



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
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REPLY TO THE ATTENTION OF

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Chief, Rules Review and Directives Branch  
U.S. Nuclear Regulatory Commission  
Mail Stop T6-D59  
Washington, D.C. 20555-0001

5/15/06  
71FR 28054

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Re: Final Environmental Impact Statement for the Proposed American Centrifuge Plant, Pike County, Ohio, NUREG-1834, EIS No. 20060189

Dear Sir or Madam:

In accordance with Section 309 of the Clean Air Act and the National Environmental Policy Act (NEPA), the U.S. Environmental Protection Agency (U.S. EPA) has reviewed the Final Environmental Impact Statement (FEIS), issued by the U.S. Nuclear Regulatory Commission (NRC), for the project listed above.

The FEIS states that the proposed Federal action under consideration is for the NRC to issue a license that would authorize USEC Inc. to possess and use special nuclear material, source material and byproduct material at the American Centrifuge Plant (ACP), a gas centrifuge uranium enrichment facility, proposed to be located on the U.S. Department of Energy Portsmouth Reservation (Portsmouth Reservation), near Piketon, Ohio. The enriched uranium produced at the proposed ACP would be used to manufacture nuclear fuel for commercial nuclear power reactors.

U.S. EPA submitted comments on the draft environmental impact statement (DEIS) for the proposed Federal action on October 31, 2005. Based on our review of the FEIS, we have determined that the project proponents have resolved the following concerns:

1. Need to discuss the former Portsmouth Diffusion Plant and any planned interactions with the proposed ACP,
2. Need to describe all of the expected uranium enrichment projects and all of the ACP's possible projects,
3. Need to assess transportation of depleted uranium to off-site disposal facilities, including a facility in Andrews, Texas,
4. Concern for lack of sufficient number of alternatives selected for detailed study,
5. Question of NEPA-applicability to an agreement between the U.S. Department of Energy (DOE) and USEC Inc., allowing USEC Inc. to deploy ACP in Piketon, Ohio or Paducah, Kentucky,

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Call = M. Blevins

(MRL)

GUNSI Review Complete

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6. Need to describe legal requirements applicable to “unrestricted use” of the proposed ACP site after decommissioning,
7. Need to provide greater details about future decontamination and decommissioning activities for ACP,
8. Need to describe the planned use and disposal of chlorofluorocarbons at the Portsmouth Reservation,
9. Need to describe the management and security of uranium hexafluoride and depleted uranium hexafluoride in storage yards,
10. Need to describe the management and legal status of low-level waste generated during refurbishment and construction activities,
11. Concerns about “classified/sensitive” waste, including: who makes the determinations what is “classified/sensitive” waste, what authority do environmental agencies have regarding this type of waste, and what are the storage requirements for this type of waste,
12. Concern about omission of lead and ozone data from air modeling data,
13. Concern about omission of technetium and certain transuranic isotope data from Appendix C: Radiological Dose Analytical Methodology,
14. Concern about omission of certain uranium isotope data from air emission information,
15. Concern about the impact of groundwater contamination on the planned ACP,
16. Concern about schedule for placing the Portsmouth Gaseous Diffusion Plant into “cold iron” mode,
17. Need to describe whether any ACP facilities are “deferred” under DOE’s Resource Conservation and Recovery Act corrective action activities, and
18. Need to list and describe the primary facilities and leased areas for the proposed ACP.

In spite of the resolved concerns, we still have concerns which remain unresolved. Our main unresolved concerns are listed below:

1. The Final Environmental Impact Statement (FEIS) disregards various requirements under the *National Emissions Standards for Emissions of Radionuclides Other Than Radon from Department of Energy Facilities* (40 C.F.R., Part 61).
2. The U.S. Department of Energy’s planned depleted uranium hexafluoride (DUF6) conversion facility may not have sufficient capacity to process (1) the substantial

amounts of DUF6 to be generated by ACP, plus (2) the substantial amounts of DUF6 existing at the Portsmouth Reservation.

