I just want to make sure that they're listening and coming here and talk to us. We can't -- we can't resolve the solution until we know what the problem is. And we are willing to work with them and figure this all out because we're in this together. So the community is heavily affected with cancer and all kind of illnesses, kidney problems. And after 30, 50 years of production it's starting -- the health effects are starting to show up here.	the DOE administrative limit of 2,000 millirem per year. The potential health impacts on workers at Portsmouth for the Proposed Action and the No Action Alternative are presented in Chapter 4, Sections 4.2.1.6and 4.1.1.6, of this *DU Oxide SEIS*, respectively. Chapter 3, Section 3.2.4.2, of this *DU Oxide SEIS* describes the contamination of the groundwater under the Portsmouth Site. Chapter 3, Sections 3.2.6.1 and 3.2.6.2, of this *DU Oxide SEIS* describe the existing radiation and chemical environments at the Portsmouth Site.
24-2	Vina Colley	We spoke about the 1979 spill that when a hot cylinder was dropped over 2,000 pounds went into the air and the water and a coworker, Owen Thompson, died from a brain tumor at the age of 42 after cleaning up this spill. So this is how dangerous uranium hexafluoride is. There were 60-some workers I think believed to be in that spill got contaminated in 1979. And if they're going to be dealing with uranium hexafluoride itself it's a very highly toxic chemical that causes neuropathy and crippling arthritis. And according to some of the documents of the DOE I've read that we have doubled the standard for Oak Ridge and Paducah here in Portsmouth that I believe Ohio didn't have a standard. So we did double the Oak Ridge and Paducah standards.	DOE acknowledges your comment about the incident that occurred in March 1978. See the response to Comment 24-1 related to past worker exposure.

E.4 REFERENCES

ANL (Argonne National Laboratory) 2016a, "Depleted" Uranium at http://web.evs.anl.gov/uranium/guide/depletedu/index.cfm (accessed August 19, 2016).

DOE (U.S. Department of Energy) 1999, *Final Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride*, DOE/EIS-0269, Office of Nuclear Energy, Science and Technology, April, at http://web.evs.anl.gov/uranium/pdf/summary.pdf (accessed September 4, 2018).

DOE (U.S. Department of Energy) 2004a, *Final Environmental Impact Statement for Construction and Operation of Depleted Uranium Hexafluoride Conversion Facility at the Paducah, Kentucky, Site*, DOE/EIS-0359, Office of Environmental Management, June, at https://www.energy.gov/sites/prod/files/EIS-0359-FEIS-01-2004.pdf, https://www.energy.gov/sites/prod/files/EIS-0359-FEIS-02-2004.pdf, https://www.energy.gov/sites/prod/files/EIS-0359-FEIS-FiguresTables-2004.pdf, https://www.energy.gov/sites/prod/files/EIS-0359-FEIS-Appendices-2004.pdf (accessed September 4, 2018).

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DOE (U.S. Department of Energy) 2011, *Final Long-Term Management and Storage of Elemental Mercury Environmental Impact Statement*, DOE/EIS-0423, Office of Environmental Management, Washington, DC, January, at https://www.energy.gov/sites/prod/files/EIS-0423-FEIS-Summary-2011.pdf, https://www.energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/EIS-0423-FEIS-01-2011.pdf, https://www.energy.gov/sites/prod/files/EIS-0423-FEIS-02-2011.pdf (accessed September 4, 2018).

PPPO (Portsmouth/Paducah Project Office) 2018, Data Call for Depleted Uranium (DU) Oxide Disposal Supplemental Environmental Impact Statement (SEIS).

WCS (Waste Control Specialists LLC) 2016, *WCS Consolidated Interim Spent Fuel Storage Facility Environmental Report*, Docket Number 72-1050, Revision 0.

E.5 SCANNED COMMENT DOCUMENTS

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Comment 1

DUCKWATER SHOSHONE TRIBE
511 Duckwater Falls Road, P.O. Box 140068
Duckwater, Nevada 89314
(775) 863-0227 Phone
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January 12, 2019

Jaffet Ferrer-Torres
Document Manager
U.S. Departtment of Energy
Office of Waste Disposal/EM-4.22
1000 Independence Ave. SW
Washington, DC 20585

Subject: Comments and concerns on Draft SEIS on disposal location of depleted uranium oxide.

Dear Mr. Jaffet Ferrer-Torres,

Thank you for the letter regarding the Draft Supplemental Environmental Impact Statement for the Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE,s Inventory of Depleted Uranium Hexafluoride.

The Duckwater Shoshone Tribe concerns and comments:

After reviewing the Draft SEIS the Duckwater Shoshone Tribe is very concerned on the fact that in this draft SEIS there is no mention on the cultural impacts of transportation and long term storage of DU, DUF,CaF and the other radioactive waste materials that want to be stored on the NNSS and the other facilities.

Transportation and long term storage:

1 The transportation and storage of the radioactive waste, that crosses through multiple states, through use of railcars and trucks for the next 25 years poses numerous threats, if there is an accident on transporting or storage of said materials to where a spill or leakage may occur, could significantly do major harm to Native American cultural sites not only in Western Shoshones traditional territories but other tribes as well. There is no mention on how this would impact: American Indians Freedom of Religious Act (AIFRA), Traditional Cultural Properties (TCP), and other ceremonial/spiritual sites that Native Americans hold sacred. The contamination of the air, water, and the ground itself of such an accident would have high impacts on traditional ceremonies, hunting, plant gathering for medicinal and food. These Places would be highly impacted if there was severe contamination and would be no longer accessible thus compromising the integrity of the sites and violating Native Americans AIFRA rights.

The Duckwater Shoshone Tribe is an equal opportunity provider.

Comment 1

2 In closing the Duckwater Shoshone Tribes can not concur with the purposed alternative actions on the transportation and storage of the depleted uranium at the Nevada National Security Site. The Tribes hopes that the Department of Energy will take these concerns and comments into considerations. Thank you.

Sincerely,
Rodney MIke, Tribal Chairman

cc: Jerry Millett, Tribal Manager
Annette George, Natural Resource Coordinator
Warren Graham, Assistant to Division Managers

Comment 2

ENERGYSOLUTIONS

February 7, 2019 CD19-0033

Ms. Jaffet Ferrer-Torres
Office of Environmental Management
U.S. Department of Energy, EM-4.22
1000 Independence Avenue SW
Washington, DC 20585

Re: Comment on Draft "Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated From DOE's Inventory of Depleted Uranium Hexafluoride" [83FR67250; DOE/EIS–0359–S1; DOE/EIS–0360–S1).]

Dear Ms. Ferrer-Torres:

Energy*Solutions* is pleased to review the Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride, as released in the Federal Register on December 28, 2018 for comment by February 11, 2019. Energy*Solutions'* supports the additional disposal option considered in the Draft Supplemental Environmental Impact Statement and has no specific concerns with either the content in the original Environmental Impact Statement or additional substance proposed in the Draft Supplement. 1

Should there be any questions with these comments, please contact me at 801-649-2000 or VCRogers@EnergySolutions.com.

Sincerely,

Vern C. Rogers
Feb 7 2019 7:49 AM
cosign

Vern C. Rogers
Director, OWM Regulatory Affairs

299 South Main Street, Suite 1700 • Salt Lake City, Utah 84111
(801) 649-2000 • Fax: (801) 880-2879 • www.energysolutions.com

Comment 3

Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride

The U.S. Department of Energy (DOE) Office of Environmental Management welcomes ideas, comments or concerns from the public. The comments can be provided through web-based forum announced in the *Federal Register* Notice of Availability, mail or email. Comments on the Draft Supplemental Environmental Impact Statement (SEIS) will be accepted during the public comment period, beginning on the day the draft is made available to the public. Comments submitted during this public comment period will be considered in preparation of the Final SEIS and used by DOE in its decision-making process for the Proposed Action. DOE will consider late comments to the extent practicable. Please summarize your idea or concern in the space below:

1 Per the three choices for disposal in the SEIS, it would be best to dispose of the uranium oxide at the Nevada National Security Site as it is a publicly controlled site that wouldn't be subject to bankruptcy and should have better oversight than a private facility.

Name: Lee Blackburn email: leeblackburn@live.com

Address: 148 Pincott St. SW
Pataskala, OH 43062

All submissions, including name, address, and email, will be included in the public record and open to public inspection in their entirety. Any person wishing to have his/her name, address, or other identifying information withheld from the public record of comment documents must state this request prominently at the beginning of any comment document. Comment documents will be shared once Final SEIS is made publicly available.

Mail form to:

Ms. Jaffet Ferrer-Torres, Document Manager
Office of Environmental Management
Department of Energy, EM-4.22
1000 Independence Avenue SW, Washington, D.C. 20585

Email form to:

DUF6_NEPA@em.doe.gov

Comment 4

State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF WASTE MANAGEMENT
AND RADIATION CONTROL
Rusty Lundberg
Acting Director

February 11, 2019

Jaffet Ferrer-Torres, Document Manager
Office of Environmental Management
U.S. Department of Energy
EM-4.22
1000 Independence Avenue, S.W.
Washington, D.C. 20585

RE: Draft Supplemental Environmental Impact Statement (Draft SEIS) for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride

Dear Ms. Torres:

The State of Utah, Department of Environmental Quality, Division of Waste Management and Radiation Control appreciates the opportunity to comment on the Draft SEIS.

Our comments are as follows:

1) Table 2-4, p. 2-26: The text states that DU oxide released in potential cylinder breaches due to corrosion would result in a very small likelihood (about 1 in 1,700 at Paducah and 1 in 10,000 at Portsmouth) of any additional cancer fatalities in the general population. 1

In the case of the Paducah site, the Draft SEIS should explain how a cancer fatality of 1 in 1,700 (slightly less than 10^{-3}) would be an acceptable risk with regard to additional cancer fatalities in the general population.

2) Please be advised that the state of Utah is writing a safety evaluation report regarding the disposal of DU-oxide waste at Energy*Solutions*' waste disposal facility at Clive, Utah. We expect the report to be available at the end of the second quarter of 2019 and will be posted on our web site at the following address: 2
https://deq.utah.gov/legacy/businesses/e/energysolutions/depleted-uranium/performance-assessment/index.htm

3) The Draft SEIS refers several times to the possible disposition of heel cylinders at the Energy*Solutions* Clive site, the NNS site, and/or the WCS site. Storage or disposal of a heel 3

DRC-2019-000548

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Comment 4

cylinder, whether or not it contains DU-oxide waste, is currently prohibited by statute, in the state of Utah, if the heel consists of Class B, Class C, or Greater than Class C (GTCC) waste (see Utah Code 19-3-103.7, 19-3-301, and 19-3-302). Utah is currently evaluating the effects of heels located within DU waste cylinders as part of its review of Energy*Solutions*' Performance Assessment. The Safety Evaluation Report will address this specific issue and should be completed by late spring.

4) The Draft SEIS on Page 3-51 characterizes groundwater at Energy*Solutions* as being saline, nonpotable, and chemically impure, implying that the groundwater at the site may not be a significant resource and may not require much, if any, protection. This characterization does not necessarily apply to groundwater produced from the aquifer systems at Energy*Solutions*. There exists only limited data regarding the hydraulic relationship between the shallow groundwater at Energy*Solutions* and the deeper basal aquifer system. The Division recognizes groundwater from the basal aquifer system (e.g., at 460 to 1,000 feet in depth) as being a valuable resource, one that requires protective effort. Two industrial facilities near Energy*Solutions* have historically pumped groundwater from the basal aquifer system, treated it to reduce total dissolved solids, and then employed it for human as well as industrial purposes. The groundwater is potable after treatment. Aquifers in the system produce groundwater at significant rates. The groundwater is valued in part because it has been used for decades at these two facilities for drinking/culinary purposes as well as for industrial purposes. The facilities have generally found it more economical to pump this groundwater locally than to bring in water from other locations. *See* additional information on this topic in Appendix A. The shallow groundwater in Utah's West Desert is also used for industrial uses, including the production of minerals.

4

If you have any questions, please contact Don Verbica (dverbica@utah.gov, 801-536-0206), David Edwards (davidedwards@utah.gov, 801-536-4259), or Helge Gabert (hgabert@utah.gov, 801-536-0200.

Thank you for the opportunity to comment on the Draft SEIS and for your consideration of our comments,

Sincerely,

Rusty Lundberg

Rusty Lundberg, Acting Director
Division of Waste Management and Radiation Control

RL/DAE/km

Enclosure: Appendix A: Groundwater at or near Clive – Used for Drinking and Other Purposes

c: Jeff Coombs, EHS, Health Officer, Tooele County Health Department
Bryan Slade, Environmental Health Director, Tooele County Health Department

Comment 4

UTAH DIVISION OF WASTE MANAGEMENT AND RADIATION CONTROL

Draft Supplemental Environmental Impact Statement (Draft SEIS) for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride

Appendix A: Groundwater at or near Clive – Used for Drinking and Other Purposes

Page 3-51 of the DOE Draft SEIS states,

> The aquifer system below the EnergySolutions site consists of a shallow unconfined aquifer that extends through the upper 40 feet (12 meters) of lacustrine deposits and a confined aquifer that begins around 40 to 45 feet (12 to 14 meters) and continues through the valley fill (ES 2016c). Little or no precipitation reaches the upper unconfined aquifer as direct vertical infiltration due to low precipitation and high evapotranspiration rates. . . The groundwater at the site is considered saline and contains several chemicals with concentrations above EPA's secondary drinking water standards. Therefore, the groundwater is not considered potable (ES 2016c).

The Division of Waste Management and Radiation Control (the Division) has the following comments:

- The DOE Draft SEIS statement quoted above implies that all groundwater at Clive "is considered saline and contains several chemicals with concentrations above EPA's secondary drinking water standards. Therefore, the groundwater is not considered potable (ES 2016c)." However, while such a statement might represent a reasonable assessment of groundwater in the shallow aquifer, applying such a statement to groundwater from deeper valley fill (or basal aquifer system) aquifers located on the order of about 485 to perhaps 1,000 feet below the shallow aquifer at the site would be speculative. Energy*Solutions* has not investigated in any detail the groundwater or the aquifers in that depth range. Elsewhere, within several miles of the site, several wells owned by neighboring facilities pump groundwater at significant rates from sediments within this depth range, and the treated groundwater is used by these facilities for both industrial and human uses. Currently, for valley-fill aquifers at the Energy*Solutions* Clive site itself, there is little or no well-documented information on (i) the salinity of the groundwater, (ii) the concentration of any chemical in the groundwater (and thus any data allowing a comparison with EPA's secondary drinking water standard), or (iii) the potability of the groundwater.

- It is not clear that the confined aquifer that begins at a depth of about 40 to 45 feet actually "continues through" (i.e., is continuous with) deeper valley-fill aquifers. I t appears that there may be aquitards separating the aquifer starting at 40 to 45 feet deep from the much deeper aquifers in the valley fill. For example, consider driller's log data from the Broken Arrow borehole, drilled in Section 29 just north of the Energy*Solutions* facility but never completed as a well. Data from this driller's log indicates the presence of a layer of clay and gravel at a depth of 182 to 483 feet. That's a layer over 300 feet thick. The fine-grained clay present in the layer's mix of clay and gravel likely indicates that the layer as a whole has a low permeability and that it does not generally represent aquifer material. The layer most likely functions rather as an aquitard, inhibiting both horizontal and vertical flow of groundwater.

Comment 4

- Underlying this apparent aquitard layer is a 10-foot-thick layer of cobbles and gravel at a depth of 485 to 495 feet. Cobbles and gravel, if not mixed together with clay or silt, generally tend to be materials having high permeability. When present in a layer continuous over some distance and saturated, these materials can potentially function as an aquifer.

- Underlying this high-permeability layer of cobbles and gravel is a ten-foot-thick layer consisting of clay at a depth of 495 to 505 feet. This fine-grained sediment, which most likely has low permeability, is not likely to serve as an aquifer. This layer more likely acts as an aquitard, inhibiting both horizontal and vertical flow of groundwater.

- Below that layer of clay is a second deep layer of apparent high permeability. This layer consists of gravel over a depth of 505-545 feet. This layer, as well as the high-permeability layer above it, is a potential aquifer. These potential aquifers are important because they can possibly serve as groundwater resources for industrial or human purposes.

- Below 545 feet down to 620 feet of depth is another clay layer, probably of low-permeability. It is not known if there are any deeper aquifers below this apparent aquitard, as the borehole total depth was 620 feet, and no record is provided of deeper sediment or rock.

- Two facilities neighboring Energy*Solutions*' Clive facility (i.e., Clean Harbors – Aragonite, and Clean Harbors – Clive) have, for several decades, pumped groundwater from aquifers of sand, gravel and/or cobble in the valley fill (or basal aquifer system). Aquifers are observed at various depth levels (from about 460 feet to about 1,000 feet at the bedrock contact). These are deeper aquifers that Energy*Solutions* has not yet studied and reported on.

- The groundwater from the basal aquifer system is produced at significant rates. Based on longstanding usage, it appears to be more economical for these facilities to use this groundwater rather than develop or import other water resources.

- The basal-aquifer-system groundwater has historically been utilized for a variety of industrial and human purposes. The groundwater has been treated to reduce the total dissolved solids (TDS) content before use. The Division has not been aware of any chemicals generally present above applicable site groundwater quality limits in the treated groundwater. The treated groundwater has been potable. It has been employed for, among other things, incinerator scrubbing, cooling, cleaning, sanitation, drinking and other culinary purposes.

- The 1987 State of Utah water right for the two production wells for the Clean Harbors – Aragonite facility (No. 16-757) lists culinary water and sanitation for 150 employees as two of several stated uses of the groundwater from two wells at that facility. An Earthfax Engineering, Inc. (1999) report, created 12 years after 1987, states that, at least for the time period covered by the report, the two Clean Harbors – Aragonite wells "provide industrial water for the incinerator facility and potable water for approximately 200 people at the facility."

- It is not clear that "little or no precipitation reaches the upper unconfined aquifer as direct vertical infiltration." The Clive area does have relatively low precipitation and high pan evaporation rates when averaged over the year. However, infiltration to the shallow aquifer (indicated by Energy*Solutions* to be no more than 40-45 feet deep) may transiently occur following periodic rapid snowmelt or large storm events, especially during times in spring

Comment 4

when evaporation rates are relatively low, but when storms with significant amounts of precipitation are fairly common.

- Some have assumed that because groundwater in the shallow aquifer is saline that groundwater in any of the basal aquifer system aquifers (e.g., deeper than 460 feet) must also be saline. This is not necessarily correct. Energy*Solutions* has not studied and reported on this subject. Nearly all hydrogeological data for the site is for the saline shallow aquifer close to the surface (generally at depths of no more than 40-45 feet). However, to the south, at a similar distance from the Cedar Mountains, is an extensive, deep, freshwater aquifer system that is situated west of Dugway, Utah (Ivins, 1949). Surprisingly, this deeper aquifer underlies shallower saline aquifers, some similar to the shallow aquifer at Energy*Solutions*.

