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Waste Disposition Subcommittee Meeting
4 p.m. ♦ January 5, 2009

Agenda

1. Presentation on Small UF6 Cylinders Phase II Removal Project LATA/Parallax Portsmouth LLC (Clyde Gaston and/or Darrin Hovis)
2. Presentation on Polybottles Disposition Project LATA/Parallax Portsmouth LLC (Mike Kennicott)
3. Concerns/Issues
4. Next Month's Agenda

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*Support provided by
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Portsmouth Site Specific Advisory Board
Waste Disposition Subcommittee Meeting
January 5, 2009

Committee Members:

DOE Representatives: Melda Rafferty
 Dave Kozlowski
 Mike Kennicott, LPP
 Jeff Pinkerton, LPP
 Clyde Gaston, LPP
 Darrin Hovis

Support Staff: Kate Timmons, EHI

Meeting opened at 4:00 p.m.

Poly-Bottle Presentation

Mike Kennicott delivered a presentation on poly-bottle disposition. Kennicott explained that the bottles were used to store highly enriched uranium (HEU) and went on to explain that poly-bottles must be at least one-foot apart for safety and that the DOE stores the bottles with two-feet in between, twice the federal regulation for proper bottle storage. Francis inquired what would happen if the bottles were stored too close together. Kennicott stated that that if a spacing violation occurred that one more issue would have to be present before a criticality exists.

Kennicott stated that the uranium in the bottles would not be recovered, instead would be solidified, and sent to the Nevada Test Site. Two types of testing must be done before bottles can be sent to the test site. The first test will determine if a treatment permit is needed, and the second test will determine if the treated material is hazardous. Kennicott also ensured the committee that the workers handling the material were safe from contamination.

Swain inquired about how the safety is monitored. Kennicott stated that LPP monitors the safety of the area. Swain asked why the Ohio EPA was not part of the monitoring process. Kennicott explained that the Ohio EPA is not called in because an air quality issue does not exist; the issue is a worker safety one and is monitored by LPP.

Kennicott explained that 30 bottles will be treated and samples will be sent to the Ohio EPA for testing. Testing is required to ensure that the hazardous material cannot escape the binding solution. Francis asked about the capabilities of the USEC lab to do the tests. Kennicott stated that the testing had to be done by an EPA-approved lab and that he did not believe that the USEC lab was capable of conducting the type of tests that were required. Once the material is tested and proven to be stable, a NTS profile will be completed prior to shipping.

UF6 Small Cylinder Presentation

Darrin Hovis delivered a presentation on UF6 Small Cylinders. Hovis stated that Phase 1 of the project was completed, with Phase 2 now in process. The small containers are for gases and UF6. He explained that to stabilize the heels (what is left in the containers after normal processing without being washed out) was incorporated with a magnesium hydroxide solution to stabilize the materials, then mixed with mortar to solidify the contents. He stated that about 60 pounds of concrete was added to Phase 1 cylinders.

Hovis stated that 127 cylinders were sent to USEC, as there was enough uranium that could be recovered and could be profitable to the DOE. The rest of the cylinders do not have enough recoverable uranium and will be shipped off as waste.

16 cylinders are going into autoclaves for cylinder extraction. IES will come up from Atlanta, Georgia, to analyze the cylinders and follow the same methods as in Phase 1.

Hovis indicated that Phase 2 is slated for completion in September 2009. Cylinders will be shipped as they are completed. In February 2009, a stainless steel structure will be erected in the X-333 building for analyzing, and process will begin in March.

Process Gas Filter Ash and Oil Leak Gunk Disposition

Rafferty explained that the ash is the consistency of baby powder and is the by-product of the creation of uranium hexafluoride, while gunk consistency ranges from concrete to silly putty and is the by-product of oil leaking into the process line and mixing with highly enriched uranium – both processes occurring in the 1970's. This material was sent to the Nevada Test Site to recover the uranium. This cannot be done, resulting in the material being shipped back to LPP for stabilization and disposal.

Action Items

1. Subcommittee requests project updates as they become available.
2. Subcommittee requests summaries be sent out to the committees prior to the board meetings.
3. The Lube Oil and Pyranol presentation was postponed to the next meeting of the Waste Disposition committee.
4. The DOE is in the process of preparing the DMSA 11 and 12 fact sheets should be available by the next sub-committee meeting.