3. NRC should implement its proposed mitigation measures for fine particulate emissions from construction equipment to reduce air quality impacts.
4. The FEIS does not include a cumulative impact analysis for erosion and sedimentation impacts (from construction of Cylinder Storage Yard X-745H) on Little Beaver Creek.

Our complete set of concerns, as listed below, are discussed in enclosed detailed comments:

1. Purpose and need of the proposed project,
2. Project scope,
3. Product management,
4. Modeling data,
5. Proposed monitoring scheme,
6. Proposed mitigation,
7. Environmental impacts,
8. Cumulative impacts,
9. Applicable regulations,
10. Affected environment, and
11. Agency involvement.

If you have any questions or wish to discuss any aspect of the comments, please contact Michael Murphy (for radiation-related issues) at (312) 353-6686, Eugene Jablonowski (for Superfund-related issues) at (312) 886-4591, or Newton Ellens (for NEPA-related issues) at (312) 353-5562.

Sincerely,



Kenneth A. Westlake, Chief  
NEPA Implementation Section  
Office of Science, Ecosystems, and Communities

Enclosure

cc: Maria Galanti  
Ohio Environmental Protection Agency  
Southeast District Office

Kenneth Dewey  
Ohio Environmental Protection Agency  
Southeast District Office

## **U.S. Environmental Protection Agency Comments on the Final Environmental Impact Statement for the Proposed American Centrifuge Plant, Pike County, Ohio**

### **General Comments:**

The Final Environmental Impact Statement (FEIS) disregards the *National Emissions Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities*, found at Title 40 of the Code of Federal Regulations, Part 61, Subpart H (40 CFR 61, Subpart H). The FEIS disregards the regulation's compliance requirements for public exposure.

The FEIS appears to misrepresent the requirements of 40 CFR 61, Subpart H for compliance demonstration and the data that is required to be measured and used in compliance demonstrations.

The FEIS does not consider requirements for U.S. Environmental Protection Agency (U.S. EPA) Approval to Construct or Modify Sources, under 40 CFR 61, Subparts A and H, as part of the requirements for the American Centrifuge Plant (ACP) to become operational.

This FEIS fails to include issues relating to (1) evaluations of terrorist attacks to this facility or (2) the proposed actions that would deter this from taking place, in the project scope.

We remain concerned about the cancer rate data provided in the FEIS. The FEIS provides estimated latent cancer fatality data, but does not include non-fatal cancer rate data. Therefore, we requested that the FEIS include non-fatal cancer rate data. The U.S. Nuclear Regulatory Commission (NRC) response in the FEIS states that the radiological analysis used is designed to identify ACP's impact on occupational and public health by comparing expected radiation doses and risks to applicable regulatory limits. NRC defines the dose and risk estimates below these standards as small. However, from a NEPA standpoint, the FEIS still should have publicly disclosed all dose and risk estimates, regardless of the magnitude.

We remain concerned about dated annual radiological emission data, for the Portsmouth Reservation, used in the draft environmental impact statement (DEIS). Specifically, we stated that the DEIS, dated August, 2005, should have referenced the most current annual radiological emissions data—for 2004, in this case. NRC responded that since the 2002 and 2003 site radiological emissions reports show similar results, then the 2004 data is not expected to significantly alter the values in the DEIS. However, the FEIS does not confirm this assumption. Since the DEIS uses dated annual radiological data, NRC's determination for the proposed project is not based on the most current conditions.

### **Specific Comments:**

### **Purpose and need of the proposed project**

- 1) (Comment 014-5, Page J-12) The justification of the rationale used for the purpose and need of the proposed project remains insufficient. The FEIS states that the proposed ACP is needed because only one uranium enrichment plant currently operates in the United States, the Paducah, Kentucky Gaseous Diffusion Plant (Paducah Plant). A supply disruption with the Paducah Plant would leave the nation's commercial nuclear reactors fully dependent on foreign sources for enriched uranium—a situation which could impact national security. However, the FEIS also states that the Paducah Plant would be shut down, decontaminated, and decommissioned after ACP begins operating. ACP would not provide for redundancy and, therefore would not satisfy the national security facet of the purpose and need of the proposed project; the project would merely replace, instead of supplement, the nation's only operating uranium enrichment plant. In response, the FEIS states that NRC is evaluating the Louisiana Energy Services' National Enrichment Facility as part of a separate proposed action. It seems as if the national security facet of the purpose and need would be more suitable for the environmental review of this second operating uranium enrichment facility, as opposed to ACP.
  