- Utah is one of the driest states in the country. All groundwater at Energy*Solutions* and in the state in general should be protected regardless of its TDS content. Utah policy on this subject is expressed well by Attorneys General Denise Chancellor and Fred Nelson acting on behalf of the State of Utah at an NRC hearing. The report is found in (1999) United States of America, Nuclear Regulatory Commission, In the Matter of: INTERNATIONAL URANIUM (USA) CORPORATION (source material license amendment, Ashland 2 material), Docket No. 40-8681-MLA-4 ASLBP No. 98-748-03-MLA, May 24, 1999, STATE OF UTAH'S BRIEF ON APPEAL OF LBP-99-5. These Utah attorneys state the following in this document: "in addition, the State has a comprehensive groundwater discharge permit program to protect all waters of the State - not just potable drinking water sources . . ." and they add, "of primary State interest is protection of the State's natural resources and of critical concern is the protection of all groundwater resources."

References

DOE (2018) Supplemental Environmental Impact Statement, DOE/EIS-0359-S1 and DOE/EIS-0360-S1, September, 2018.

Earthfax Engineering, Inc. (1999) Drinking Water Source Protection Plan for Safety-Kleen (Aragonite), Inc. Test and Production Wells, Midvale, Utah, September 1999.

Ives, R.L. (1949) Resources of the Dugway Area, Utah, Economic Geography, v. 25, January, 1949, pp. 55-67. Retrieved 2017 from http://www.jstor.org/stable/141086.

Comment 4

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SALT LAKE CITY, UT 84114-4880
The State of Utah
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U.S. DEPARTMENT OF ENERGY
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WASHINGTON, D.C. 20585
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Comment 5

From:	Chikaodi Agumadu
To:	DUF6_NEPA
Cc:	Brent Wade; Ashley Forbes; Alisha Stallard; Brad Broussard; Guy Henry; Violet Mendoza; Ferrell Fields
Subject:	TCEQ Comments on DOE/EIS-0359-S1, DOE/EIS-0360-S1
Date:	Monday, February 11, 2019 11:47:17 AM
Attachments:	DOE Letter_021119.pdf DOE Comments_021119.pdf

Hello:

On behalf of TCEQ, here is our letter and comments on *the U.S. DOE Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride.*

If there are any questions concerning the TCEQ's comments, please contact Ashley Forbes, Director, Radioactive Materials Division, Office of Waste, at 512-239-0493 or ashley.forbes@tceq.texas.gov.

Thank you,

Chikaodi Agumadu
Legislative Coordinator & Executive Assistant
Texas Commission on Environmental Quality
Intergovernmental Relations Division
12100 Park 35 Circle Bldg. F | Mail Code 119 | Austin, TX 78753
(512) 239-1267 | Chikaodi.agumadu@tceq.texas.gov

Comment 5

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

February 11, 2019

Ms. Jaffet Ferrer-Torres, Document Manager
Office of Environmental Management
Department of Energy, EM-4.22
1000 Independence Avenue SW
Washington, DC 20585

Subject: TCEQ Comments on the U.S. DOE Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride (DOE/EIS-0359-S1, DOE/EIS-0360-S1)

Dear Ms. Ferrer-Torres:

The Texas Commission on Environmental Quality (TCEQ) appreciates the opportunity to comment on the U.S. Department of Energy (DOE) Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride. We have reviewed the draft supplemental environmental impact statement and have the enclosed comments for your consideration.

If there are any questions concerning the TCEQ's comments, please contact Ashley Forbes, Director, Radioactive Materials Division, Office of Waste, at 512-239-0493 or ashley.forbes@tceq.texas.gov. We look forward to working with DOE throughout this process.

Sincerely,

Toby Baker
Executive Director

Enclosure

Comment 5

Texas Commission on Environmental Quality (TCEQ) Comments on the U.S. Department of Energy (DOE) Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride

1. **Page 1-21, first paragraph states** "In August 2014, WCS was granted a license amendment that allows disposal of bulk uranium."

   Comment: For clarification, suggest striking this sentence and replace with:

   In May 2013, WCS was granted a license amendment that authorized disposal of bulk low-level radioactive waste and in August 2014, WCS was granted a license amendment that authorized disposal of depleted uranium in its original metal canister.

1

2. **Page 2-17, last paragraph states** "The Federal Waste Disposal Facility is licensed through September 2024, with provision for 10-year renewals thereafter under Texas Commission on Environmental Quality (TCEQ) Radioactive Material License CN60061689."

   Comment: The number CN60061689 represents the customer number, a TCEQ-distinct regulatory identification number for compliance purposes. The Radioactive Material License number is R04100.

2

3. **Page 2-56, third paragraph, states** "This section summarizes the cumulative impacts of activities at Paducah and Portsmouth, disposal of DU oxide and other wastes at the Energy*Solutions*, NNSS, and WSC disposal sites, and nationwide impacts from transportation and on climate change."

   Comment: The acronym WSC should be WCS.

3

4. **Pages 3-58, last paragraph, states** "Groundwater occurs in two principal aquifer systems in the vicinity of the WCS site: the High Plains Aquifer and the Dockum Aquifer (DOE 2011). The High Plains Aquifer of west Texas, the principal aquifer in west Texas, consists of water bearing units within the Tertiary Ogallala Formation and underlying Cretaceous rocks. The Ogallala Formation, if present, is not water bearing in the WCS-permitted area. The Cretaceous Antlers Formation has been identified in the subsurface immediately below the WCS site; however, it is unsaturated but for a few isolated perched lenses. The shallowest water-bearing zone is about 225 feet (69 meters) deep at the site. The nearest downgradient drinking water well is approximately 6.5 miles (10 kilometers) to the east of the site (WCS 2016a)."

   Comment: Suggest striking "The Ogallala Formation, if present, is not water bearing in the WCS-permitted area. The Cretaceous Antlers Formation has been identified in the subsurface immediately below the WCS site; however, it is unsaturated but for a few isolated perched lenses. The shallowest water-bearing zone is about 225 feet (69 meters) deep at the site." Replace with:

   "On the WCS site, the formations that comprise the High Plains Aquifer consists of the Ogallala-Antlers-Gatuna (OAG) unit, which includes the Antlers and Gatuna formations as well as the Ogallala. The OAG unit is not water bearing in the WCS licensed area. Groundwater, when present, is monitored in several transmissive zones: the Ogallala-Antlers-Gatuna unit, the 125-foot zone (dry), the 180-foot zone, and the 225-foot zone.

4

Comment 5

The 225-foot zone of the Dockum Group is considered the uppermost regulated groundwater zone at WCS."

5. **Page 4-75, fourth full paragraph, states "Table 4-44** shows the waste volumes and percent of disposal capacity under the Disposal of Waste at Waste Control Specialists Alternative. As shown in Table 4-43, delivery of all DU oxide to WCS would represent about 40 percent of the disposal capacity of the FWF. In addition, if DU oxide were disposed of in bulk bags, it would result in a similar disposal volume as DU oxide in cylinders, and therefore similar impacts on the capacity of the disposal facility. The volume-reduced empty and heel cylinders generated as a result of disposal of DU oxide in bulk bags would generate an additional waste stream estimated at 38,600 cubic yards or 4 percent of disposal capacity at WCS."

5

Comment: At the beginning of the second sentence, suggest striking "As shown in Table 4-43" or revise to read "As shown in Table 4-44."

Comment 6

From: Christine Andres
To: DUF6_NEPA
Subject: [EXTERNAL] Request for Documents Letter
Date: Monday, February 11, 2019 3:09:16 PM
Attachments: image002.png
image011.png
DUF 6 Draft SEIS Document Request.docx

Hello Ms. Ferrer-Torres,

Attached please find a letter requesting two documents that are heavily referenced in the Portsmouth and Paducah Depleted Uranium Hexafluoride SEIS but not accessible on the WWW. These documents would greatly aid in our review of the current document.

Thank you,

Chris

Christine D. Andres
Chief
Bureau of Federal Facilities
Nevada Division of Environmental Protection
Department of Conservation and Natural Resources
2030 E. Flamingo Road, Suite 230
Las Vegas, NV 89119
candres@ndep.nv.gov
(O) 702-486-2850, ext. 232

Comment 6

NEVADA DIVISION OF
ENVIRONMENTAL
PROTECTION

STATE OF NEVADA
Department of Conservation & Natural Resources
Steve Sisolak, *Governor*
Bradley Crowell, *Director*
Greg Lovato, *Administrator*

February 11, 2019

Ms. Jaffet Ferrer-Torres
Document Manager
Office of Environmental Management
U.S. Department of Energy
1000 Independence Avenue S.W.
Washington, DC 20585

RE: Request for Referenced Material in the Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride (Draft DU Oxide SEIS)

Dear Ms. Ferrer-Torres:

The Nevada Division of Environmental Protection (NDEP) is currently reviewing the *Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride (Draft DU Oxide SEIS)* and will submit Agency comments on or before the extended review period deadline of March 4, 2019. However, during the current review, the following documents have been found to be heavily referenced yet they are not available for public viewing on the World Wide Web (WWW). To aid in the NDEP's review of the Draft SU Oxide SEIS, please accept this letter as a request for access to the following documents in order that they may be reviewed in conjunction with the Draft DU Oxide SEIS during the current comment period:

1

1. PPPO (Portsmouth/Paducah Project Office) 2018, Data Call for Depleted Uranium (DU) Oxide Disposal Supplemental Environmental Impact Statement (SEIS). This reference is listed as "Official Use Only/Predecisional Draft" in the Draft SU Oxide SEIS yet is cited throughout the Draft SU Oxide SEIS extensively.

2. DOE (U.S. Department of Energy) 1999, Final Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride, DOE/EIS-0269, Office of Nuclear Energy, Science and Technology, April, 1999. While the Summary of this document is available on the WWW, in attempting to access the full document, a message of the document being a "Secure NEPA Document" was received and access to the document was denied. Again, this document is referenced extensively in the Draft SU Oxide SEIS and appears to provide much background for decisions that were made in 1999 and have been carried through to the present time.

3. Any documentation that specifically describes any risk calculations that were performed, along with the underlying assumptions and parameters that were used, to arrive at the conclusions presented in the Draft DU Oxide SEIS.

Comment 6

Should you have any questions on Nevada's current request, wish to discuss further, or cannot accommodate this request at this time, please do not hesitate to contact me at either (702) 426-2850, ext. 232 or candres@ndep.nv.gov. Thank you for your consideration of Nevada's request for these referenced resources.

Sincerely,

Christ Andres

Christine D. Andres
Chief
Bureau of Federal Facilities
Nevada Division of Environmental Protection

2030 E. Flamingo Road, Suite 230 • Las Vegas, Nevada 89119 • p: 702.486.2850 • f: 702.486.2863 • ndep.nv.gov

Comment 7

Ferrer-Torres, Jaffet

From:	Romero, Veronica <Veronica.Romero@urenco.com>
Sent:	Monday, March 04, 2019 2:17 PM
To:	DUF6_NEPA
Cc:	Licensing UUSA
Subject:	[EXTERNAL] UUSA Comments on Department of Energy's DOE's Draft SEIS
Attachments:	LES-19-036-DOE UUSA Comments on Department of Energy's DOE's Draft SEIS.pdf

Please see the attached comments, UUSA Comments on Department of Energy's DOE's Draft SEIS.

Thanks,

Veronica Romero
Licensing

URENCO USA
PO Box 1789
Eunice NM, 88240

Tel: 575.394.6672
Email: veronica.romero@urenco.com

1

Comment 7

LES-19-036-DOE

Submitted via Email to *DUF6_NEPA@em.doe.gov*

03/04/2019

Attn: Ms. Jaffet Ferrer-Torres
Document Manager, Office of Environmental Management
Department of Energy, EM–4.22
1000 Independence Avenue SW
Washington, DC 20585

Subject: URENCO USA Comments on Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride

1 Appendix C of the Draft Supplemental Environmental Impact Statement – Depleted Uranium Oxide analyzes the management of an additional 150,000 metric tons (approximately 12,500 cylinders) of commercial DUF6. The SEIS assumed that the entire mass of commercial DUF6 (150,000 metric tons) could be managed at Paducah or Portsmouth.

In the event a Licensee extends the term of their operating license, therefore increasing the amount of DUF6 for disposal to exceed 150,000 metric tons, does the DOE intend to re-analyze the impacts of commercial DUF6 management to adjust for the increased quantities?

UUSA appreciates the DOE's efforts and the opportunity to comment on the draft Supplemental Environmental Impact Statement. If you have any questions, please contact Rick Medina, Acting Licensing and Performance Assessment Manager, at 575-394-5846.

Respectfully,

Stephen Cowne

Chief Nuclear Officer and Compliance Manager

LES,PO Box 1789, Eunice, New Mexico 88231,USA T: +1 575 394 4646 F: +1 575 394 4545 W: www.urenco.com/LES

Comment 8

Ferrer-Torres, Jaffet

From:	Aldridge, Louanna C (EEC) <Louanna.Aldridge@ky.gov>
Sent:	Monday, March 04, 2019 4:31 PM
To:	DUF6_NEPA
Cc:	Alteri, Sean O (EEC); Hatton, Tony R (EEC); Begley, Brian (EEC); Maybriar, Jon (EEC); Webb, April (EEC); Scott, R. Bruce (EEC)
Subject:	KY DEP Comments on Draft SEIS for Depleted Uranium Disposition
Attachments:	Comments DEP.docx
Importance:	High

Please find comments attached from the Kentucky Department of Environmental Protection on the "Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride". Please feel free to contact me with any questions.

Louanna C. Aldridge
Staff Assistant
Office of the Commissioner
Department for Environmental Protection
Energy and Environment Cabinet
502-782-0863

1

Comment 8

MATTHEW G. BEVIN
GOVERNOR

CHARLES G. SNAVELY
SECRETARY

ANTHONY R. HATTON
COMMISSIONER

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601
TELEPHONE: 502-564-2150
TELEFAX: 502-564-4245

February 8, 2019

Ms. Tracey Duncan
US Department of Energy
Portsmouth/Paducah Project Site Office
5501 Hobbs Road
Paducah, Kentucky 42053

RE: **Kentucky Division of Waste Management Comments on the Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride (DOE/EIS-0360-S1)**
Paducah Gaseous Diffusion Plant
Paducah, McCracken County, Kentucky
KY8-890-008-982

Ms. Duncan:

The Kentucky Division of Waste Management (Division) has completed review of the abovementioned document submitted on December 19, 2018. Kentucky's comments are included as an attachment.

If you have any questions or require additional information, please contact Leo W. Williamson at (270) 898-6478, or e-mail at leo.williamson@ky.gov.

Sincerely,

April J. Webb, P.E., Manager
Hazardous Waste Branch

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Page 2 of 5
February 8, 2019

AJW/bb/lww

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DWM File: #1190-B; Graybar: ARM20040004

Attachment: Kentucky Comments

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Kentucky Division of Waste Management Comments Pertaining to the

Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride

Paducah Gaseous Diffusion Plant,

Paducah, Kentucky

(DOE/EIS-0360-S1)

General Comments

1 **1** The total transportation risks for moving waste containers from Portsmouth and Paducah to Energy*Solutions* are presented in Tables 4-17 to 4-22; to the Nevada National Security Site in Tables 4-27 to 4-32 and to Waste Control Specialists in Tables 4-37 to 4-40. These tables contain quite detailed calculations comparing risks for truck and rail transportation over the project timeframe. Based on a comparison of the number of shipments, dose for crew members and public, accident risk and traffic fatalities, the rail transportation option (if applicable) seems to present the least overall risk.

2 **2** Please insure that all referenced hypertext links in the document are functional.

Specific Comments

1) Public and Occupational Safety and Health Under Accident Conditions, Page 4-12, 2nd Paragraph

3 "……..but DU oxide stored in 55-gallon (208-liter) drums would be protected from the elements by storing the drums in intermodal containers (BWXT 2016b)." Is this the most cost-effective and logistically efficient way to store the drums? Standard intermodal containers are 8 feet wide, 8.5 feet high and are either 20 or 40 feet long. Which size is being considered and how many drums can effectively and safely be stored in each intermodal? Is there a calculation of how many intermodals may be required? Since these drums could remain in long-term storage of up to 100 years, is this the most efficient and cost-effective storage solution? How would the intermodals be situated for loading/unloading access, rainwater drainage and inspection events? Would an overarching protective structure be less expensive, more accessible and safer than the intermodal storage option? As a note, the underside of an overarching structure could be equipped with fire detection/suppression devices, gas monitors or security cameras, for example. Additionally, rainwater runoff could also be controlled and would not contribute to the degradation of the storage containers. Drums could also be vertically stored (in concrete saddles or equivalent), which would add to storage density without affecting loading or inspection access.

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2) Public and Occupational Safety and Health – Intentional Destructive Act Scenarios, Page 4-15, 3rd Sentence

"However, should an intentional destructive act occur, the consequences of the accident scenarios…….would either bound or be comparable to the consequences from the act." The reviewer believes this is an overly optimistic assessment of human destructive capabilities as well as the statement that the DU oxide is not an attractive target. An intentional, destructive act could be orders of magnitude greater than the relatively small accidents (on the order of kilograms) that have occurred historically. This section should address security measures to be implemented over the storage timeframe for the DU oxide stated to end in 2110. 4

3) Public and Occupational Safety and Health – Intentional Destructive Acts, Page 4-38 5

This section, and comments to it, are similar to Comment #3.

4) Table 5-1, Page 5-7, 3rd Row:

The third row / fourth column of Table 5-1, Groundwater Protection Plan, states that "A groundwater protection plan has been developed and implemented for the Paducah Site". The *Groundwater Protection Plan for the Paducah Gaseous Diffusion Plant*, listed in Section 6 – References, Page 6-11, document code PAD-PROJ-0018/R2, states that it is a 2015 LATA document. The Division's records indicate that the cover letter for document code PAD-PROJ-0018/FR2 is dated July 23, 2018 and is a Four Rivers Nuclear Partnership document. Please reference the correct (and likely the most recent) document in both Table 5-1 and Section 6 - References. 6

5) Appendix B, Section B.6.1, Page B-15, Fourth Paragraph

"Based on the radionuclide concentrations shown in Table B-3, a dose rate of 1 millirem per hour at 1 meter (3.3 feet) was assigned to packages containing DU oxides. This is a conservative dose rate assumption based on a maximum dose rate of 2 millirems per hour, at a 30-centimeter (1-foot) distance from the surface of the DU oxide cylinder (PPPO 2016)."

a. The citation, PPPO 2016, was not found in the reference section at the end of Appendix B but was found elsewhere in the document, PPPO (Portsmouth / Paducah Project Office) 2016, "Portsmouth Waste Disposal," at http://energy.gov/pppo/portsmouth-waste-disposal (accessed November 15, 2016). When access was attempted the reviewer received an "Access Denied: You are not authorized to access this page." message. It is difficult to check the given dose rate for accuracy or understand how it was determined if the supporting document is not publicly available. 7

b. Furthermore, the dose rate is called an assumption instead of an estimate. Was there no effort to quantify the dose?