Next meeting is scheduled for Monday, February 2, at 4:30 p.m.

Small UF₆ Cylinder Disposition Project

LATA/Parallax Portsmouth, LLC

January 5, 2009

Project Summary



- Cylinders being processed and disposed of in this project contain various amounts of Uranium Hexafluoride (UF_6)
- This UF_6 was used as feed stock in the enrichment process and has been stored for years in various buildings onsite

Background: Cylinder Disposition – Phase I

- Phase I of the Small Cylinder Project consisted of disposal of cylinders that were clean and empty or contained Resource Conservation and Recovery Act (RCRA) empty heel quantities of UF_6 (<3% by weight)
- Approximately 1,250 cylinders were identified to be processed as part of Phase I.
 - Approximately 800 were clean empties
 - Remaining ~450 contained heel quantities of UF_6

Background: Cylinder Disposition – Phase I

- Treatment

- IES technicians introduced a Magnesium Hydroxide (Milk of Magnesia) solution into the cylinders which neutralized the UF_6 .
- The resulting solution was mixed with mortar mix and solidified inside the cylinders, thereby disabling the cylinders for future use.
- The cylinders were loaded into B-25 boxes and shipped to (NTS) for disposal.



Cylinder Disposition – Phase II

- Phase 2 of the Small Cylinder Project will dispose of the cylinders with greater than heel quantities of UF₆
- Three different populations of cylinders have been identified as part of Phase 2:
 - Approximately 34 cylinders will be transferred to Uranium Disposition Services, LLC (UDS) at a later date for processing
 - Approximately 127 cylinders have been transferred to the United States Enrichment Corporation (USEC) for recovery of the cylinder contents
 - Approximately 300 cylinders will be processed by LPP and disposed of as waste. These cylinders were determined not to contain recoverable amounts of uranium

Cylinder Disposition – Phase II

- Currently all but a small number of cylinders to be processed by USEC have been transferred to them for processing. Discussions are ongoing in relation to the process of treating the few remaining cylinders.
- The majority of the cylinders transferred to USEC have been emptied and returned to LPP. These are being stored and awaiting stabilization at a later date.

Cylinder Disposition – Phase II

- Phase 2 cylinder stabilization is currently scheduled to begin in May 2008 and will be performed by IES.
- The same in situ (in place) stabilization process discussed for Phase I will be utilized for all cylinders emptied by USEC and for any other cylinders containing heel quantities of UF_6 that fall under the scope of the contract with the Department of Energy.

Cylinder Disposition – Phase II

- For cylinders with greater than heel quantities of UF_6 , an external stabilization process will be followed:
 - Cylinders will be heated under controlled conditions to the point where the UF_6 is sublimated, or turned into a gaseous state
 - The sublimated UF_6 will be drawn off and reacted with Potassium Hydroxide to neutralize it
 - The resultant solution will be mixed with mortar and solidified
 - The cylinder then will be stabilized as described previously and disposed of with the containers of concreted uranium salts produced by the external stabilization
- Once stabilized, the waste will be shipped to NTS in B-25 boxes for disposal

Safety: Cylinder Disposition – Phase II

- Multiple safeguards will be in place to prevent inadvertent release of HF gas or criticality during processing:
 - Stabilization work will be performed inside a stainless steel Perma-Con enclosure inside the X-345 facility
 - IES will utilize High Efficiency Particulate Air (HEPA) filtered ventilation systems both on the enclosure where work is being performed as well as locally when performing breaching evolutions
 - A high volume ventilation scrubber system is used during handling of all cylinders inside the processing enclosure. This system utilizes drums of activate alumina to neutralize any gaseous HF that may be produced when cylinders are being processed.

Safety: Cylinder Disposition – Phase II

- Safeguards (continued):
 - Only one cylinder at a time will be heated, the tank where the neutralization reaction takes place will be emptied, and the contents will be solidified following the processing of each cylinder. This will reduce the possibility of inadvertent criticality.
 - Many of the valve operations and monitoring activities associated with the heated processing system will be performed remotely. This action would serve to minimize personnel exposure in the event of an accidental release.

Cylinder Disposition – Phase II

- Project is scheduled to be completed by the end of September 2009
- Waste shipping activities will be ongoing as cylinders are processed and should conclude shortly after processing is finished