- 2) (Comment 014-6, Page J-12) We remain concerned about the lack of a justification in the FEIS for the need to enrich uranium up to 10% by weight of uranium-235. According to the FEIS, the license issued by NRC would authorize USEC Inc. (USEC) to produce enriched uranium up to 10% by weight of uranium-235. However, the FEIS also states that most power plants use enriched uranium with less than 5.5% of uranium-235 by weight, and that it would be unlikely for USEC to enrich uranium up to the higher weight. Finally, the DEIS states that, of the cylinders used to ship enriched uranium, none of them are certified to ship uranium enriched to higher than 5% by weight of uranium-235. Given that it would not be feasible for USEC to enrich uranium above 5% by weight of uranium-235, for civilian use, NRC should have explained why the proposed license would authorize a higher level of enrichment. The FEIS states that USEC applied for a license for a higher enrichment level, in order to maintain operational flexibility for future business opportunities. However, the FEIS does not publicly disclose what these future business opportunities are, nor does the FEIS document an environmental review of them. Therefore, if and when USEC requests NRC's approval to enrich uranium above 5% by weight of uranium-235, NRC should conduct a reevaluation of this proposed activity under the National Environmental Policy Act (NEPA).

### **Project scope**

- 3) (Comment 014-9, J-15) The scope of the FEIS does not include decommissioning and related activities of the Paducah, Kentucky Gas

Diffusion Plant. The FEIS states that after uranium enrichment operations begin at ACP, the Paducah Plant would cease its uranium enrichment operations. According to the FEIS:

For the purpose of this analysis, cessation of uranium enrichment operations at Paducah would include stopping uranium enrichment plant operations, but would not include decommissioning of the Paducah Gaseous Diffusion Plant, changes to any other activities at that site, or any alternative uses of that site in the future. Those other actions at Paducah would be the subject of other decisions and other environmental reviews.

The scope of FEIS should have included the cessation of all uranium enrichment operations at the Paducah Plant, because it is a connected action under NEPA. The start of ACP's uranium enrichment operations and the cessation of uranium enrichment operations at the Paducah Plant are closely related—the Paducah Plant's operations would not cease if ACP's operations did not start. The indirect and cumulative impact analysis in the FEIS is incomplete, because it does not include impacts caused by decommissioning and related activities of the Paducah Plant.

#### **Product management**

- 4) (Comment 014-23, Page J-24) Page 4-76 of the FEIS states a requirement that the U.S. Department of Energy (DOE) "accept low-level waste, including depleted uranium that has been determined to be low-level waste, for disposal upon the request and reimbursement of costs by USEC." NRC actually asserted its authority in its determination that depleted uranium was low-level waste in a January 18, 2005 NRC Memorandum and Order on the subject, when NRC explicitly determined that depleted uranium is a low-level waste. Further, NRC also stated that, "Although the Commission itself may not have explicitly declared previously, as a matter of law, that depleted uranium is a form of low-level radioactive waste, it has long been understood within the NRC to fall within the low-level radioactive waste umbrella." Therefore, as it applies to depleted uranium, the "determination" is really a technical matter as to whether a given uranium tail material is depleted (automatically making it a low-level waste if it is), not a specific determination or administrative decision that a depleted uranium product is a low-level waste.
- 5) (Comment 014-24, Page J-25) Depleted uranium hexafluoride (DUF6) is a corrosive and reactive hazardous material until converted into a more stable form for long-term storage and disposal. DOE has plans to build a DUF6 conversion facility at Portsmouth to process the 450,000 metric tons of DUF6 generated from 50 years of previous uranium enrichment activities at the site, expected to operate until 2024. The ACP is expected to operate until 2039 and generate 571,000 metric tons of DUF6.