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8

6) **Appendix B, Section B.7.3, Page B-20, Next-to-Last Paragraph**

"The release fractions used are those reported in NUREG-0170 (NRC 1997) for both LSA drums and NRC Type A packages. It is assumed that for the higher severity categories all materials within the cylinders involved in an accident would be released and 1 percent of these materials would be aerosolized in all accidents with 5 percent of the aerosolized particles being in the respirable size range (NRC 1977; DOE 2002b). These assumptions are driven by the nature of the DU oxide which is a powder-like material."

a. This discussion needs to be expanded to provide the reader with some assurance that the "assumptions" used are indeed conservative.

b. There is no NRC 1997 in the reference section.

c. Please define what is meant by "respirable size range".

d. The link provided for DOE 2002b is not accessible.

e. A particle size distribution analysis should be performed on the DU oxide with size range presented in micrometers.

- - End of Kentucky Division of Waste Management Comments - -

Comment 9

Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride

The U.S. Department of Energy (DOE) Office of Environmental Management welcomes ideas, comments or concerns from the public. The comments can be provided through web-based forum announced in the *Federal Register* Notice of Availability, mail or email. Comments on the Draft Supplemental Environmental Impact Statement (SEIS) will be accepted during the public comment period, beginning on the day the draft is made available to the public. Comments submitted during this public comment period will be considered in preparation of the Final SEIS and used by DOE in its decision-making process for the Proposed Action. DOE will consider late comments to the extent practicable. Please summarize your idea or concern in the space below:

The opportunity to comment on the "Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride" is appreciated.

Two comments concerning "Appendix B: Evaluation of the human health effects of transportation" follow.

1. The following appears on page B-15 in the fourth paragraph of Section B.6.1, "Based on the radionuclide concentrations shown in Table B-3, a dose rate of 1 millirem per hour at 1 meter (3.3 feet) was assigned to packages containing DU oxides. This is a conservative dose rate assumption based on a maximum dose rate of 2-millirem per hour, at a 30-centimeter (1-foot) distance from the surface of the DU oxide cylinder (PPPO 2016)."

1 a. The citation, PPPO 2016, was not found in the reference section at the end of Appendix B but was found elsewhere in the document, PPPO (Portsmouth/Paducah Project Office) 2016, "Portsmouth Waste Disposal," at http://energy.gov/pppo/portsmouth-waste-disposal (accessed November 15, 2016). When access was attempted the reviewer received an "Access Denied. You are not authorized to access this page." message. It is difficult to check the given dose rate for accuracy or understand how it was determined if the supporting document is not publicly available.

b. Furthermore, the dose rate is called an assumption instead of an estimate. Was there no effort to quantify the dose?

2. The following appears on page B-20 in the next to the last paragraph of Section B.7.3, "The release fractions used are those reported in NUREG-0170 (NRC 1997) for both LSA drums and NRC Type A packages. It is assumed that for the higher severity categories all materials within the cylinders involved in an accident would be released and 1 percent of these materials would be aerosolized in all accidents with 5 percent of the aerosolized particles being in the respirable size range (NRC 1977; DOE 2002b). These assumptions are driven by the nature of the DU oxide which is a powder-like material."

2 a. This discussion needs to be expanded to provide the reader with some assurance that the "assumptions" used are indeed conservative.

b. There is no NRC 1997 in the reference section.

c. Please define what is meant by "respirable size range".

d. The link provided for DOE 2002b does not work.

e. A particle size distribution analysis should be performed on the DU oxide with size range presented in micrometers.

Name: Jeri W. Higginbotham email: jeri.higginbotham@ky.gov

Address: Department for Environmental Protection
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Frankfort, KY 40601

All submissions, including name, address, and email, will be included in the public record and open to public inspection in their entirety. Any person wishing to have his/her name, address, or other identifying information withheld from the public record of comment documents must state this request prominently at the beginning of any comment document. Comment documents will be shared once Final SEIS is made publicly available.

Mail form to:

Ms. Jaffet Ferrer-Torres, Document Manager
Office of Environmental Management
Department of Energy, EM-4.22
1000 Independence Avenue SW, Washington, D.C. 20585

Email form to:

DUF6_NEPA@em.doe.gov

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Ferrer-Torres, Jaffet

From:	Christine Andres <CANDRES@ndep.nv.gov>
Sent:	Monday, March 04, 2019 6:59 PM
To:	DUF6_NEPA
Cc:	Bradley Crowell; Greg Lovato; 'goforth.kathleen@EPA.gov'
Subject:	[EXTERNAL] Nevada's DCNR-DEP Final DUF 6 Comments on DOE's Draft DU Oxide SEIS
Attachments:	Nevada's DCNR-DEP Final DUF 6 Draft DU Oxide SEIS Document Comments.docx

Dear Ms. Ferrer-Torres,

Attached please find Nevada's Comments on the DOE's Draft DUF 6 DU Oxide SEIS. As stated in the letter, if you have any questions, please do hesitate to contact me.

Thank you,
Chris

Christine D. Andres
Chief
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Nevada Division of Environmental Protection
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NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

Nevada Department of CONSERVATION & NATURAL RESOURCES
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NEVADA DIVISION OF
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STATE OF NEVADA
Department of Conservation & Natural Resources
Steve Sisolak, *Governor*
Bradley Crowell, *Director*
Greg Lovato, *Administrator*

March 4, 2019

Ms. Jaffet Ferrer-Torres
Document Manager
Office of Environmental Management
U.S. Department of Energy
1000 Independence Avenue S.W.
Washington, DC 20585

RE: Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride (Draft DU Oxide SEIS), September 2018

Dear Ms. Ferrer-Torres:

The Nevada Division of Environmental Protection (NDEP) provides herein comments on the Department of Energy's Office of Environmental Management's *Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride* (Draft DU Oxide SEIS), *September 2018*.

General Comments:

1. **The State of Nevada does not support transporting the conversion product of DU oxide to EnergySolutions, Waste Control Specialists or the Nevada National Security Site, because there are far less potential adverse environmental impacts under the No Action Alternative.**

1

Information presented in Tables 2-1 and 2-5 and Section 2.4.3, Waste Disposal Facilities and Transportation, of the Draft DU Oxide SEIS and information presented in the *Final Programmatic EIS for Alternative Strategies for the Long Term Management and Use of Depleted Uranium Hexafluouride (*PEIS) Summary show there are far less potential environmental impacts in regards to transportation under the No Action Alternative than any of the three Action Alternatives.

The cover sheet for the Draft DU Oxide SEIS states:

> "Under the Action Alternatives and the No Action Alternative, container storage, maintenance, and handling activities would occur within the industrialized areas of Paducah and Portsmouth; there would be no construction or ground disturbance, minor employment, minor utility use, and no routine releases of DU oxide or other hazardous materials. Therefore, potential impacts on site infrastructure; air quality and noise; geology and soils; water resources; biotic resources; public and occupational health and safety

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> (during normal operations, accidents, and transportation); socioeconomics; waste management; land use and aesthetics; cultural resources; and environmental justice at Paducah and Portsmouth would be expected to be minor. A potential release of DU oxide from a container breach would be expected to result in uranium concentrations below benchmark levels, and therefore would have minimal impacts on soils, surface and groundwater quality, biotic resources, and human health."

Section 2.2.1 of the Draft DU Oxide SEIS also states:

> "Under the No Action Alternative, DOE would ensure the continued safe storage of the DU oxide containers for as long as they remain in storage by providing site security, and by monitoring and inspecting the storage yards and containers in accordance with the Cylinder Surveillance and Maintenance Plan (MCS 2017) described in Section 2.1.3. The surveillance and maintenance activities include routine surveillance and maintenance of the cylinder yards, container inspections, and repair or replacement of corroded or damaged storage cylinders."

1 cont.

DOE's continual Cylinder Surveillance and Maintenance Plan ensures the cylinders are monitored and maintained and as such, there are no reasons or benefits to moving approximately 69,000 cylinders of DU oxide across the country.

2. Because the Draft DU Oxide SEIS relies on prior EIS documents that were not provided to Nevada for review previously, Nevada was not afforded the opportunity to review the analysis and information as required by 40 CFR 1503.1(a)(2)(i)..

Because the DOE's Depleted Uranium Hexafluoride / Depleted Uranium Oxide Program (Program) has spanned at least the past twenty (20) years, beginning even before the publication of the PEIS, Nevada has not been able to complete a thorough review of all information relevant to and referenced in the current Draft DU Oxide SEIS within the time provided.

2

As the environmental agency of a state that could be affected by any decision DOE ultimately announces in regards to the management of Program materials/wastes, NDEP should have been afforded the opportunity to review and comment on earlier draft documents that are relied on by the current Draft DU Oxide SEIS, as required by 40 CFR 1503.1(a)(2)(i).

DOE's reliance on tiering as provided for under 40 CFR 1502.20 should not prevent an affected state from reviewing or commenting on matters previously discussed, since the state was not notified and did not have adequate opportunity to comment on the matter in the first instance.

Nevada notes that the following questions or comments are submitted on the Draft DU Oxide SEIS although they may or may not have been adequately addressed in earlier documents. If DOE indicates that the questions are outside the scope of the current Draft DU Oxide SEIS it must reference specifically where these matters were addressed in prior documents.

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Specific Comments:

3. Access to heavily-referenced documents should be available and additional adequate time should be granted for their review(s).

A. One specific document which is cited in every document reviewed by NDEP in order to gain a context for review of the Draft DU Oxide SEIS is the PEIS. While the *Final Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride – Summary*, April 23, 1999 was reviewed, attempts to access the entire PEIS on the World Wide Web were met with a message that the document is considered a "Secure NEPA Document" and could not be accessed. A request for this document was emailed on February 11, 2019 and the document was received, via email on February 14, 2019. Every attempt was made to review the rather large file by the review deadline but some of the answers to comments/questions below may indeed be contained in the full PEIS.

3

B. A second specific document that is cited throughout the Draft SU Oxide SEIS extensively is the *PPPO (Portsmouth/Paducah Project Office) 2018, Data Call for Depleted Uranium (DU) Oxide Disposal Supplemental Environmental Impact Statement* (SEIS). In the reference section of the Draft DU Oxide SEIS, this reference is listed as "Official Use Only/Predecisional Draft." A request for this document was emailed on February 11, 2019 and, while appreciated, the files were received, via email, on March 1, 2019. If decisions are ultimately going to be made based on information in this document, reviewers of the Draft DU Oxide SEIS should be able to access and have adequate time to review it.

In order to allow time to fully review these two documents any decision on the Draft DU Oxide SEIS should be postponed until the end of a reasonable review and comment period granted for the review of these documents.

4. There has been no readily-apparent or accessible documentation of any analyses performed to determine that the Uranium Hexafluoride / Depleted Uranium Oxide cannot be beneficially reused and must be disposed of off-site.

The *Record of Decision for Long-Term Management and Use of Depleted Uranium Hexafluoride*, August 10, 1999 (1999 ROD) states that DOE's preferred alternative in the Draft PEIS:

4

> "…was to begin to convert the depleted UF_6 inventory to uranium oxide or depleted uranium metal only as uses for the material became available. Several reviewers expressed a desire for DOE to start conversion as soon as possible. After consideration of the comments, DOE revised the preferred alternative in the Final PEIS to call for the prompt conversion of the material to depleted uranium oxide, depleted uranium metal, or a combination of both and long-term storage of that portion of the depleted uranium oxide that cannot be put to immediate use. … DOE expects that in the future, uses would be found for some portion of the converted material. … DOE plans to continue its support for the development of Government applications for depleted uranium products and to

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> continue the safe management of its depleted uranium inventory as long as such inventory remains in storage prior to total conversion."

While the potential disposal of depleted uranium in its various forms was mentioned throughout the PEIS Summary, disposal was not mentioned in DOE's preferred alternative stated in the Abstract of the PEIS Summary document nor the 1999 ROD.

With respect to disposal, both the *Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Paducah, Kentucky, Site – Summary*, June 2004 (EIS) and the *Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Portsmouth, Ohio, Site – Summary,* June 2004 (EIS) state the two EISs evaluated:

> "the impacts from packaging, handling, and transporting depleted uranium conversion products from the conversion facility to a LLW disposal facility that would be (1) selected in a manner consistent with DOE policies and orders and (2) authorized or licensed to receive the conversion products by DOE (in conformance with DOE orders), the NRC (in conformance with NRC regulations), or an NRC Agreement State agency (in conformance with state laws and regulations determined to be equivalent to NRC regulations). Assessment of the impacts and risks from on-site handling and disposal at the LLW disposal facility is deferred to the disposal site's site-specific NEPA or licensing documents. However, this EIS covers the impacts from transporting the DUF6 conversion products to both the Envirocare of Utah, Inc., facility and the NTS. DOE plans to decide the specific disposal location(s) for the depleted U_3O_8 conversion product after additional appropriate NEPA review. Accordingly, DOE will continue to evaluate its disposal options and will consider any further information or comments relevant to that decision. DOE will give a minimum 45-day notice before making the specific disposal decision and will provide any supplemental NEPA analysis for public review and comment."

4 cont.

While each EIS does evaluate the impacts from packaging, handling, and transporting depleted uranium conversion products from the conversion facility to a LLW disposal facility, the Preferrered Alternative selected in each EIS was to construct and operate the proposed DUF_6 conversion facility at alternative Location A for both the Paducah and Portsmouth sites. Nothing was mentioned in regards to a final disposal of the conversion product.

While the full document has not yet been reviewed in its entirety, Section 1.5, **DOE DUF_6 Management Program**, of the *Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Portsmouth, Ohio, Site, Volume 1: Main Text and Appendixes A–H, June 2004* states:

> "DOE is committed to exploring the safe, beneficial use of depleted uranium and other materials that result from the conversion of DUF6 (e.g., HF and empty carbon steel cylinders) in order to conserve more resources and increase savings over levels achieved through disposal. Accordingly, a DOE research and development (R&D) program on uses for depleted uranium has been initiated. This program is exploring the risks and benefits associated with several uses for depleted uranium, such as a radiation shielding material, a catalyst, and a semiconductor material in electronic devices."

The *Record of Decision for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Paducah, Kentucky, Site*, July 2004 and the *Record of Decision for*

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Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Portsmouth, Ohio, Site, July 2004 (2004 RODs) both state that "DOE has decided to implement the actions described in the preferred alternative from the FEIS at Location A." In part, this decision also included the following action: "The depleted U_3O_8 conversion product will be reused to the extent possible or packaged for disposal in emptied cylinders at an appropriate disposal facility."

The cover sheet from the Draft DU Oxide SEIS states that DOE decided in the 2004 RODs:

> "…that the DU oxide conversion product would be reused to the extent possible or packaged in empty and heel cylinders for disposal at an appropriate disposal facility. Emptied cylinders would also be disposed of at an appropriate facility." and "The purpose and need for this action is to identify and analyze alternatives for the disposition of DU oxide. If a beneficial use cannot be found for the DU oxide, all or a portion of the inventory may need to be disposed of. The proposed scope of this DU Oxide SEIS includes an analysis of the potential impacts from three Action Alternatives and a No Action Alternative (in accordance with 40 CFR 1502.14). Under the Action Alternatives, DU oxide would be disposed of at one or more of the three disposal facilities: (1) the Energy Solutions LLC site near Clive, Utah; (2) the Nevada National Security Site (NNSS) in Nye County, Nevada; and (3) the Waste Control Specialists, LLC (WCS) site near Andrews, Texas. Under the No Action Alternative, transportation and disposal would not occur, and DU oxide containers would remain in storage at Paducah and Portsmouth. All other aspects of the DUF6 conversion activities remain as described previously in the 2004 EISs and RODs and are not within the scope of this DU Oxide SEIS."

4 cont.

Section 1.3 of the Draft DU Oxide SEIS states:

> "If a beneficial use cannot be found for the SU oxide, all or a portion of the inventory may be characterized as waste and need to be disposed of."

a. What analyses have been done since the issuance of the 2004 EISs and RODs to determine the depleted U_3O_8 conversion product cannot be reused?
b. What processes and steps were taken for determining which beneficial use options either do or do not exist for material now proposed to be disposed of as a waste?

5

c. Environmental impacts of beneficial use options should be analyzed as a reasonable alternative to alternatives that involve managing the material as a waste.

6

d. What is the supporting reasoning and rationale for why the conversion product needs to be transported from the generating sites and disposed of off-site?

7

5. The 2004 EISs address the construction and operation of DUF_6 conversion facilities. **How has the effectiveness and consistency of the actual conversion process been measured and documented to ensure the conversion process is consistent and the conversion product is stable and that any hazard characteristics of the converted DU are known and documented?**

8

6. a. What criteria are used to make the determination as to whether used cylinders or bulk bags will be used to contain the conversion product?
b. Who will make this decision and when will it be made?

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7. Section S.6 of the Draft DU Oxide SEIS Summary states:

> "In accordance with guidance at 10 CFR 1021.311(f), no scoping process was conducted for this DU Oxide SEIS because the scope of this SEIS is not appreciably different from the 2004 EISs; hence, DOE determined that a scoping period was not needed."

9 However, 40 CFR 1502.19(a) requires states be provided copies of EISs. It has been stated throughout NEPA documents related to the Program that the reason DOE did not make its disposal decision at the time of issuance of the 2004 RODs for construction and operation of the two DUF_6 conversion facilities is that it discovered that it had, through an oversight, not served copies of the draft and final site-specific EISs to the States of Utah, home of EnergySolutions, and Nevada, home of NNSS, as required in 40 CFR 1502.19. Because Nevada never received the 2004 EIS, it never had the opportunity to request a public scoping process and likely would have done so to discuss the option of disposal at the generation site since.

Section 2.3.2 of the Draft DU Oxide EIS states:

> "Disposal of DU oxide as LLW on site at Paducah or Portsmouth would require site-specific studies and technical analyses to identify suitable on-site disposal locations and to develop design, construction, and operational parameters for the proposed disposal units to ensure that releases of radionuclides to the environment, particularly radon isotopes, and impacts on members of the public would be maintained within regulatory-prescribed limits for potentially thousands of years following disposal. Several years could be required to complete the required studies and analyses, as well as the processes for regulatory review and permitting before construction could begin. Because of uncertainties about the timing for availability of on-site disposal capacity specifically for DU oxide, and the expected
10 availability of disposal capacity at the three off-site disposal facilities evaluated in this DU Oxide SEIS (see Section 2.4), on-site disposal for DU oxide is eliminated from detailed analysis in this DU Oxide SEIS."

As stated earlier in this letter, this Program has been in existence for at least the past 20 years. Site-specific studies and technical analyses at each of the generating sites to locate suitable on-disposal locations and then construct them could have been accomplished during the last two decades. The availability of off-site disposal facilities should not automatically negate the DOE doing their due diligence in determining if on-site disposal is indeed technically possible.

Why has on-site disposal not been considered as an option for the conversion product?

11 **8. What, if any, are the limitations EnergySolutions or WCS may have on accepting any of the conversion products deemed wastes?**

12 **9. As required by 40 CFR 1502.24, documentation that specifically describes any risk calculations that were performed, along with the underlying assumptions and parameters that were used, to arrive at the conclusions presented in the Draft DU Oxide SEIS should be made available for review.**

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13 **10. a. What will trigger the start of any shipping campaign?**
b. Will it start immediately after the ROD for the Final DU Oxide is issued or after conversion of the defense and/or commercial DU is complete?

14 **11. a. What is the basis for assuming the conversion process for commercial DUF_6 in Appendix C is going to be same as the conversion process for defense DUF_6?**
b. How will the effectiveness and consistency of the actual conversion process for commercial DUF_6 be measured and documented to ensure the conversion process is consistent and the conversion product is stable that any hazard characteristics of the converted DU are known and documented?

15 **12. What are the physical and radiological characteristics of the following and how do each of the waste streams compare to that analyzed in the 2013 Site-wide EIS for the NNSS and the current NNSS Waste Acceptance Criteria?**

a. Converted DOE DU
b. Converted commercial DU
c. Heel material (and stability) both commercial and DOE
d. "off-normal" event material stored in up to 585 55-gallon drums, both commercial and DOE
e. Any other waste streams envisioned in the Draft SEIS

Should you have any questions on Nevada's comments or wish to discuss further, please do not hesitate to contact me at either (702) 426-2850, ext. 232 or candres@ndep.nv.gov.

Sincerely,

Christine D. Andres
Chief
Bureau of Federal Facilities
Nevada Division of Environmental Protection

ec: Kathleen Goforth (ENF-4-2), Manager, Environmental Review Section, US EPA Region 9, San Francisco, CA 94105 – Goforth.kathleen@EPA.gov
Bradley Crowell, Director, Nevada Department of Conservation and Natural Resources, Carson City, NV – bcrowell@dcnr.nv.gov
Greg Lovato, Administrator, Nevada Division of Environmental Protection, Carson City, NV
Carolyn Levering - clevering@lasvegasnevada.gov – glovato@ndep.nv.gov
Darrell Lacy - llacy@co.nye.nv.us
Richard Arnold - Richard.Arnold@nnsa.doe.gov; rwarnold@hotmail.com
Phil Klevorick – KLEVORICK@ClarkCountyNV.gov

2030 E. Flamingo Road, Suite 230 • Las Vegas, Nevada 89119 • p: 702.486.2850 • f: 702.486.2863 • ndep.nv.gov

Comment 11

WASTE CONTROL SPECIALISTS

March 1, 2019 **VIA EMAIL**

Ms. Jaffet Ferrer-Torres
Office of Environmental Management
U.S. Department of Energy
Office of Environmental Management
Office of Waste and Materials Management (EM-4.2)
1000 Independence Avenue SW
Washington, DC. 20585

Subject: **WCS' Comments on the Department of Energy's Draft Supplemental Environmental Impact Statement for disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride (DOE/EIS-0359-S1; DOE/EIS-0360-S1).**

Dear Ms. Ferrer-Torres,

Waste Control Specialists (WCS) is pleased to provide comments to the Department of Energy (DOE) on their Draft Supplemental Environmental Impact Statement (SEIS) on the disposition of Depleted Uranium Oxide (DU oxide) Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride (draft SIES) (DOE/EIS-0359-S1; DOE/EIS-0360-S1).

1 WCS operates one of the most robust and technologically superior Low-Level Radioactive Waste disposal facilities in the United States, and due to the superior geology and performance of our site WCS was able to demonstrate safe and compliant disposal through a license amendment request and aided by a radiological performance assessment that 400,000 cubic meters of DOE DU, including the DU oxide from the draft SEIS, could be disposed of at WCS. The amendment request authorizing the disposal of large quantities of DU was approved in Radioactive Materials License R04100 in amendment 26 on August 28, 2014. Since the approval of amendment 26, WCS has continued to work at constantly improving our facilities and processes as better information and technology has come available. Furthermore, we have continued to demonstrate that large quantities of DU can be disposed of in our robust, arid, and technologically advanced disposal facilities in a manner that is both compliant and safe to Human Health and the Environment based on our latest updated performance assessment submitted to the State of Texas in 2018.

2 In addition to the robustness and advantages of our facilities as outlined in the DOE's Draft SEIS WCS is the closest alternative facility listed which also represents the lowest possible risk to the

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Waste Control Specialists LLC
17101 Preston Road
Dallas, TX 75240
P. 682-503-0030
F. 214-853-5720

Facility
Waste Control Specialists LLC
P.O. Box 1129
Andrews, TX 79714
P. 432-525-8500
F. 432-203-2359

Comment 11

2 cont. public and the waste transporters for the proposed DU oxide as comparted with all of the other listed alternative facilities. Which means that along with WCS advantages as a superior disposal option we also offer the lowest potential risk from the transportation perspective of the DU oxide to WCS.

3 WCS believes that compared to the other listed alternatives we provide the best option for the disposal of all of the DOE's DU oxide.

4 In summary WCS is currently authorized to dispose of Large Quantities of DU and has demonstrated that disposal of this waste can be done safely and compliantly. WCS provides the lowest risk as compared to other listed alternative facilities in the Draft SEIS for the transportation of the DU oxide. WCS' commitment to offering superior disposal options, unparalleled customer service and our focus on the protection of Human Health and the Environment makes WCS the best solution to the DOE's alternative disposal needs.

WCS requests a copy of all correspondence regarding this matter be directly emailed to my attention (cshaw@wcstexas.com). If you have any questions or need additional information, please call me at (682) 503-0030.

Sincerely,

Chris Shaw, M.S. CHP, RRPT
Licensing Manager & Corporate RSO

Cc:
Dave Carlson, WCS
Jay Britten, WCS
Ryan Williams, WCS
Jay Cartwright, WCS
Gregory G. DiCarlo, WCS
WCS Regulatory Compliance

Comment 12

Ferrer-Torres, Jaffet

From:	Lewis Lacy <llacy@co.nye.nv.us>
Sent:	Saturday, March 02, 2019 8:31 PM
To:	DUF6_NEPA; Lewis Lacy; Celeste Sandoval
Subject:	[EXTERNAL] Comments on Depleted U-238 Conversion Supplemental EIS
Attachments:	DU disposal EIS Draft comments final 03022019 ldl[2305843009219569025].pdf

Jaffet Ferrer-Torres
Document Manager
Office of Environmental Management
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

To whom it may concern,
Please accept this email and attachment as comments from Nye County Nevada Staff on the Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride
U.S. Department of Energy 2018. DOE/EIS - 0359

Nye County Nevada is the local government jurisdiction with responsibility and authority for activities within Nye County boundaries including the Nevada National Security Site and the Area 5 radioactive waste disposal site discussed as a possible disposal site in the referenced EIS Supplement. While we support a risk based approach to radioactive waste disposal we do have concerns.

To summarize our concerns;

1. U-238 in the concentrations and form described are not covered by 10 CFR Part 61 or anticipated that these materials would be disposed in a LLW facility licensed under part 61.
2. NRC has not completed a rulemaking or evaluation for the disposal of DU Oxide materials. DOE should not make any decisions until NRC regulations are in place.
3. The half-life for U-238 is 4.5 Billion Years and peak dose from daughter products occurs at approximately 1 million years. This long time period requires a rigorous safety analysis not typical of a LLW facility. Institutional controls and inadvertent intruder analysis are difficult challenges to address in shallow burial facilities.
4. The Area 5 waste facility does not have rail access, transportation issues need to be addressed with state and local jurisdictions.
5. The DU waste streams have very large quantities and would approach 50% or more of the capacity of the Area 5 LLW facility. We think the FFACO agreement needs to be renegotiated and include additional mitigation and benefits for local government.

A more detailed discussion of technical issues and Nye County concerns is included in the attached document.

Thank you for the opportunity to comment.

L. Darrell Lacy

1

Comment 12

Nye County Nevada
Director Natural Resources and Federal Facilties

Sent from Mail for Windows 10

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This message does not originate from a known Department of Energy email system.
Use caution if this message contains attachments, links or requests for information.

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2

Comment 12

Nye County Nuclear Waste Repository Project Office Staff Comments On:
Draft Supplemental Environmental Impact Statement for
Disposition of Depleted Uranium Oxide Conversion Product
Generated from DOE's Inventory of Depleted
Uranium Hexafluoride
U.S. Department of Energy 2018. DOE/EIS - 0359

The following discussion concerns the potential disposal of depleted Uranium oxide as low-level waste at the low-level Waste Facility in Area 5 of the Nevada National Security Site in Nye County Nevada. The long half-life, increasing radioactivity with peak dose after 1 million years, and toxicity of the material merit special considerations. In addition, the fact that the NNSS does not have rail access should be addressed with appropriate mitigation for highway impacts or construction of rail access. The waste packaging should also be evaluated with a goal to reduce worker and public exposure and minimize any potential ingestion hazards.

4 cont.

7

Low-level waste is defined by law and regulation by what it is not. For example, Department of Energy Order 435.156[1] states: "low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in Section 11 e (2) of the Atomic Energy Act of 1954[2], as amended), or naturally occurring radioactive material."

Disposal of commercial low-level waste is governed by the Nuclear Regulatory Commission under their regulation 10 CFR Part 61[3]. While not strictly applicable to Department of Energy low level waste disposal activities on Department of Energy sites, that regulation is cited as a source of requirements in the Nevada National Security Site Waste Acceptance Criteria document[4], specifically sections of the rule addressing waste characteristics. The Nuclear Regulatory Commission regulation also addresses waste classification; while the Department of Energy does not use the Nuclear Regulatory Commission waste classification system, the logic behind it is of interest to the issue of disposal of depleted Uranium at the Nevada National Security Site low level waste facility. The two other facilities evaluated in this EIS as potential disposal sites are both commercial LLW sites regulated by the NRC. Nye County staff would expect that even though the NNSS Area 5 site is not regulated by the NRC, the analysis would be at least as rigorous as that used in an NRC regulated sites with input by the State of Nevada and Nye County.

1 cont.

While 10 CFR Part 61 notes that consideration *must be given to the concentration of long-lived radionuclides … … whose potential hazard will persist long after such precautions as institutional controls, improved waste form, and deeper disposal have ceased to be effective*, Uranium is not listed in the tables of nuclides to be considered. The reason for that is found in the Environmental

[1] U.S. Department of Energy. *Radioactive Waste Management.* DOE Order 435.1. July 9, 1999
[2] Atomic Energy Act of 1946, *Public Law 79–585*
[3] 10 CFR part 61. *Licensing Requirements for Land Disposal of Radioactive Waste.* Readily Available.
[4] U.S. Department of Energy. *Nevada National Security Site Waste Acceptance Criteria.* DOE/NV-325-Rev. 16. June 2016.

1

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Impact Statement[5] prepared by the Nuclear Regulatory Commission to support development of that regulation.

The double negative in the definition of low-level waste created by the exclusion of special nuclear material and source material from the definition of byproduct material creates a question of whether the Nuclear Regulatory Commission intended for special nuclear material and source material to be disposed as low-level waste.[6] Enriched Uranium and depleted Uranium were originally candidate isotopes considered for limits for waste classification purposes in the low-level waste regulation Environmental Impact Statement.[7] To ease the burden of compliance, the number of isotopes treated generically in the waste classification table was reduced to those judged to be needed on a generic basis for waste classification purposes. An explanation can be found in the Environmental Impact Statement prepared by the Nuclear Regulatory Commission to support development of its regulation. In the discussion on isotopes considered for waste classification purposes in the draft Environmental Impact Statement, a total of twenty-three different radionuclides were considered in the numerical analysis; these were nearly all moderately or long-lived radionuclides.

1 cont.

Concentration limits were proposed in the draft Environmental Impact Statement for eleven individual radionuclides plus alpha-emitting transuranics, enriched Uranium and depleted Uranium. In response to public comments, however, limits for enriched Uranium, depleted Uranium, and ^{135}Cesium were eliminated, as were limits for ^{59}Nickel and ^{94}Niobium except as contained in activated metal. A separate limit was provided for ^{242}Curium, a transuranic nuclide with a 162.9-day half-life.

These changes were principally in response to comments in the proposed 10 CFR Part 61 regarding the costs and impacts of compliance with the proposed waste classification requirements of the draft Environmental Impact Statement. In particular, many commenters were concerned that they would have to directly measure every isotope in every waste package, which would be difficult to do because measurement of many of the listed isotopes, which would usually be present only in trace quantities, could not be performed except by complex radiochemical separation techniques by laboratories.

Commenters expressed concerns that cost and personnel radiation exposures would be significantly increased. Thus, to ease the burden of compliance, the number of isotopes treated in the waste classification table was reduced to those judged to be needed on a generic basis for waste classification purposes. In other words, Uranium is not regulated in the disposal of low-level waste either because no generators thought they would be disposing of meaningful quantities of Uranium as low-level waste, or it was not thought to be low-level waste. The final Environmental Impact Statement noted that other isotopes could be added at a later time to those with limits. The Nuclear Regulatory Commission has examined amending its regulations to establish new requirements for the disposal of certain low-level radioactive wastes, including

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[5] U.S. Nuclear Regulatory Commission. 1982. *Final Environmental Impact Statement on 10 CFR Part 61: Licensing Requirements for Land Disposal of Radioactive Waste*. NUREG-0945.
[6] Michael D. Voegele, Joseph Ziegler, and Darrell Lacy, *Disposal of U-233 as Low Level Waste at the Nevada Nuclear Security Site*. Paper 14175. Waste Management Conference, March 2–6, 2014, Phoenix, Arizona.
[7] U.S. Nuclear Regulatory Commission. 1982. Op. Cit.

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primarily large quantities of depleted Uranium from Uranium enrichment operations that were not included when the current regulations were developed.[8]

10 CFR 61.55 includes two tables, reproduced below, to guide the classification of low level waste. Classification is effectively determined by long-lived radionuclides. If radioactive waste contains only the radionuclides listed in Table 1 of that regulation, classification shall be determined as follows: (i) If the concentration does not exceed 0.1 times the value in Table 1, the waste is Class A. (ii) If the concentration exceeds 0.1 times the value in Table 1 but does not exceed the value in Table 1, the waste is Class C. (iii) If the concentration exceeds the value in Table 1, the waste is not generally acceptable for near-surface disposal.

1 cont.

Failure to include a radionuclide in the Part 61 tables is not a sufficient basis for concluding that wastes can be disposed as low-level waste, regardless of whether or not a performance assessment demonstrates that disposal can be done safely.

Recently, the Nuclear Regulatory Commission has acknowledged that it intends to amend its rules for the disposal of some low-level radioactive wastes. These wastes include depleted Uranium left over from the Uranium enrichment process. The Commission suggests that depleted Uranium meets the Nuclear Regulatory Commission's definition of low-level waste. However, depleted Uranium is unique because the products produced by radioactive decay make it more radioactive as it decays over thousands of years. With a half-life of nearly 4.5 billion years, its daughter products include several Uranium isotopes, radium, radon, mercury, and other

2 cont.

TABLE 1

Radionuclide	Concentration curies per cubic meter
C–14	8
C–14 in activated metal	80
Ni–59 in activated metal	220
Nb–94 in activated metal	0.2
Tc–99	3
I–129	0.08
Alpha emitting transuranic nuclides with half-life greater than 5 years	[1] 100
Pu–241	[1] 3,500
Cm–242	[1] 20,000

[1] Units are nanocuries per gram.

TABLE 2

Radionuclide	Concentration, curies per cubic meter		
	Col. 1	Col. 2	Col. 3
Total of all nuclides with less than 5 year half-life	700	(1)	(1)
H–3	40	(1)	(1)
Co–60	700	(1)	(1)
Ni–63	3.5	70	700
Ni–63 in activated metal	35	700	7000
Sr–90	0.04	150	7000
Cs–137	1	44	4600

[1] There are no limits established for these radionuclides in Class B or C wastes. Practical considerations such as the effects of external radiation and internal heat generation on transportation, handling, and disposal will limit the concentrations for these wastes. These wastes shall be Class B unless the concentrations of other nuclides in Table 2 determine the waste to be Class C independent of these nuclides.

3 cont.

isotopes with alpha and beta decay modes. Depleted Uranium, which has an alpha decay mode, also includes a small fraction of ^{235}Uranium.

The Commission acknowledges that these wastes did not exist in large quantities and were not analyzed when the current rules were put in place. Before they can be disposed, the Commission

[8] Nuclear Regulatory Commission, *Depleted Uranium and Other Waste Disposal*. Fact Sheet, Office of Public Affairs. August 2009.

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has noted that new rules will require an analysis of the specific disposal facility and the specific wastes. This analysis would show whether the overall system can safely contain the wastes. The new rules would also apply to other wastes that have not been considered, such as from future spent-fuel reprocessing or other fuel cycle facilities. [9]

Before proceeding to dispose depleted Uranium as low-level waste, it is crucial that there be a technical basis supporting the supposition that depleted Uranium is in fact low-level waste. This will require the Nuclear Regulatory Commission to revisit the Environmental Impact Statement supporting 10 CFR Part 61, and, strictly speaking, revise Part 61's Table 1 and 2.

The Nye County technical staff support a risk based approach to disposal regulations and support the Draft Nuclear Regulatory Commission proposal to amend 10 CFR Part 61.

3 cont.

The staff support a risk-based approach to handling nuclear waste and agree that many of the waste streams not necessarily definitively categorized as low-level waste may have cheaper and easier solutions than disposal as high-level waste. One possibility that should be analyzed is the use of some or all of the Depleted Uranium in other beneficial uses. A cursory literature search identifies DU as a promising candidate for radiation shielding and other uses.

However, as noted, the long half-life, increasing radioactivity, and toxicity of the depleted Uranium merit special considerations should it be considered for disposal in a low-level waste facility. Meeting the performance objectives of a disposal facility as demonstrated through a performance assessment conducted in accordance with applicable regulatory requirements for low level waste provides no guarantee of safety for the long lived radionuclides contained in depleted Uranium; in fact, such nuclides are realistically more isolated and contained if examined with the rigor required of disposal of high-level waste. The performance assessment requirements for low level wastes lack the rigor of those for high-level waste and spent nuclear fuel. The standards[10] governing disposal of high-level waste and spent nuclear fuel not only have longer times for demonstration of compliance, they also require much more rigorous evaluations of features, effects, and processes that can potentially affect isolation and containment than does the regulation governing disposal of low-level waste. Given the long half-lives of the isotopes comprising depleted uranium, the approach of a 10,000 year compliance period of 10 CFR Part 60[11] is likely the minimum necessary and that of the Yucca Mountain standards of 10 CFR Part 63[12] are probably more relevant.

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[9] U.S. Nuclear Regulatory Commission. 2015. *Backgrounder: Updating Disposal Rules for Low-Level Waste.* Office of Public Affairs.

[10] 40 CFR Part 191, *Environmental Standards for the Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes.* And. 40 CFR Part 197, *Public Health and Environmental Radiation Protection Standards for Yucca Mountain, NV*

[11] 10 CFR Part 60, *Disposal of High-Level Radioactive Wastes in Geologic Repositories.*

[12] 10 CFR Part 63, *Disposal of High-Level Radioactive Wastes in a Proposed Geologic Repository at Yucca Mountain, Nevada*

Comment 12

This is not inconsistent with the Nuclear Regulatory Commission's proposed revisions to 10 CFR Part 61.[13] The Nuclear Regulatory Commission is proposing to amend Part 61 to require site specific analyses for disposal that would:

- Add new analyses that would include a 10,000-year protective assurance period and annual dose minimization target;
- Add a new analysis for certain long-lived Low-Level radioactive waste that would include a post10,000-year performance period;
- Add new analyses that would identify and describe the features of the design and site characteristics that provide defense-in-depth protections;

In addition to its radioactive nature, depleted Uranium and its daughter products are heavy metals - dense metals that are toxic at low concentrations. Realistically, given the half-lives of the ^{238}Uranium (4.468×10^9 years), and its daughter products ^{234}Uranium (245,000 years) and ^{230}Thorium (75,400 years), it is imperative that some consideration be given to the material's toxicity.