DOE is likely to be the only entity performing DUF6 conversion on this large of a scale due to their obligation to accept DUF6 tails from generators under the USEC Privatization Act. If DOE is to process all of the DUF6 from past operations, and process all of the ACP-generated DUF6, then, as NRC's response to comments state, DOE would have to install additional conversion lines, or extend the DUF6 conversion facility's operating life from 2024 to 2077. What this amounts to is that if DOE doesn't have the adequate capacity to process DUF6 at rates adequate to address legacy inventories and the ACP's DUF6 generation rate, corrosive and reactive hazardous DUF6 may require storage and management for up to 38 years until converted into a safe and stable form.

The ACP's projected generation of 571,000 metric tons of corrosive and hazardous DUF6 will further subject DOE to the Resource Conservation and Recovery Act (RCRA). DUF6 is a hazardous material and DOE has had a difficult enough time trying to figure out what to do with the 450,000 metric tons of DUF6 already on the Portsmouth site. The current 450,000 metric ton inventory grew over a 50-year because there was no consideration for proper waste management as part of the total uranium enrichment process. Now in 2006, DOE stands to repeat the same waste management scenario that it began in 1951.

DOE should address the need for sufficient additional capacity (added conversion lines) to address the ACP's DUF6 waste streams, both historic and projected. Otherwise a situation will slowly develop where the federal government is managing and processing DUF6 38 years beyond the cessation of the ACP's operation, longer than the operational period of the ACP itself.

U.S. EPA questions whether the DOE's "Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Portsmouth, Ohio Site" (DOE/EIS-0360, 2004) was adequate to support all of the conversion activities and the sheer volume of DUF6 (maybe 1,000,000 metric tons total) that DOE's conversion facility could be expected to support, and for a period of time extending as far as 2077.

- 6) (Comment 014-25, Page J-27) Section 3113(a) of the USEC Privatization Act states that DOE, at the request of the generator, shall accept for disposal depleted uranium if it were ultimately determined to be low-level radioactive waste. NRC subsequently asserted its authority in its determination that depleted uranium was low-level waste in a January 18, 2005 NRC Memorandum and Order on the subject, when NRC explicitly determined and stated that depleted uranium is a low-level waste.

10 CFR Part 76, NRC's regulations on the "Certification of Gaseous Diffusion Plants," establishes requirements that govern the operation of those portions of the Portsmouth and Paducah Gaseous Diffusion Plants located in Piketon,

Ohio, and Paducah, Kentucky, respectively, that are leased by the USEC. Part 76.4 provides a definition of depleted uranium that would seem to apply to those facilities.

This comment stemmed from consideration of past instances where it was difficult for DOE to dispose of uranium materials due to a lack of consensus between DOE and USEC as to whether it was a waste or product.

- 7) (Comment 014-26, Page J-43) Considering that NRC has already ruled that depleted uranium is considered a form of low-level radioactive waste, NRC should then state that a whether a depleted uranium material is a low-level waste is based on its U-235 assay relative to natural concentrations, rather than any other administrative determinations. The FEIS doesn't properly describe a complete basis for which DOE is obligated to accept depleted uranium for conversion and/or disposal.

#### **Proposed monitoring scheme**

- 8) (Comment 014-31, Page J-28) While NRC states an awareness that transuranics will be introduced into the ACP, even at trace quantities, NRC does not expect USEC to perform routine transuranic monitoring, except for technetium-99 because of the isotope's "historic presence on the site." NRC's selection of isotopes for effluent monitoring appears to be arbitrary. NRC should be reminded that under U.S. EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart H or I regulations, a facility must measure radionuclide emission rates from stacks or vents that have the potential to emit enough radionuclides to cause an effective dose equivalent of more than 0.1 mrem per year. At each of those release points, the facility must measure all radionuclides that could contribute more than 0.01 mrem per year to the dose from that release point. Other potential release points must be measured periodically to assure that emissions are below these levels. Finally, "Potential" emission rates must be estimated by assuming normal operation with no pollution control equipment.