3 cont.

One potential approach was used in the Final Environmental Impact Statement: Management of Commercially Generated Radioactive Waste.[14] The results of that analysis are consistent with the 10,000 year compliance period of 10 CFR Part 60. Hazard indices are based on estimates of potential risk of released radionuclides compared to other risks. The hazard indices can show whether the quantities of toxic radioactive waste exceed the toxic quantities of other chemicals and substances routinely handled in our society.

The total quantity of radioactive material to be isolated was compared to the isotope quantities that naturally occur in the earth's crust. This comparison was used to indicate the relative hazard that may result from the burial of radioactive waste. Early efforts to develop safety perspectives on geologic isolation led to the development of hazard indices. These indices attempted to combine those parameters that characterize waste isolation into an index on public health and safety. The indices use one or more of the following parameters: quantity of radioactive material, specific activity, decay properties, chemical and physical form, packaging, toxicity, time behavior, and pathways.

A number of hazard indices have been developed which are useful in varying degrees in characterizing the risk. They are summarized in Appendix H of Volume 2 of that Environmental Impact Statement.

One such hazard index is based on the amount of water required to bring the concentration of a substance to allowable drinking water standards. In the Environmental Impact Statement case the amount of water required to bring the quantity of Uranium ore necessary to make 1 metric ton of reactor fuel to drinking water standards was used as a basic hazard index.

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[13] U.S. Nuclear Regulatory Commission. 2015. *Low-Level Radioactive Waste Disposal. Proposed Rule.* Federal Register. vol. 80. No. 58. March 26, 2015 pp. 16082-16125.
[14] U.S. Department of Energy, *Final Environmental Impact Statement: Management of Commercially Generated Radioactive Waste.* DOE/EIS-0046F. October 1980

Comment 12

3 cont.

The hazard index for spent fuel and high-level waste is shown in Figure 3.4.1 of the Environmental Impact Statement, together with similarly developed hazard indices for ranges of common ores.

As seen in Figure 3.4.1 the hazard index for spent fuel or reprocessing waste from Uranium-Plutonium recycle relative to the ingestion toxicity of the volume of 0.2% Uranium ore necessary to produce 1 metric ton of reactor fuel is on the order of that for rich mercury ores at about 1 year after removal of the spent fuel. The hazard index is on the order of that for average mercury ore at about 80 years. By 200 years the index is about the same as average lead ore. By 1500 years the relative hazard index for high-level waste is the same as the ore from which the fuel was made. For spent fuel the relative hazard index is about the same as the ore from which it came at about 10,000 years.

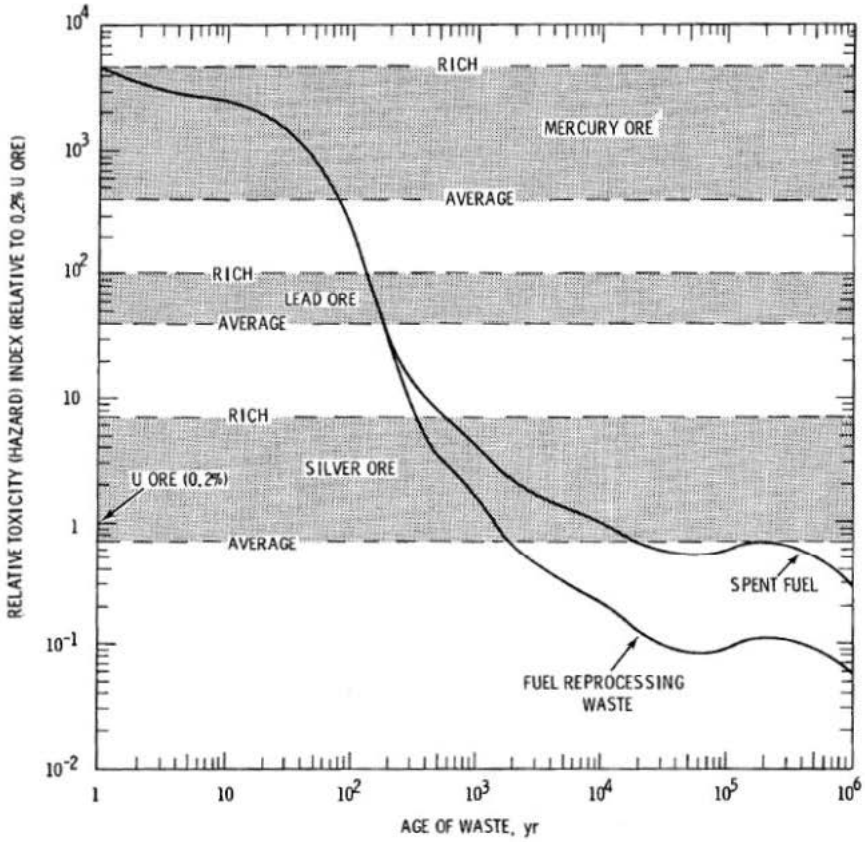

FIGURE 3.4.1 Toxicity of Spent Fuel and Reprocessing Waste from Uranium-Plutonium Recycle Relative to 0.2% Uranium Ore Necessary to Produce 1 MT of Reactor Fuel

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3 cont. This point is not to suggest that the illustrated curve is relevant for depleted Uranium, it is presented merely to illustrate that there are approaches for examining the toxicity of the long-lived depleted Uranium being considered for disposal as low-level waste.

7

Comment 13

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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FEB 2 7 2019

Jaffet Ferrer-Torres
Document Manager
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U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Re: Draft Supplemental Environmental Impact Statement (DSEIS) for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride; CEQ #20180323

Dear Ms. Ferrer-Torres:

The U.S. Environmental Protection Agency has reviewed the DSEIS for the Disposition of Depleted Uranium (DU) Oxide Conversion Product Generated from Department of Energy's (DOE) Inventory of Uranium Hexafluoride, in accordance with Section 309 of the Clean Air Act and Section 102(2)(C) of the National Environmental Policy Act (NEPA). The purpose and need for this action is to identify and analyze alternatives for the disposition of DU Oxide. If a beneficial use cannot be found for the DU Oxide, all or a portion of the inventory may need to be disposed of. The proposed scope of this DU Oxide DSEIS includes an analysis of the potential impacts from three Action Alternatives and a No Action Alternative in accordance with 40 CFR 1502.14. Under the Action Alternatives, DU Oxide would be disposed of at one or more of the three disposal facilities: (1) the Energy*Solutions* LLC site near Clive, Utah; (2) the Nevada National Security Site (NNSS) in Nye County, Nevada; and (3) the Waste Control Specialists, LLC (WCS) site near Andrews, Texas. Under the No Action Alternative, transportation and disposal would not occur, and DU Oxide containers would remain in storage at Paducah, Kentucky and Portsmouth, Ohio facilities. This DSEIS was filed prior to the government shutdown with a comment period which ended during the 35-day shutdown. DOE extended the public comment period to March 4, 2019, through a Federal Register notice.

The EPA understands and appreciates the complexity and significance of DOE's mission for the disposal of DU Oxide. The EPA acknowledges the DOE's desire to protect and preserve the environment and the information provided in the DSEIS. The EPA also acknowledges the fact that disposition and transportation of DU Oxide or any uranium product may be controversial. We have enclosed additional comments and recommendations compiled from other EPA regional offices that are designed to provide the DOE with information that should be included in a Final SEIS. The EPA remains interested in the proposed project and commenting on the final SEIS when it becomes available.

Comment 13

We request that the recommendations provided in this letter be addressed in the Final SEIS. The EPA appreciates the opportunity to work with DOE on future tiering and site-specific NEPA documents for this project. If you wish to discuss our technical comments or recommendations, please contact Mr. Larry Long of the NEPA Program office at (404) 562-9460, or by email at long.larry@epa.gov.

Sincerely,

Ntale Kajumba for

Christopher A. Militscher
Chief, NEPA Program Office
Resource Conservation and Restoration Division

Enclosure

Comment 13

Enclosure
EPA's Technical Comments for the Draft Supplemental Environmental Impact Statement (DSEIS) for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride; CEQ #20180323

Issue: The DSEIS purpose and need for this action is to: identify and analyze alternatives for the disposition of DU Oxide, and that if a beneficial use cannot be found all or a portion of the DU Oxide inventory may need to be disposed of. However, the "Action Alternatives" focus on transporting the material by rail or truck to one or more of the three facilities.

Recommendations: DOE may wish to elaborate on recycling and/or a beneficial use for the DU Oxide options. The EPA recommends that the evaluation for a beneficial use and the transportation of DU Oxide be considered as separate alternatives and titled as such, thereby, providing clear options for the decisionmaker and the public and allowing for a more comparative form. If the DOE evaluation demonstrates no ability to recycle or find a suitable beneficial use, then the DOE will proceed with the project alternative of transporting the depleted DU Oxide across the country using interstate highways and rail systems. 1

The DOE may also want to consider vitrification and on-site disposal as an alternative option not discussed in the DSEIS. Vitrification and on-site disposal could provide considerable cost savings due to reduction in handling and transportation costs. An economic evaluation of the two options may provide additional information for the DOE to consider prior to the issuance of the Final SEIS or a Record of Decision (ROD).

Issue: The conditions of interstate transportation systems may have changed significantly since the 2004 EIS. The EPA is aware of DOE's work to assess the state of transportation infrastructure (e.g., functioning rail networks, low overhead crossings and clearance) required to move spent fuel from storage to disposal sites. The DSEIS does not state whether infrastructure requirements are the same for DU Oxide transport as spent fuel, nor does the DSEIS include information about what, if any, transportation upgrades are required to transport material along the selected routes. The DSEIS does refer to the 15-year old EISs and ROD for decisions related to transportation and disposition of DU Oxide at potential off-site disposal facilities. 2

Recommendation: The Final SEIS should include updated information regarding the decision-making process following the Nuclear Regulatory Commission's 2014, Waste Confidence Rule in relationship to transportation and long-term storage. An analysis of the current infrastructure conditions (bridges, rail crossings, and roadways) along the corridor and identification of any potential risks and associated environmental impacts may be needed to ensure protection of human health and the environment. The Final SEIS should identify any required upgrades and resultant environmental impacts. The Final SEIS should include any rail and road infrastructure upgrades required to transport DU Oxide from the Paducah and Portsmouth sites to the disposal sites.

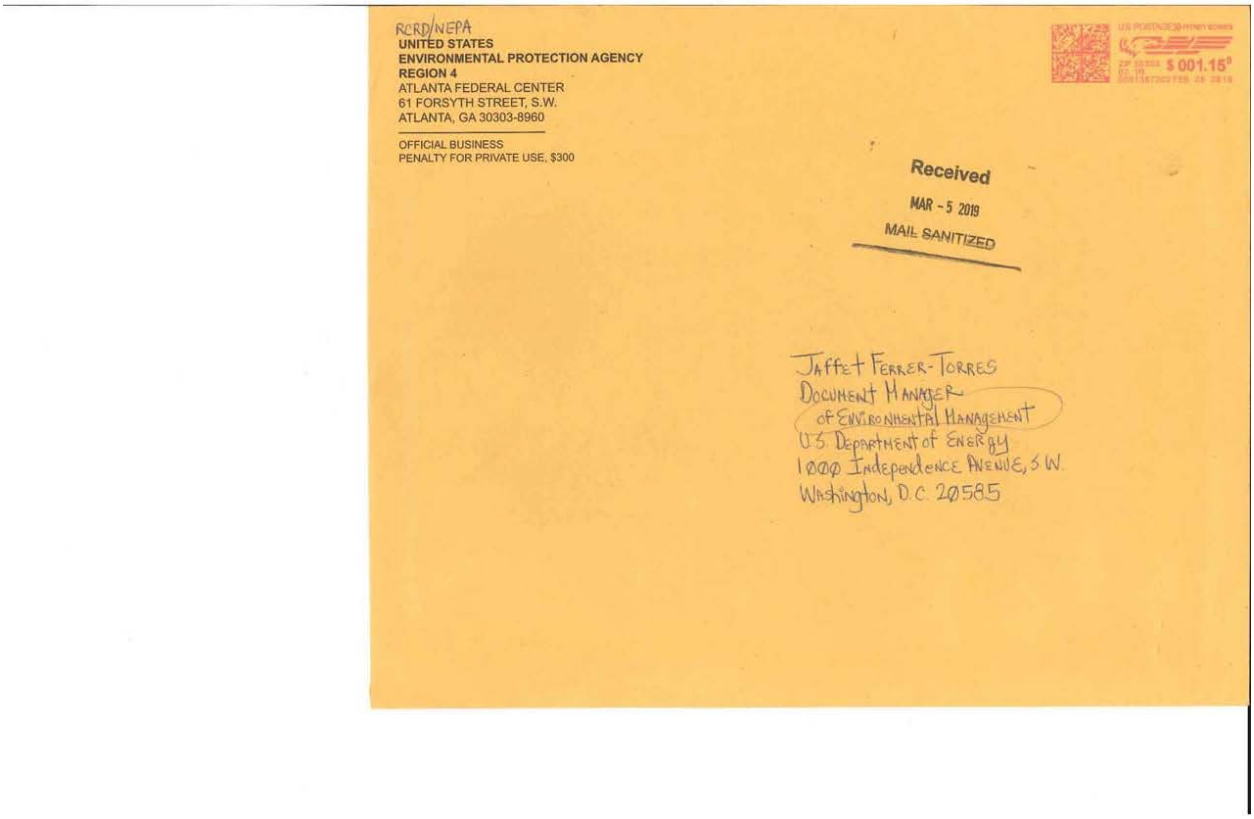
Issue: The DSEIS indicates that the DOE does not plan to convert additional depleted uranium hexafluoride (UF_6) and dispose of additional DU Oxide cylinders beyond the current inventory. The DSEIS refers to the disposal and transportation decision made in the 2004 EISs and ROD. The DOE may wish to provide updated information to include any new advancements in the processing of low-level radioactive waste since the publication of the 15-year old EISs and ROD. 3

Comment 13

3 cont.

Recommendation: The remaining UF_6 product located onsite at the Paducah facility could be converted to the more stable oxide and kept at Paducah with the remaining DU Oxide. Transporting this material offsite over a period of years could create unnecessary environmental hazards. A robust storage facility meeting Nuclear Regulatory Commission design criteria could be built onsite. A criterion for this facility would include using state-of-the-art radiation dose models calculating the potential for release of DU Oxide to the environment via the water and air pathways and the resulting dose to a maximally exposed member of the public living near the site boundary. The EPA recommends that vitrification and disposal on-site be further evaluated in the Final SEIS and that this option could also provide a safer long-term solution for the storage of DU Oxide, thereby, reducing potential exposure to human health and the environment.

Comment 13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with the webex open until 9 p.m. Eastern in case we have some participants that come on following this. Thank you, Ms. Colley, for your comments.

And at this point can we have the next slide, please? If you're not already on the mailing list anyone on the call can sign up for the mailing list by sending an email with your contact information to the DU oxide email address or by mail and include your preference for receiving the Final EIS online, printed summary with CD, CD only, etcetera. Those on the mailing list will be notified when the Final SEIS is published.

We'll now go on mute here and hold till 9 p.m. And if anyone gets on for comments we'd be happy to take them.

Comment 14 start

(On hold for further comments.)

MR. NOON: May I speak? Hello. Is this the Department of Energy?

MR. TONKAY: Yes. This is the DU Oxide Supplemental Environmental Impact Statement for public hearing.

MR. NOON: May I speak?

MR. TONKAY: Could you state your name and organization, please?

MR. NOON: My name -- my name is Reverend

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Dr. Noon and I'm with the Visions for Angels Research Think Tank. And I gave up that you could hear me so let me pull over.

MR. TONKAY: Yes. We can hear --

MR. NOON: Just give me -- give me a minute.

MR. TONKAY: Yes. We can hear you and when you get back on we'd like you to spell your name so we have it listed properly. Thank you.

MR. NOON: Thank you, sir.

MR. TONKAY: Just let us know when you'd like to go ahead.

MR. NOON: About one minute. Let me pull...

So my name is Noon, N-O-O-N, and I'm with the Division for Angels Research Think Tank. I'm a doctor and a researcher/teacher. So are we ready?

MR. TONKAY: Yes. You may comment and I think at the end we'll ask just to make sure we have the spelling of your name and organization correctly. Thank you. Go ahead, please.

MR. NOON: Yes, sir. Regarding natural uranium metal consists almost entirely of Isotope Uranium 238. Point 7 percent is Uranium 35 (sic), which isn't too much. So Uranium 238 cannot be used by itself. Uranium 235 make a bomb.

You can mix Uranium 238 and Uranium 235 to

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separate the Uranium 235 for the natural 238. The two ways that this done which is creating either fission, which is making small particles or fusion, making large particles of -- the first one is Uranium 235. It'll explode when there's compression and collision of particles.

Neutron collides with uranium in the nucleus of 235. The nucleus absorbs it making it one more which is an unstable -- an unstable Uranium 236. Being unstable there will be a constant chain reaction. It'll be a spontaneous splitting of the nuclei like mitosing of the daughter cells. And these escape -- these are escaping neurons or freeing neurons and that continue the unstable motion. Therefore, when uranium hits another piece of Uranium 235 it undergoes fission continually, continually.

The second fission of uranium is when rods of ordinary uranium metal plus rods of graphite are used to slow down the neutrons that are ejected at high speeds for fission nuclei. These become -- this creates neutrons produced by fissions of Uranium 235 adding one is Uranium 239. Captured by nu- -- excuse me, captured by nuclei Uranium 238 equals Uranium 239.

Now this creates a spontaneous decomposition

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and it emits another electron. The reaction produces Neptunium 239. This reaction can easily separate Uranium 235 which I'm sure that is what you're trying to do is separate the uranium to get as much Uranium 235 as you can for military purposes.

Plutonium, which is Plutonium 239, now this is a fissionable material also. And with a chain reaction when compressed it combines with neutrons, creates fissions, it liberates neutrons creating compression creating a chain reaction and creating a nuclear explosion, SFS plutonium.

Hydrogen nuclei, this is with water. The hydrogen and oxygen molecules of course create H2O molecules which is -- and it's liberated by the same -- when you have oxygen and hydrogen it can be liberated by the same weight of protons and neutrons. Two protons, two neutrons equal four nucleus.

And these protons from helium nuclei, now these nuclei have so much energy that they collide. And when their collision it's called translatitudinal (sic) motion and this creates fusion.

Now hydrogen bombs starting with an ordinary atomic bomb you have fission Uranium 235 or Plutonium 239. The atomic bomb acts as a detonator. For fusion process you need collision and reaction. The

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hydrogen has two isotopes. It's beturium, B-E-T-U-R-I-U-M, and tritium, T-R-I-T-I-U-M. The tritium is very unstable. It's currently found in nature.

The hydrogen bomb is hydrogen beturium and tritium plus the ordinary atomic bomb as the detonator. The hydrogen bomb is lithium and hydrogen form create lithium hydride, H-Y-D-R-I-D-E. You use the lithium deuteride as the detonator when put around the atomic bomb. This is solid unless it contacts water.

This lithium reaction with neutrons produces helium and tritium. Tritium reaction and beturium produce more helium. Now this can be made by fracturing ordinary water. In other words, what happens when you frack -- when you frack with water.

Lithium is obtained from the oar of lithium such a lepidolite, L-E-P-I-D-O-L-I-T-E -- excuse me, L-E-P-I-D-O-L-I-T-E. The reaction converts by hydrogen bomb into a superbomb with lithium because it surrounds it with a shell of Uranium 238 or ordinary uranium metal. Uranium 238 contains small amounts of Uranium 235. This Uranium 238 now produces great amounts of radioactive fission product.

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Hydrogen superbomb creates fission -- fusion fission liberating Uranium 235 or Plutonium 239. The lithium deuteride creates a great amount of radioactive small fission particles. The process of making Uranium 235 or Plutonium 239 using ordinary uranium depleted of Uranium 235 the residue is used on the market as a drug.

When Uranium 235 and 239, either one, undergo fission they -- the reaction creates a noble gas called Krypton 90. This radioactive isotope would be Rubidium, R-U-B-I-D-I-U-M, 90 or Strontium 90. Neutrons react in the air and water or on earth making iron nuclei radioactive.

Radioactive manganese has also been found in the ocean. Plutonium is in fallout as radium chloride changes to radon gas with atoms of plutonium becoming (inaudible).

The explosion result action of these radioactive materials. The reaction is radiation fallout causing biological effects. So the study should really be for the last hundred years that since it's manmade power that's being made we need to study the results of this power.

14-1

The radioactive fallout in spheres, upper sphere would be the stratosphere, lower sphere would

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be the troposphere. Not strontium leases calcium and cesium leases potassium. Calcium and potassium are the essentially minerals to carry, i.e., transport electrical signals or electrical impulse of our central nervous system and peripheral nervous system. They are the two essential minerals, okay.

Radioactive minerals will instead fill the platelet threads of bones and kidneys, so forth. Radon gas will fill the lungs and brain instead of oxygen. And when you have anaerobic oxygen in any part of the body, in any of the cells of the body it creates a weakness which creates necrosis. Even before necrosis there's a fragility of the cell wall and viruses can easily get into that.

So my question is what is your legal authority and where is it from? What is your moral authority and where is it from? Has there been an e-world communication? Has there been an e-world vote? Has there been research comparison, discussion, and result for this last 100 years of manmade power with -- versus the zillion, zillion years of natural power and energy and world research?

The facts of burden, the facts of proof, the burden of proof are facts. What are the results of using uranium, plutonium, and radioactive elements to

14-2

14-3

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this date? What are the results? This is a global question and answer. This is not just for local and state. This is for international. This is a global situation. This is a global problem that needs to be discussed.

14-3 cont.

So we need to keep the rule of law which means respecting rules and law and culture, respecting everyone's lives. We need e-world communication and e-world votes. We need to educate each other e-world. Instead of warring together we can resolve problems locally. And then if not locally, then globally.

So what is the legal authority, where is it from, what is the moral authority, and where is it from?

And one question I had to ask which is really interesting if there's an extra moment is in 1960s the United States gave up its draft. In lieu

14-4

of having a military -- in lieu of having a military we hired out a military to protect the assets of the United States.

So United States does not have a military. We only have a civilian volunteer Army and civilians to take care of. Now civilians aren't even getting healthcare. They're begging for a universal

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healthcare that the rest of the world has. We're begging to build our country, okay, make solar -- solar schools, you know, magnetic transportation roads, trains.

We're begging -- instead of becoming the -- what produces the radioactive poison for the planet, okay, and selling it or whatever is going on I think there needs to be a discussion of its health benefits because I personally as a doctor don't see how anybody's going to live through this.

And having come from and island that was bombed once a week by Bush and Reagan I know the effects of radiation poisoning. And let me tell you it's so painful that one wants to die. It's just horrible.

And the more we destroy the iodine in the ocean like Fukushima's a blanket over the Pacific bottom. If we do not have sea vegetables creating iodine, we're dead.

MR. TONKAY: All right.

MR. NOON: Our thyroid, our thyroid --

MR. TONKAY: Could I ask you -- excuse me. We've gone on for a bit over five minutes and I was hoping that you could wrap it up in the next 30 seconds, please.

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14-3 cont.

MR. NOON: I would just like to see a world -- e-conference of the world and research and discuss the -- how this man -- how this manmade power has proven to be a plus or a minus healthy or destructive. And I think it deserves a world opinion that we can do by internet.

MR. TONKAY: Thank you very much, Reverend Noon, of the Division for Angels Research Think Tank. And if there's any --

MR. NOON: Visions. Visions for Angels.

MR. TONKAY: Visions for Angels. Excuse me. Thank you for correcting us on that and we appreciate your comment. Do we have anybody else on the line at this point in time that would like to make another comment? We're here for a while so.

All right. Thank you. We're going to go on mute and await any other comments.

Comment 14 end

MR. NOON: Thank you, sir.

(On hold for further comments.)

MR. TONKAY: We're still here with our webex going. If there's any additional people that would like to provide a comment, please let us know. Unmute your phone, state your name and organization, and wait for our response.

(On hold for further comments.)

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Comment 15

From: Patricia A. Marida
To: DUF6_NEPA
Subject: [EXTERNAL] Registering to speak at DOE web-based public hearing Jan. 22
Date: Tuesday, January 15, 2019 6:38:11 PM

Please register me to speak at DOE web-based public hearing on Tuesday, January 22, 2019 from 2 – 4 pm (EST): Disposal of (de)conversion uranium oxide waste at Portsmouth and Paducah **Nuclear** Sites.

I also have questions.

1 1) Why does Fluor-BWXT Portsmouth, and possibly DOE, favor WCS?
2 2) Will some of the emptied cylinders remain onsite?

Thank you.

Pat

Patricia A. Marida
Chair, Ohio Sierra Club Nuclear Free Committee
National Sierra Club Nuclear Free Core Team
614-286-4851
patmarida@outlook.com

"The only nuclear reactor we need is 93 million miles away."

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22-10 cont.

against the citizens of this area what they have done to us.

And if I can think of more to tell to you I will send you my write up.

DR. MARBLE: Great.

MS. COLLEY: Thank you. **Comment 22 end**

DR. MARBLE: Thank you very much, Vina. Next up is Patricia Marida. Patricia?

Comment 16 Start

MS. MARIDA: Yes. Can I ask a process question before my timing starts?

DR. MARBLE: Of course you may.

MS. MARIDA: So I have some questions and I'm wondering to know, you know, how or if they will be answered.

DR. MARBLE: So I'm going -- as the moderator, I'm going to turn over to Jaffet, who's the document manager, to answer that question.

MS. FERRER-TORRES: Hi, Patricia. These questions and comments, of course, will be answered through the comment response document when it's released with -- along with the Final SEIS.

MS. MARIDA: All right. Thank you. So I guess I'll go ahead.

DR. MARBLE: Thank you.

MS. MARIDA: My name is Patricia Marida.

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I'm the chair of the Ohio Sierra Club Nuclear Free Committee. And I had trouble getting onto the website so I missed the presentation. So if some of this is asking questions that you've already answered I'll try to tune in tomorrow and pick that up.

So the first question that we have -- and it's essentially about the three alternative places that's being planned to send this off. Question 1: Johnny Reising of Fluor-BWXT Portsmouth made a recommendation to the site-specific advisory board subcommittees that this depleted uranium be sent to waste control specialists or a WCS. 16-1

So our question is why is WCS being favored? Although DOE says they have not preference we presume that WCS is being favored by the Department otherwise why would they have added it to the list of choices.

Second question: Is sending this material to Utah or Nevada going to be any more problematic at this point than it was previously? In other words, what is -- is there an additional problem now that they've missed this deadline? 16-2

Question three: Has DOE sent waste from Portsmouth to Energy Solutions in the past? And, if so, what did the major shipments contain? 16-3

Question four: Texas is closer to Ohio, 16-4

17

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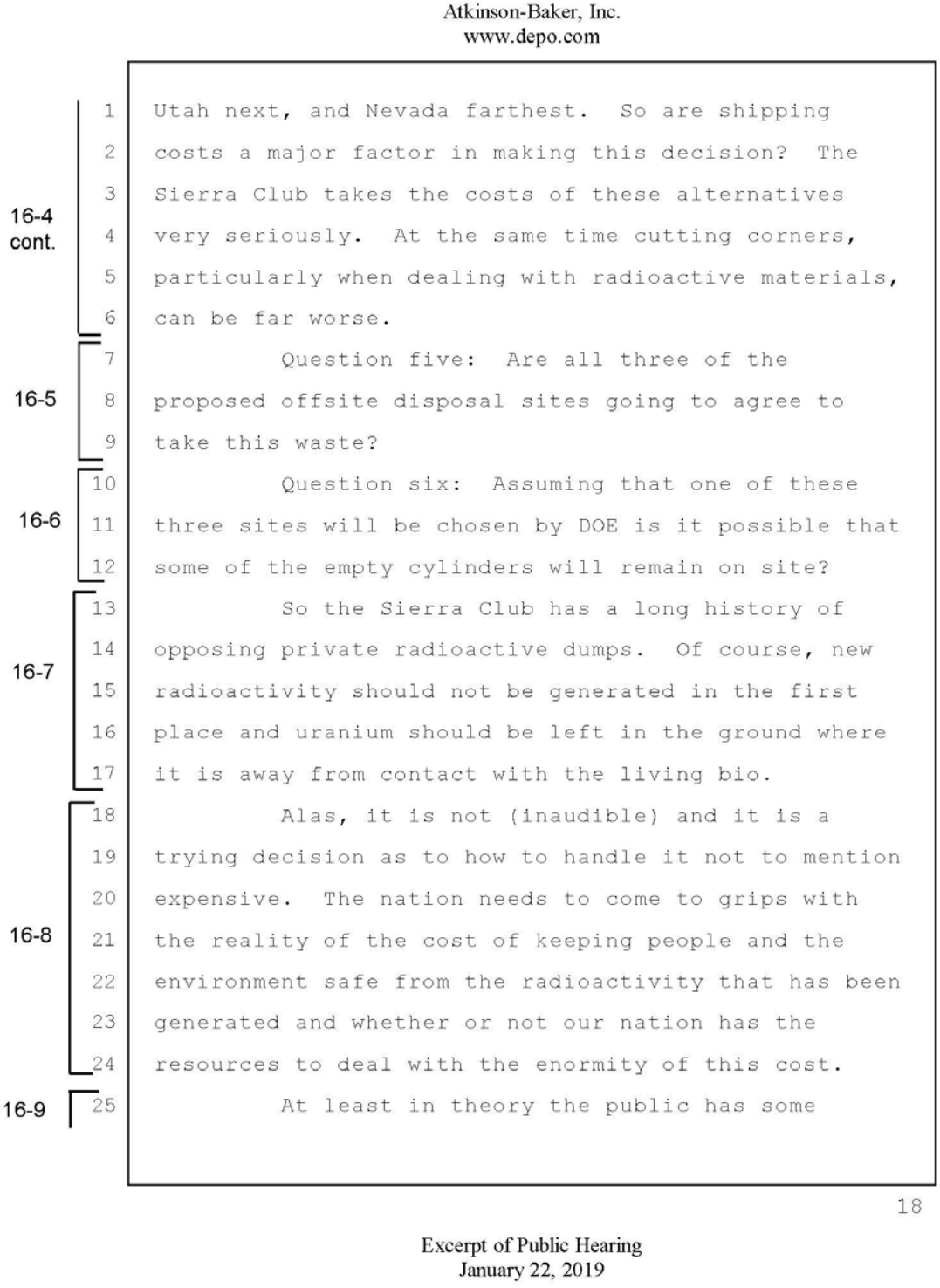

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Utah next, and Nevada farthest. So are shipping costs a major factor in making this decision? The Sierra Club takes the costs of these alternatives very seriously. At the same time cutting corners, particularly when dealing with radioactive materials, can be far worse.

16-4 cont.

Question five: Are all three of the proposed offsite disposal sites going to agree to take this waste?

16-5

Question six: Assuming that one of these three sites will be chosen by DOE is it possible that some of the empty cylinders will remain on site?

16-6

So the Sierra Club has a long history of opposing private radioactive dumps. Of course, new radioactivity should not be generated in the first place and uranium should be left in the ground where it is away from contact with the living bio.

16-7

Alas, it is not (inaudible) and it is a trying decision as to how to handle it not to mention expensive. The nation needs to come to grips with the reality of the cost of keeping people and the environment safe from the radioactivity that has been generated and whether or not our nation has the resources to deal with the enormity of this cost.

16-8

At least in theory the public has some

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16-9 cont.

control over the quality -- some quality control on disposal times at the publicly-owned DOE site in Nevada. Energy Solutions and WCS are private dumps. At private dumps everything is proprietary. They can go bankrupt and leave a terrible mess for the public to clean up. We do not have confidence in having this material one step farther away from public oversight.

16-10

The Sierra Club strongly opposes moving this waste to the WCS site. WCS sites above the Ogallala Aquifer, a critical water resource. Before this radioactive waste dump was constructed maps showed the aquifer to be right underneath that site.

With the stroke of a pen WCS' license application moved the location of the aquifer and presto, it was no longer beneath their location. So right now there -- WCS the same location they are wanting to put in an interim storage for high-level waste.

So we will be submitting by paper a ten-page Geologic Review of this Interim Storage Partners Evaluation of the Consolidated Interim Storage Facility Environment -- Environmental Report. Let me repeat that again. The ten page tile is Geologic Review of Interim Storage Partners, LLC, WCS

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Consolidated Interim Storage Facility, Environment Report. This was written by Patricia Bobeck, Ph.D., October 25th of last year.

Among some of the things the report says: "The environmental review does not clarify the connections between the Ogallala formation mapped at the site, its relationship to some other aquifers which will be" -- I will send along with the report, "or the Ogallala Aquifer or the hydraulic connections of the southern portion of the Ogallala to the central portion of the main Ogallala Aquifer located to the north," end of quote.

16-10 cont.

So this very recent review being quoted is an evaluation of the environmental report that is part of a licensed application submitted by Interim Storage Partners for the proposed construction of a consolidated interim storage facility at Waste Control Specialists' property.

The report goes on to say: "The Ogallala and the Dockum Group lie beneath the consolidated Interim Storage Facility site. The Ogallala Aquifer is the largest aquifer in the United States and a major aquifer under the Texas High Plains. Availability of Ogallala is water is critical to the regional economy because it is used for irrigation

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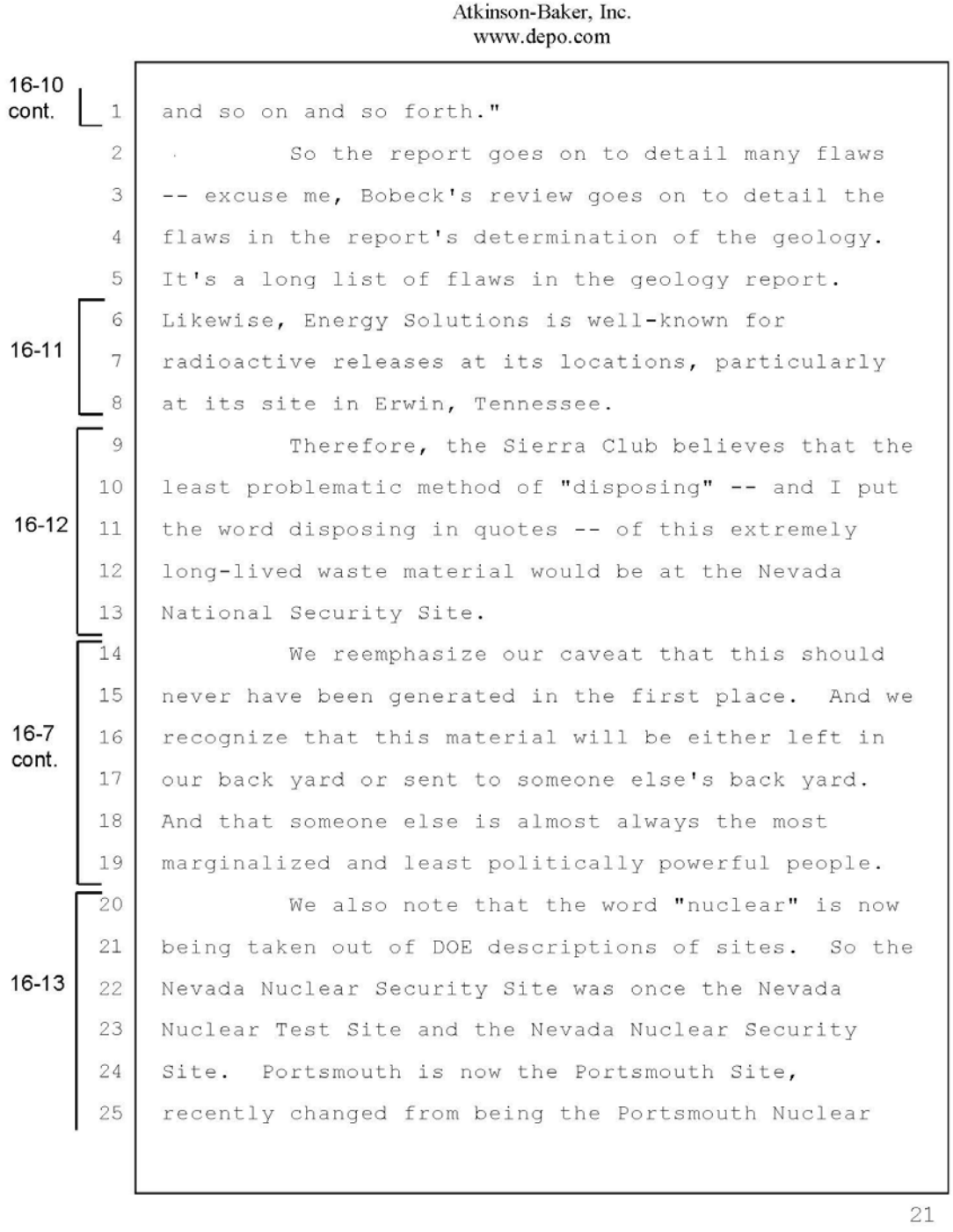
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16-10 cont.
and so on and so forth."
So the report goes on to detail many flaws -- excuse me, Bobeck's review goes on to detail the flaws in the report's determination of the geology. It's a long list of flaws in the geology report.
16-11
Likewise, Energy Solutions is well-known for radioactive releases at its locations, particularly at its site in Erwin, Tennessee.
Therefore, the Sierra Club believes that the
16-12
least problematic method of "disposing" -- and I put the word disposing in quotes -- of this extremely long-lived waste material would be at the Nevada National Security Site.
We reemphasize our caveat that this should never have been generated in the first place. And we
16-7 cont.
recognize that this material will be either left in our back yard or sent to someone else's back yard. And that someone else is almost always the most marginalized and least politically powerful people.
We also note that the word "nuclear" is now
16-13
being taken out of DOE descriptions of sites. So the Nevada Nuclear Security Site was once the Nevada Nuclear Test Site and the Nevada Nuclear Security Site. Portsmouth is now the Portsmouth Site, recently changed from being the Portsmouth Nuclear
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16-13 cont.