We understand that the "historic presence" of technetium-99 at Portsmouth was due to the introduction of recycled feed into the gaseous diffusion plant (an enrichment facility) and that DOE routinely monitored for a variety of radionuclide effluents ranging from uranium isotopes to technetium and transuranic isotopes that were contaminants in the feed. Considering U.S. EPA's NESHAP, and that feed materials may originate from a variety of sources not contemplated by the EIS (such as foreign sources), we recommend that transuranic monitoring should be either evaluated or performed routinely during the ACP's entire operational period. It may also be a good business practice to demonstrate the control, or "trace" presence, of transuranic emissions from the ACP.

- 9) (Comment 014-32, Page J-28) In selecting effluents for monitoring, NRC



selected those that are historic contaminants on the Portsmouth reservation. We recommend that NRC select for analysis those radionuclides that contribute the highest dose, and not necessarily make assumptions based on past feed stock and their radiological attributes.

### **Proposed mitigation**

- 10) (Comment 014-34, Page J-54) We urge NRC to implement its proposed mitigation measures for fine particulate matter emissions from construction equipment to reduce air quality impacts. According to the FEIS, site preparation and construction activities may generate fine particulate emissions exceeding the corresponding National Ambient Air Quality Standard (NAAQS). The NRC staff determined that the majority of fine particulate emissions emitted during construction would come from construction vehicle exhaust. Therefore, in order to reduce particulate emissions from construction vehicle exhaust, NRC recommended that USEC: (1) use Tier 2 construction-related vehicles, which would reduce diesel particulate emissions by about 40%, and (2) use ultra-low sulfur diesel fuel. In our October 31, 2005 comment letter, we urged NRC to establish these mitigation measures in the construction contracts for the proposed project, and to document these mitigation measures in the Record of Decision (ROD). However, NRC responded that it doesn't believe that inclusion of these mitigation measures as an ACP license condition is warranted, because (1) the resulting percentage reduction in particulate matter is expected to be small, and (2) the site is located in an area that is exempt from restrictions from fugitive dust. We respectfully disagree with this position. NRC expects the implementation of the proposed mitigation measures to (1) reduce fine particulate matter concentrations below the NAAQS, and (2) reduce the characterization of non-radiological air quality impacts from site preparation and construction from "MODERATE" to "SMALL." Therefore, we believe that the NRC should reconsider its stance, because of the apparent significance of implementing the proposed mitigation measures.

### **Cumulative impacts**

- 11) (Comment 014-40-1, Page J-78) We remain concerned about cumulative erosion and sedimentation impacts which could be caused by construction of Cylinder Storage Yard X-745H. According to the DEIS, the cylinder storage yard would be constructed in an area characterized by steep slopes. The DEIS states, "During excavation and grading, the steep slopes would be more susceptible to soil erosion, and the streams at the bottom of the slopes may receive an increased amount of silt." Construction activities would be close to Little Beaver Creek, an impaired stream. Presently, siltation and sedimentation are two causes of the creek's impairment. Additional erosion and sedimentation from the construction of the cylinder storage yard could result in cumulative impacts to Little Beaver Creek. Our comments on the DEIS requested that NRC perform a cumulative impact analysis for this case.

Such an analysis should have been included in the FEIS. Instead, the FEIS states, "In completing the cumulative impact analysis, NRC evaluated the other activities occurring on the Portsmouth reservation and their specific location as listed in Table 4-24. No changes to the cumulative impact analysis are warranted, because no other large scale land disturbing activities with the potential to increase erosion or sedimentation in Little Beaver Creek were identified." Since NRC only accounts for activities within its jurisdiction, the cumulative impact analysis for the ACP project is incomplete. A comprehensive cumulative impact analysis would have accounted for all activities which contribute to the impaired status of Little Beaver Creek--inside and outside the Portsmouth Reservation. As it stands, the FEIS does not provide a cumulative impact analysis for Little Beaver Creek and the creek's aquatic ecosystem.