Site.

So that ends my comments for today and I will send in a copy of this ten-page report to be reviewed by you. Thank you very much.

DR. MARBLE: Thank you very much for your comments and also thank you for the feedback on the webex. We're sorry that you weren't able to get in right away and that you missed part of the presentation.

As I -- I don't know if you heard or not, but the next two days there will also be public meetings and they will be identical as the one today so I encourage you to participate in the next two meetings to see the presentation.

Comment 16 end

MS. MARIDA: Yes, thank you.

DR. MARBLE: Again, thank you. Okay. Moving forward on the agenda onto the wrapping up. Now that we have gone through all the categories and have our list -- sorry, excuse me. One second, please.

So the first thing that I need to say is that this meeting does last until four so the comment period is open until four if someone else would like to make comments. Please let us know by stating your name and affiliation if any.

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January 22, 2019

Comment 17

From: Vina Colley
To: DUF6_NEPA
Subject: 1 [EXTERNAL] Please summit this story to the Record. I may speak a again today and tomorrow. Thank you !
Date: Wednesday, January 23, 2019 3:22:59 PM

Vina Colley Whistleblower and president of (PRESS) Portsmouth/Piketon Resident for Environmental Safety and Security, Co Chair of (NNWJ) National Nuclear Workers for Justice member group of A Call to Actions
(NWA)Nuclear whistleblower Alliances.
PRESS is a member group of
(ANA) Alliance for Nuclear Accountability

https://www.mydaytondailynews.com/news/piketon-troubled-past/yVz7hjdC8z4bi9pz6MgWOJ/

****
This message does not originate from a known Department of Energy email system.
Use caution if this message contains attachments, links or requests for information.
****

Comment 18

From: Vina Colley
To: DUF6_NEPA
Subject: [EXTERNAL] Statement
Date: Tuesday, January 22, 2019 3:27:53 PM

Subject: Fwd: DUF6

Vina Colley Whistleblower and president of (PRESS) Portsmouth/Piketon Resident for Environmental Safety and Security, Co Chair of (NNWJ) National Nuclear Workers for Justice member group of A Call to Actions
(NWA)Nuclear whistleblower Alliances.
PRESS is a member group of
(ANA) Alliance for Nuclear Accountability

1 **Portsmouth is the largest plant in the world and sitting on top of the largest aquifer in the Midwest with the bedrock fractured under the site. I have been told the aquifer beneath the site is contaminated.**

2 **Dr. Rosalie Bertell my friend spoke of the Dangerous DU debris is credited by some with creating higher child cancer and other illness rates in Europe and the Middle East. DU's fine particles can be harmful as well to the kidneys, skin and the lenses of the eyes. And, when inhaled or swallowed by humans, animals or fish, that dust can create serious and permanent health hazards. Expended DU is a permanent terrain contaminant with a half-life of 4.5 billion years . Uranium dust can linger in the lungs, the blood and other organs for years. It is reported to have caused some of the so-called mysterious ailments among the more than 350,000 US service members, many of whom unsuccessfully sought medical treatment after the first Gulf War. We are very worried about the Residue from the DU causing Kidney and other health issues.**

3 **Piketon workers had the highest exposure of all the Gaseous Diffusion Plants according to a 1985 GAO report.**

4 **A former employee told me the DUF6 Conversion purpose was to process the 24,000 cylinders of depleted uranium stored outside (19,000 generated byproduct from 50 years of uranium enrichment at Piketon and another 5,000 cylinders sent up from Oak Ridge, TN) for potential reuse or disposal. The intent was for the Conversion Plant at Piketon (and a similar plant at Paducah, KY) to convert the depleted uranium into a safer uranium oxide material to be transported in their modified 14-ton cylinders for shipment/disposal at a commercially licensed disposal facility in Utah or at the DOE National Nuclear Security Site disposal facility in Nevada in a dry environment . As part of the processing in Piketon the hydrofluoric acid would be pulled off and sold as a product, which has been ongoing. However there have been numerous delays due to safety and process design issues. The depleted oxide material that was to be shipped from Piketon to Utah or Nevada for disposal has yet to be done. And DOE has no schedule to fulfill the agreed upon plans based on their own programmatic environmental impact**

Comment 18

4 cont. **statement to move this material for disposal out west. The states of Utah and Nevada don't want this material so currently it's going nowhere and southern Ohio is again dealing with unfulfilled promises.**

5 **We received over 44 inches of rain every year we are well over 60 inches of rain in 2018 ground water is only 21 feet from the surface. Piketon is in the flood, earthquake and tornado zone.**

6 **We are asking for a public meeting on the DUF6 because the community and workers haven't been told the truth about the extent of the Plutonium and Transuranic on site and offsite or the truth about the existing problems with the DUF6 at Portsmouth, Ohio or Paducah Ky.**

7 **We need to know if you are considering putting waste from the DUF6 cylinders in the waste cell being build on the Portsmouth site. DUF6 cylinders on the Portsmouth,Ohio/ Paducah KY site is giving off high Neutron exposure. These cylinders are stack three high in a open yards.**

8 **We never seem to get straight answers. We have a right to know.**

9 **We have the highest rate of cancer in the nation and kidney problems is running ramps here.**

10 **We need a thorough analysis of the water in the streams and rivers in this area as well as a full investigation into the possible pollution of the drinking water.**

6 cont. **Piketon/Portsmouth, Ohio and Paducah Ky deserves pubic meeting on the DUF6 issue so much has changed since the last public meeting. We are talking about opening the**

11 **Centrifuge plant in Portsmouth, Ohio and this discussion could cause the production of more DUF 6 we don't have answers right now on the 25,000.00 cylinders so why create more.**

7 cont. **We need to know if you are considering putting this DUF6 cylinders in the waste cell on site.**

12 **We are disappointed that know Representative or staff members were on this call.**

Thanks you !

Vina Colley

Vina Colley Whistleblower and president of (PRESS) Portsmouth/Piketon Resident for Environmental Safety and Security, Co Chair of (NNWJ) National Nuclear Workers for Justice member group of A Call to Actions
(NWA)Nuclear whistleblower Alliances.
PRESS is a member group of
(ANA) Alliance for Nuclear Accountability

Comment 18

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Comment 19

From: Vina Colley
To: DUF6_NEPA
Subject: [EXTERNAL] Please replace this with the last one sorry I sent the wrong one. My eyes are weak..sending attachment next
Date: Thursday, January 24, 2019 1:48:55 PM

>>>>> Vina Colley Whistleblower and president of (PRESS) Portsmouth/Piketon Resident for Environmental Safety and Security, Co Chair of (NNWJ) National Nuclear Workers for Justice
>>>>> member group of A Call to Actions
>>>>> (NWA)Nuclear whistleblower Alliances
>>>>> PRESS is a member group of
>>>>> (ANA) Alliance for Nuclear Accountability
>>>>>

1 >>>>> This is a request that you open the record of decision about what is going into the waste cell in Piketon, Ohio. Until we are given all the facts. we cannot give a true decision on the impact of the DUF6. We question the amount of Plutonium in the DUF6 production and wonder how they can sell the contaminated hydrofluoric acid.

2 >>>>> We are asking that you have a public meeting so the community can give input on your decision about the plant in Piketon, Ohio. Please come here and tell us about the Plutonium on site and what will go in the waste cell. DOE has plans to sell the hydrofluoric acids. I told them it might be contaminated with Plutonium and with the residue from the chemical gas phosgene.

3 >>>>> We spoke about the 1979 spill when a hot cylinder was dropped and over 20,000.00 lbs went to the air and water.

4 >>>>> My co-worker Owen Thompson died from brain cancer at age 42 after cleaning up the spill.

5 >>>>> In the Superfund report May 4, 1994, a plant had to score 28.5 to be placed on the National Priorities List. Portsmouth Gaseous Diffusion Plant scored 54.6 and Paducah scored 56.9. A 1985 GAO report states that the Portsmouth Gaseous Diffusion workers had the highest exposure. The community can't make a good decision until all the records are released. We need to know the amount of Plutonium and Transuranic on site. Until they release the records workers will have a hard time getting compensation. Workers are jumping through hoops and being turned down because of perceived loopholes in the coverage. It is as if the government were waiting for the workers to die so there would not have to be any compensation. In 1999, we were told the burden of proof was on the government; and when we went to D.C. in October of 2018 for a meeting, we were told the burden of proof is on the worker. How can we give proof when DOE hasn't released all the information about Plutonium, Uranium Hexafluoride and many other Transuranic elements.

6 >>>>> Attached is a document Plutonium and Transuranic at Portsmouth, Ohio and Paducah KY.
>>>>>
>>>>>

Comment 20

From: Vina Colley
To: DUF6_NEPA
Subject: [EXTERNAL] Criminals Act please summit
Date: Sunday, February 17, 2019 3:57:59 PM

Please submit the following statement with our other statement

PRESS/NNWJ/NWA
A Call to Actions

We now have a better understanding why Foreign countries were allow to comment on the DUF6 at Portsmouth, Ohio, Paducah Kentucky and Honeywell in Metropolis.

(Criminal) acts against sick workers keeping the
hazards depleted uranium, and are likely of anthropogenic origin, include plutonium-238 (238Pu), plutonium-239 (239Pu), plutonium-240 (240Pu), am ericium-241 (241Am), neptunium -237 (237Np) and technetium-99 (99Tc) away from workers and communities.

INTRODUCTION
Depleted uranium (DU) is a byroduct of the process used to enrich natural uranium for use in nuclear reactors and in nuclear weapons. Natural
uranium is composed of three isotopes; 234U, 235U, and 238U (see Table 1) [1]. The enrichment process concentrates both the 235U and the 234U isotopes in the product material, resulting in a waste product or byproduct depleted in both 235U and 234U. The resultant DU retains a smaller percentage of 235U and 234U, and a slightly greater percentage of 238U (99.8% by mass instead of 99.3%). Because of the shorter half- life of 234U and 235U compared to 238U, the radioactivity associated with DU is approximately 40%lessthanthatofnatural uranium.

1

Table 1: Typical Isotopic Abundances in Natural and Depleted Uranium
Isotope
234 235U 238U
Abundance (by weight)
U
Natural Uranium
0.0058% 0.72% 99.28%
Depleted Uranium
0.001% 0.2% 99.8%
In the United States, DU is available mainly from the U.S. Department of Energy (DOE) and other govern ment sources. DU occurs in a number of different compounds with different characteristics, which may have a significant impact on the management and disposition of this material.
Because DU metal is 1.7 times more dense than lead, it is valuable for industrial uses. It has been used for civil and military purposes for many years. Detailed information on uranium, its chemical forms, manufacturing/enrichment processes, and uses of DU are further discussed in Appendix 1.
2.1 Characteristics of Uranium and Depleted Uranium
Uranium is a naturally occurring radioactive metal in all rocks and soils in low concentrations (1 to several hundred picocuries per gram (pCi/g)). All three isotopes are radioactive and produce decay products upon radioactive disintegration. After purification (processing) of uranium, the decay products of all of the uranium i sotopes will beg in to accumulate very slowly, and traces of these decay products can be detected.

Other trace isotopes that have been observed in depleted uranium, and are likely of anthropogenic origin, include plutonium-238 (238Pu), plutonium-239 (239Pu), plutonium-240 (240Pu), am ericium-241 (241Am), neptunium -237 (237Np) and technetium-99 (99Tc).

Vina Colley

Comment 20

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****

Comment 21

From: Vina Colley
To: DUF6_NEPA
Subject: 1 [EXTERNAL] Please summit
Date: Wednesday, January 23, 2019 11:58:52 PM

Vina Colley Whistleblower and president of (PRESS) Portsmouth/Piketon Resident for Environmental Safety and Security, Co Chair of (NNWJ) National Nuclear Workers for Justice member group of A Call to Actions
(NWA)Nuclear whistleblower Alliances.
PRESS is a member group of
(ANA) Alliance for Nuclear Accountability

http://www.state.nv.us/nucwaste/news/nn10309.htm

Sent from my iPhone

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Comment 21

Ohio's Greatest Home Newspaper

dispatch logo

Piketon workers share their stories

Sunday, October 31, 1999

By Frank Hinchey
Dispatch Assistant State Editor

- Forty plant workers, past and present, told lawmakers about health problems they say the facility caused.

PIKETON, Ohio -- More than 150 southern Ohioans packed a motel conference room yesterday, eager to tell a congressional delegation and federal officials their emotionally charged "horror stories" of sickness and consequences they say resulted from working with deadly radiation at a uranium-enrichment plant.

The 31/2-hour hearing at the Comfort Inn on Rt. 23 ran long so that 40 of the 50 current and former workers at the Portsmouth Gaseous Diffusion Plant who signed up to speak could give testimony -- often excruciating testimony -- to a panel that included U.S. Rep. Ted Strickland, D-Lucasville, and Republican U.S. Sens. Mike DeWine and George V. Voinovich.

"I think it was a very moving meeting, and it took a lot of courage for them to tell their stories. We could feel their commitment to their country, and their sense of betrayal," said Dr. David Michaels, assistant energy secretary for environment, safety and health. "I would like to repay the debt we owe them."

The Department of Energy is to begin an investigation next month into safety at the plant, focusing on worker exposure, documents and operations. A formal in-depth probe is to begin by mid-January after the department completes a similar investigation at a sister plant in Paducah, Ky.

Among the workers officials heard yesterday was retiree Stanley McNally, 79, a janitor at the Piketon plant who recalled sprinting from a restroom when a siren sounded and running into a "white, solid fog."

After holding his breath for as long as he could, McNally said, he took several breaths and "It felt like steam going down my throat." After a few days, he started to cough up strange material from his lungs that stuck to his fingers. "I couldn't sling the gob of stuff from my fingers," he said. After a year, he said, he learned he had colon cancer and underwent an operation. "I don't know how I survived all that. I'm just lucky to be here today."

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Another retiree, Bob Witt, said workers must fight to be heard. Many spoke of repeated bureaucratic rebuffs, hard-fought or denied claims. John Knauf told of one instance in which the local union had to spend $30,000 and go to the U.S. Supreme Court to win a $3,000 claim for one member.

Blame for the situation, Witt said, also has seemed aimed at employees. "The workers caused this terrible problem of contamination; we were instruments of destruction without the knowledge of such," Witt said after participating in a walking tour of the plant. "We are just as contaminated as the soil and groundwater we viewed yesterday."

Anita George, an employee for nearly 23 years in the decontamination unit, said many women have questions about their reproductive health. George said she knows of only one female co- worker in her department who has not had a hysterectomy and other reproductive problems, including miscarriage and infertility.

Terry Adams, 73, said he came to Piketon as an engineer from a similar plant in Oak Ridge, Tenn., and was told to form a quality-assurance program soon after he arrived because there was not one in place. He quickly discovered that there were 187,000 barrels of lithium hydroxide stored in fiber barrels in a building with a leaking roof. The leaks had caused some of the barrels to leak the chemical into the Scioto River, he said.

Adams said his unit eventually was disbanded, and he was demoted to the maintenance department for telling plant operators "the truth" about hazardous conditions. "We found a lot of things we didn't like. We had some hair-raising reports because there had been no (previous) documentation."

The Piketon and Paducah plants are operated by the U.S. Enrichment Corp. The plants provide enriched commercial nuclear fuel to electric utilities.

Yesterday, DeWine, Voinovich and Strickland cited *Dispatch* stories detailing accounts at Piketon, which has 2,100 workers.

DeWine said he is most troubled by indications that the government knew about the potential risk and was not forthcoming with workers.

He mentioned a memo obtained by *The Dispatch* from Goodyear Atomic, the plant operator in 1962, telling managers not to reveal "housekeeping problems" to bargaining-unit employees.

"I have grave concerns about what has happened (here) in the last several decades," DeWine said. "The reports we have seen . . . clearly indicate the Department of Energy knew a lot more than we knew they knew, and I think the government is responsible for whatever happened here."

Voinovich said he is "heartsick that all this time we were trying to keep jobs here (at the plant) we had no idea of the horrible risk of the people working at the facility."

Comment 21

He said he and DeWine have sent letters to President Clinton and Energy Secretary Bill Richardson urging that the compensation program recommended for Paducah workers be extended to the Piketon plant. Voinovich said he has an assurance from committee chairman Sen. Fred Thompson of Tennessee to hold hearings on management issues in the Department of Energy.

"I don't doubt there are Piketons in other places in the country where employees never knew whether they were faced with potential health risks," Voinovich said. "It seems to me that this government of ours has a moral obligation to flush out more of these sites."

People seeking information from the Department of Energy on its Health and Workers Compensation Initiative can call, toll-free, 877-447-9756. The Energy Department's Internet site is at http://tis.eh.doe.gov/benefits/.

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DU Oxide email address or by mail and include your preference for receiving the Final EIS online, printed summary with CD, CD only, etcetera.

Those on the mailing list will be notified when the Final SEIS is published. This concludes -- this does not conclude our public hearing, but this concludes the first wrap up. But we are going to stay here until 4 o'clock so if anyone else has comments please let us know. Thank you.

Comment 22 cont.

Good afternoon.

MS. COLLEY: Can you hear me?

DR. MARBLE: Yes, I can.

MS. COLLEY: Another question -- this is Vina. The government came out and the DOE came out and said the possibility they're going to give us money to start up the centrifuge which they tried twice and it didn't work.

22-11

If they start up the centrifuge (inaudible). So I guess the question is are they going to start this up and have uranium when they don't what to do with the old depleted uranium without causing a big impact on the community and the workers?

DR. MARBLE: Thank you for the question, Vina. We did have some problems hearing you. It was breaking up a little bit. Would it be possible for

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you to say again just to make sure we were able to capture that?

MS. COLLEY: Okay. I guess my question is we were just told that they were going to try to -- they got $11.7 million or something, I can't remember the total right now, to start up the American Centrifuge here at Piketon.

22-11 cont.

If they start up the American Centrifuge it will produce more depleted uranium. So what are they going to do with the new depleted uranium if the centrifuge starts up which I very much doubt that it will? I think it's a profit, jobs for people, so they won't talk about the waste of it on the Piketon site.

DR. MARBLE: Thank you for that question.

22-12

MS. COLLEY: Okay. And my other question is about the waste cell. How much of the depleted uranium and the cylinders are being considered to put in the waste cell that they're trying -- they're in the process of building?

DR. MARBLE: So, I'm sorry, you -- to clarify was that you're asking the percentage of waste going into the onsite disposal facility?

22-12 cont.

MS. COLLEY: Yes. Is it going to be coming from the depleted uranium cylinders or the residue or

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22-12 cont.

whatever when they start cutting these cylinders up. Are they considering putting them in the waste cell at Piketon?

DR. MARBLE: Okay. Thank you. I understand. We captured that one. Thank you for repeating and clarifying.

MS. COLLEY: All right. Thank you.

DR. MARBLE: Again, if there's anyone else on the phone or through the webex who would like to make a comment please let us know. You can either chat -- send us a message through chat so we can acknowledge you or you can just unmute your phone or your computer device. Thank you.

22-5 cont.

MS. COLLEY: Did they give the amount of plutonium that is in each cylinder that they're taking out the depleted uranium?

22-8 cont.

Because I'm concerned about all the foreign countries that were involved in this phone call when they were allowed to call in. So I'm concerned that we're not being told the full extent and amount of plutonium that we have at Portsmouth.

DR. MARBLE: Thank you. And that was Vina again just to make sure for the record?

Comment 22 cont. end

MS. COLLEY: Yes.

DR. MARBLE: Okay. Thank you. We got that

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Comment 22 start

Colley and Patricia Marida. I'm going to first start with Vina since you replied earlier to the advanced discussion first. And we'll give you five minutes which we will be timing here. If I can't hear you I'll ask you to speak up so we can make sure that we can all hear you in the room and also that it is correctly recorded.

So, Vina, you can unmute your device.

MS. COLLEY: Okay.

DR. MARBLE: Thank you very much. Please, whenever you're ready.

MS. COLLEY: My name is Vina Colley. I'm a whistleblower and the president of PRESS, Portsmouth/Piketon Residents for Environmental Safety and Security, co-chair of the National Nuclear Workers for Justice, member of A Call to Action, Nuclear Whistleblower Alliance, and PRESS is a member of the Alliance of Nuclear Accountability.

Now Portsmouth is the largest plant in the world sitting on top of the largest aquifer in the Midwest. With the bedrock fractures under the site I have been told that the aquifer beneath the site is already contaminated.

My friend, Dr. Rosa Patel, spoke on the dangers of the DU debris is credited by some with

22-1

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creating higher cancer, childhood cancer, and other illnesses rated in the European and Middle Eastern countries. And DUs fine particles can be harmful as well as to the kidneys, skin, lens of the eyes, and lens in head or smaller, like, even animals or fish that dust can create a serious and permanent health hazard.

22-1 cont.

Extended DU is a permanent terrain contaminate with the half-life of 4.5 billion years. Uranium dust can linger in the lungs, the blood, and the other organs for years. It is reported to have caused some of the so-called mysterious ailments among the more than 350,000 U.S. Servicemembers many of whom unsuccessfully sough medical treatment after the first Gulf War.

22-2

We are very worried about the residue from the DU causing kidney and other health issues. Piketon workers have the highest exposure of all the gas at this fusion plant according to a 1985 GAO report. The DUF conversion purpose to process the 24,000 cylinders that the uranium stored outside, 19,000 generated byproduct from 50 years of uranium enrichment at Paducah and 5,000 cylinders sent up from Oak Ridge the potential reach -- reuse for disposal.

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The intent was for the conversion plant at Piketon and a similar plant in Paducah, Kentucky to convert the depleted uranium into a safer uranium oxide material to be transported in their modification of a 14-ton cylinder for shipment, disposal at a commercially-licensed disposal facility in Utah or at the National Nuclear Security site disposal facility in Nevada in a dry environment.

As part of the process in question, the hydrochloric acid would be pulled off and sold as a product. This has been ongoing. However, there have been numerous delays due to safety and process design issues. The deplete oxide materials that were shipped from Piketon to Utah or Nevada for disposal has yet to be done. 22-3

And DOE has no schedule to fulfill the agreement or some plan safe on your own programmatic Environmental Impact Statement. To move this material for disposal out West the states of Utah and Nevada don't want this material so currently it is going nowhere. (Inaudible) dealing with an unfulfilled promise.

And the citizens in Paducah deserve to have a public meeting to discuss the changes that's being made and to see if this license makes it go into a 22-4

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22-4 cont.

proper place onsite.

We receive almost 44 inches of rain every year. We are well over 60 inches of rain in 2018. Groundwater is only 21 feet from the service -- surface and Piketon is in a flood, earthquake, and tornado zone.

22-5

We are asking for a public meeting on the DUF-6 because the community workers haven't been told the truth about the extent of the plutonium and transuranic onsite and offsite or the truth about the existing problems with the DUF-6 at Portsmouth, Ohio or Paducah, Kentucky.

22-6

We need to know if you are considering putting waste from the DUF-6 cylinders in the waste cell being built onsite. We never seem to get straight answers. We have a right to know. We have the highest rate of cancer in the nation, kidney problems they're running ramped here.

22-7

We need a thorough analysis of the water and the streams and the rivers in this area as well as a full investigation into the possible pollution of the drinking water. Workers here are considered as a Special Cohort Site meaning that they don't have to prove their illnesses because the government has plutonium here and they never told us. To this day

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22-5 cont.

they still have not told us how much plutonium is at Piketon. We're asking for all records to be released and a full investigation.

22-8

And I'm also concerned that when I read about the posting of this meeting that there was a lot of foreign countries that were going to be calling in about this and I'm wondering why. Do they have -- do some of these cylinder belong to them? Does the product belong to them?

22-5 cont.

We have a right to know. So another public meeting for the community is well needed because there's a lot of things that changed in 2005. We were not informed. They don't hold public meetings here. They hold public posters and so the community doesn't really get to talk about what's going on.

22-9

And I would like to say that I'm very disappointed that no representatives are here today giving input about the depleted uranium cylinders that is affecting so many people. Those cylinders are sitting outside stacked three high and it gives off the highest neutron exposures that you can get.

22-10

And can you imagine all the rain that we have and how much this has washed off into our local creeks and streams which winds up in the Scioto River which winds up in the Ohio River. It is a crime

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22-10 cont.

against the citizens of this area what they have done to us.

And if I can think of more to tell to you I will send you my write up.

DR. MARBLE: Great.

MS. COLLEY: Thank you. **Comment 16 end**

DR. MARBLE: Thank you very much, Vina. Next up is Patricia Marida. Patricia?

Comment 16 start

MS. MARIDA: Yes. Can I ask a process question before my timing starts?

DR. MARBLE: Of course you may.

MS. MARIDA: So I have some questions and I'm wondering to know, you know, how or if they will be answered.

DR. MARBLE: So I'm going -- as the moderator, I'm going to turn over to Jaffet, who's the document manager, to answer that question.

MS. FERRER-TORRES: Hi, Patricia. These questions and comments, of course, will be answered through the comment response document when it's released with -- along with the Final SEIS.

MS. MARIDA: All right. Thank you. So I guess I'll go ahead.

DR. MARBLE: Thank you.

MS. MARIDA: My name is Patricia Marida.

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opinions about the Department of Energy's programs. The point of a public comment meeting is to give each of you an opportunity to provide your thoughts to DOE about this Draft Supplemental Environmental Impact Statement. We are grateful that you have taken time out of your busy schedule to participate in this public meeting and for your ongoing interest in Department of Energy's waste management activities.

Regardless of your position, I would appreciate your help in making sure that everyone who speaks is treated with respect as I know you will appreciate when it is your turn to speak. Interruptions and outbursts will slow things down and I will control the hearing process to make certain that everyone who wants to provide comments is able to share their thoughts in a respectful setting. Any interruptions will slow the process.

With that, we will begin taking comments. The first speaker we will have is Ms. Vina Colley. And she is with the Portsmouth/Piketon Resident for Environmental Safety/Security. And, Ms. Colley, if I mispronounced anything or said it wrong please correct me and then begin your statement. Thank you.

Comment 23 start MS. COLLEY: Thank you for allowing me to speak for the last couple days. I'm having a little

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bit of trouble with my voice. And I want to kind of explain a little bit to you about the Piketon site and why it's hard to get people to be involved.

The sites up in Piketon is surrounded by four other communities, five other communities and we all live within maybe 20 or 25 miles from the plant. Some of the workers that work there at the plant drove 100 miles to get to work. So it's kind of hard to get the community and the people involved because we don't have the national news here like all these other sites do.

The Piketon scored and doubled the Superfund list. You only had to have 25-point-something and we had 50 something, but we were never put on it. And Piketon is one of the worst faci- -- contaminated facilities in the world. We get highly enriched weapons-grade material to 97 percent high assay.

23-1 One of my questions I'd like to ask is the plan to extract the hydrogen fluoride is in jeopardy by contamination of plutonium and by the residue from the chemical gas (inaudible). So this is one of the reasons we've been asking for a public meeting for DOE and DoD to come here and tell us exactly what we have at Piketon.

I read in our records that we've had

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plutonium here since 1953. So to sell this fluoride and to ship off some of the PCB oils and all that it was all radioactive also. So until the community is really informed about the plutonium at the Piketon site I don't know how we can go forward on any of the decisions until we are being told and given the true facts about how much plutonium has been at the Piketon site.

23-1 cont.

I know X745 side plants at the Portsmouth site did experimental stuff with plutonium and it was so hot that they had to shut it down. And eventually they had to send the workers three or four at a time to Oak Ridge to get their body counts down.

So it's kind of like we kind of think that the plutonium is being hid from the community and the workers which would help the workers where they don't have to step through all of these -- step through all these procedures to try to get compensated.

The burden of proof was not on the workers. It was on the DOE in 1999. And when I went to Washington, D.C., to a meeting here in October I was told -- and so was the whole -- the whole group was told that the workers -- the burden of proof is on the workers. So I don't know what's changed from '99 to 2018 and why the workers are having such a hard

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time.

It seems like we're being blackmailed for jobs in an area that is starving for jobs. And the Portsmouth plant has sucked the resources for good jobs. They're -- we have the highest rate of cancer. We had an incident here in 1978 that was compared to Three Mile Island. They dropped a hot cylinder and it busted open and 20-some-thousand pounds of uranium hexafluoride left the facility in the local creeks and the streams.

23-2

One of the coworkers that I worked with and who helped me in the early years of trying to get the story out with the plutonium was Owen Thompson who died of a brain tumor at the age of 42.

So we need for the DOE and the DoD to come here and tell us exactly how much plutonium and transuranium that we have here on site. All the local streams and the creeks that empty out into the Scioto River have been contaminated. Our fish, our Scioto Creek which -- Scioto River which runs into the Ohio River has been contaminated.

They had admitted that it was contaminated but it seems like no one's paying attention. And I guess it's because we're such a rural area and we live so far apart from each other that people don't

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know what's going on at the plant.

And then the local papers most of the time don't want to print the real story because of the jobs. And, of course, the plant buys ads for $900. That was in the past so I'm not for sure what's going on now. There has been a few stories, but not enough to get the people involved.

The waste scale in Piketon that -- that land according to Marvin Resocof (ph) and press who went through the documents is contaminated already with plutonium. I'm concerned, the community's concerned. They came out last year about the bedrock fractures.

23-3

We did a petition in 2000 -- well, no, around 1995 or '96 about the bedrock was fractured horizontal and vertical. So it is believed that the aquifers underneath this site is already contaminated.

Doctors here in the community are asking me what's going on out there because they're getting so many -- so much cancer here and they're getting, like, small-cell cancer that is a fast-growing cancer and people are passing away pretty fast.

23-4

The other thing is is the kidney dis- -- the kidney problem that we're having in this area. About a half a mile from me there's, like, 17 people right

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23-4 cont.

there that's got kidney problems. So we're feeling the effects of the depleted uranium and the highly enriched uranium to 97 percent. And the facility and the gas of the fusion plant has gone up.

23-5

We've had plutonium here in the way since '53 so it has to be in the product. So I'd like to know how we're going to sell this hydrogen fluoride asset if it's in jeopardy because it has plutonium. And we have a right to know.

23-6

So I'm begging you to please come to the community and let's talk and let's release documents so we can help these sick people. It's like we've been sacrificed because we're in an Appalachian area. People think we're really stupid probably. And we're a lot smarter than what you think we are.

We may not have the technology and the brains that some of your scientists have, but they've not been able to prove me wrong at any of these meetings. And they denied the contamination all these years and now it's all coming out that what I said back -- all the way back in '83 -- and plus our union in '79 stormed Washington, D.C., over the radiation and the chemical hazard at this plant.

So there's a big cover up and there's enough whistleblowers from this plant that if we ever get

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our chance in court then someone is going to be criminally indicted for what they've done to this community and to the workers. And we are begging you to please come here and hold a conference with these -- for us and let us have our say so and let us talk and give us the information.

23-6 cont.

We would like DOE to talk or DoD to talk because we made weapons-grade uranium and mixed with plutonium so all DU cylinders have to be contaminated with plutonium. So we need to know, you know, what -- it shouldn't be considered as low level. It should be considered as high-level waste.

We do not need a waste fill here at Piketon because it's setting on top of bedrock fractures which goes into the aquifers. And I think that we have been contaminated enough and our families and community friends are passing away so fast that you can't keep up with them. I went to eight funerals last -- in 2018 just from family members.

23-7

So we need help and we're begging that you do the right thing and stop this madness. Stop this conversion of the depleted uranium and selling it to people when it's full of contaminated stuff like plutonium, technetium, americium, californium, strontium.

23-8

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23-9

This is one of the worst facilities in the world. It's the largest facility in the world. It's miles and miles and miles of Piketon. And these workers will not be compensated for their illnesses after '92. Any worker -- we need the facility cleaned up. And any worker who needs to be there and needs a job should be given a medical card because they're going to suffer and their families are suffering. Thank you.

Comment 23
end

MR. TONKAY: Thank you, Ms. Colley, for your questions and your considerable comments. We don't have anyone else on our list at this point. Is there anyone else that would like to make a comment right now at this hearing? Please identify yourself if so.

Okay. As I said previously, we are going to keep the phone line open for another hour and roughly 14 minutes here for a period in case others would decided to make comments. Periodically I will ask if there's anybody on there if we see something in the chat room, else that.

So thank you very much again for the comment. If you're not already on the mailing list the folks on the call can sign up for the mailing list by sending an email with your contact information to the DU oxide email address or by mail

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Supplemental Environmental Impact Statement. We are grateful that you have taken time out of your busy schedules to participate in this public meeting and for your ongoing interest in DOE's waste management activities.

Regardless of your position, I would appreciate your help in making sure that everyone who speaks is treated with respect as I know you will appreciate when it's your turn to speak. Interruptions and outbursts will slow things down and I will control the hearing process to make certain that everyone who wants to provide comments is able to share their thoughts in a respectful setting. Any interruptions will slow the process.

With that, we will begin taking comments. Tonight our first speaker is Ms. Vina Colley. She is with the Portsmouth/Piketon Resident for Environmental Safety and Security Organization. Please begin, Ms. Colley.

MS. COLLEY: -- got an email back (inaudible). Can you hear me?

Comment 24 start

MR. TONKAY: I'm sorry.

MS. COLLEY: Hello?

MR. TONKAY: Could you repeat your comment, please?

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MS. COLLEY: I said I sent in two documents a while ago earlier today to add to this -- my comments. And I was wondering if you got the documents on the plutonium in Portsmouth and Paducah. It was two documents that I sent in a PD file.

And if you didn't if you let me know then I'll resend them. I just sent one copies and pasted and sent it so you could have a copy of it.

MS. FERRER-TORRES: Yes. The documents that you submitted today via email were received.

MS. COLLEY: Okay. And the two documents on the plutonium and the transuranic waste at the site?

MS. FERRER-TORRES: Yes.

MS. COLLEY: And --

MS. FERRER-TORRES: Sorry. I received the documents you sent at 5:26 and then the article you sent at 6:54 p.m. as well as the emails that you sent with information around 1:49 p.m. and 1:38 p.m.

MS. COLLEY: So I've been having trouble with my computer is the reason why I was asking. But I just wanted to make sure. The one that's really important is the document by the laboratory in Los Alamos for the plutonium and the transuranic onsite.

And I know you introduced me as PRESS, but you have all the other credentials for the National

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Nuclear Workers for Justice and Call to Action and all that too so I won't have to repeat all those.

And now I'll go ahead and talk. And what I want to say is that we're requesting that you open the record decision about what is going into the waste cell in Piketon, Ohio. Until we are given all the facts we cannot give a true decision on the impacts of a DUF-6.

We question the amount of plutonium in the DUF-6 production and wonder how it can sell the contaminated hydrofluoric acid. We are asking that you have a public meeting so the community can give input on your decision about -- about the Piketon, Ohio, site.

24-1

Please come here and tell us about the plutonium on site and what will go into the waste cell. DOE has to have a plan to sell this hydrochloric acid. I told them it might be contaminated with plutonium and with the residue for the chemical gas (inaudible).

We spoke about the 1979 spill that when a hot cylinder was dropped over 2,000 pounds went into the air and the water and a coworker, Owen Thompson, died from a brain tumor at the age of 42 after cleaning up this spill. So this is how dangerous

24-2

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24-2 cont.

uranium hexafluoride is. There were 60-some workers I think believed to be in that spill got contaminated in 1979.

In the Superfund report May the 4th, 1994, a plant scored 28.5 to be placed on the National Priorities List. Portsmouth Gas and Diffusion Plant [Gaseous] scored -- to be placed on it you had to have a 28.5. Portsmouth Gas and Diffusion Plant [Gaseous] scored 54.6 and Paducah scored 56.9. So both sites doubled the Superfund list.

24-1 cont.

A GOA report reportedly states that the Portsmouth Gas and Diffusion [Gaseous] workers had the highest exposures. The community can't make a good decision until all records are released. We need to know the amount of plutonium and transuranic on site.

Until they release the records workers will be -- will have a hard time getting compensation. Workers are jumping through hoops and being turned down because of the perceived loopholes in the coverage. It is as if the government are waiting for the workers to die so they will not have to have any compensation.

In 1999 we were told that the burden of proof is on the government. And when we went to D.C. in October of 2018 for a meeting we were told that

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24-1 cont.

the burden of proof is on the workers. How can we get proof when the DOE hasn't released all the information about the plutonium, the transuranic, the uranium hexafluoride? How are we going to know the truth, you know, what -- what these workers are getting exposed to?

24-2 cont.

And if they're going to be dealing with uranium hexafluoride itself it's a very highly toxic chemical that causes neuropathy and crippling arthritis. And according to some of the documents of the DOE I've read that we have doubled the standard for Oak Ridge and Paducah here here in Portsmouth that I believe Ohio didn't have a standard. So we did double the Oak Ridge and Paducah standards.

24-1 cont.

In the book that I had given you, it was a public book, it was a third-party inspection of the plutonium. And Portsmouth showed evidence of radium, plutonium, neptunium, and other highly radioactive transuranic. There is plenty of documents now that's showing that there is contamination off site.

In the Citizens lawsuit here in Piketon the pine needles six miles away from the plant showed radioactive material. Showed up six miles -- (inaudible) miles from the plant.

So we have a huge problem here. And I'm

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asking the government to please do a thorough investigation and let the community give input. And let's make a -- take a second look at this waste disposal because it is sitting on top of the largest aquifer. The bedrock is fractured. And I have said that for the last three days, but I just want to make sure that they're listening and coming here and talk to us.

We can't -- we can't resolve the solution until we know what the problem is. And we are willing to work with them and figure this all out because we're in this together. So the community is heavily affected with cancer and all kind of illnesses, kidney problems. And after 30, 50 years of production it's starting -- the health effects are starting to show up here.

Comment 24 end

And I want to thank you for giving me the opportunity to speak. And I'm very anxious to read the comments from other people that you get.

MR. TONKAY: Thank you, Ms. Colley, for your comments. Is there anyone else who hasn't indicated that at this point they would like to speak? We don't have anybody else on the chat room or have heard from anybody else at this point. Please identify yourself. If not, we are going to remain

24-1 cont.

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