1862 Shyville Rd.
Piketon, Ohio
45661

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Environmental Restoration Committee Meeting
5:30 p.m. • February 24, 2009
The Ohio State University Endeavor Center
1862 Shyville Road, Piketon, Ohio 45661

Agenda

1. Review of last meeting's summary
2. Election of subcommittee chair
3. On-going Remediation Activities
4. Review of Operating Procedures
5. Concerns/Issues
6. Other
    - Review Action Items

Environmental Remediation

Meeting Summary
February 24, 2009
The Ohio State University Endeavor Center
1862 Shyville Road, Piketon, OH 45661

Members Present:

Members Absent:

Executive Committee:

DOE Representatives:

DOE-related employees:

Support Staff: Julie Galloway, EHI

The committee's meeting agenda and objectives were to:

1. Review the summary of last meeting
2. Election of a subcommittee chair
3. Ongoing Project Updates
4. Review of operating procedures
5. Concerns/Issue
6. Review of Action Items

1. **Review of the summary of last meeting**
   - Accepted as presented.

2. **Selection of Committee Chair**
   - Renner volunteered to be the committee chair.

3. **Ongoing Project Updates**
   - 749 Groundwater Plume
     - The modeling is continuing.
     - LATA is discussing refinements to the model with the DOE and the installation of an extraction well.
     - Sampling of the wells and landfill will happen in the second quarter.
   - 344 C
     - Work plan will be out in the next couple of weeks.

- 7-Unit
    - LATA is in discussions with the Ohio EPA.
    - Expecting to have the work plan in one week.
- 770 Building – Concrete pad removal
    - All that's left is the concrete pad.
    - Sharp should have the work plan in the morning.
- 746 Building
    - Preparing the EE/CA analysis and will have to the DOE in the next few days and ready for the public in March.
- 701 B Oxidant Injection
    - An oxidant injection is scheduled for the spring.
    - Looking into alternative technologies to remediate the plume.
    - The independent review group from the DOE Headquarters offered some suggestions on some other things to do other than to continue with the oxidant injections.
    - The final report from the independent review group is expected in March.
- 326 Extraction Well Project
    - Converting a monitoring well to an extraction well. Ground has been broken on this project.
- 740 Groundwater Plume
    - In an agreement with Ohio EPA to defer any decisions on continuing oxidant injection until the sampling is finished.
    - Galanti stated that the remediation that was selected way phytoremediation. The DOE prepared a 5-year review and the remedy isn't performing as intended. Oxidant injection is currently being used, but if this doesn't work, another remediation will be explored.

Inquiries	Responses
Francis: Are all the plumes on the site under a 5-year review?	**Galanti**: All the plumes have a remediation selected except for the 7-plume, due to the fact of the location and we couldn't get to it. We are trying to identify the sources and are working to determine what will work best. But, every plume onsite is reviewed every 5 years.
Charle: The problem with the 7-plume isn't a financial problem, but a it's that there isn't a technology.	**Galanti**: There are access issues. The plume goes under and around buildings. We couldn't drill through floors and couldn't get into the buildings to do the investigation. So, we're hoping now to use some geo-probes and other technologies to get into the tight spaces to try to identify the sources, then look at the data to find technologies to try to remediate the plume. **Sharp**: We're doing more investigation and putting some probes along the wall of the

	330 building in order to get an idea of what the plume looks like.
Brushart: How many technologies have you tried besides oxidant injection?	**Sharp**: We've tried thermal, oxidant in horizontal wells, a technology that uses a type of soap to dissolve it, steam injection and different types of oxidant. We've probably spent about $100M to remediate this with some successes.
Charle: Would you say that Piketon has an especially severe case to find these kinds of solutions?	**Sharp**: The difficulty is we have shale and weathered shale – the consistency is very much like modeling clay and the TCE has gotten down into that stuff and we haven't been found an effective way of getting it out again. When we have TCE in the groundwater, we use treatments that are much easier to deal with but we haven't found an effective way to get to the source of the contamination. **Kozlowski**: We have a unique density and compaction of soil which is a blessing and a challenge. It behaves like a bathtub which contains our plume. The southern plume did cross the boundary, but we were able to draw it back in. It is a challenge to get the TCE because it's at depths of 30 feet down. The final report should be issued soon. The remedies that they are suggesting are being used in Savannah River, but we need to evaluate that since our soil is a little different than theirs.
Blackburn: Is 7-Unit plume under two buildings?	**Kozlowski**: I'd say it's under five.
Blackburn: Are any of those in the first round of D&D?	**Kozlowski**: None of them are. The only one we have de-leased is 305. But none of the 700 buildings are scheduled to be transferred back in the first round of D&D.
Francis: The 326 is the hotspot?	**Sharp**: It seems as though there is a little spot that we'll need to get taken care of.
Charle: In reference to the X-326 extraction well project and the USEC share site approval, will you share what that implies?	**Sharp**: We do a number of activities on USEC property or property in common. When we do something that will have an affect on USEC, we use this shared site process so they have an opportunity to see what we're going to do and comment on it so we don't impact their process. In this case it was utilities. In some cases it is more difficult.

Charle: If USEC had a problem, might you not find that that was awkward when you were attempting to engineer a clean-up and they were doing something totally unrelated?	**Sharp**: Yes. And we have to talk with the DOE and weigh in and decide how to prioritize activities. **Kozlowski**: In our dealings with USEC, we've not had anything that's come to an impasse. Sometimes there is a challenge. One time LATA did sampling in the 533 switchyard when it was active, but we had to coordinate with USEC because it's a high-energy yard.
Charle: They don't see it as a potential obstacle to the achievement of the ultimate goal for this site that it has an active USEC contractor doing it's operations here.	**Kozlowski**: For the D&D of this site, I expect to have the properties transferred back to us. We're going to have to have the buildings back before we can do anything with them, and I expect some challenges with utilities, but we'll have to work that with USEC so they can keep the ACP in line, but I think we can work with them on this. It will be more of a challenge on the demolition of buildings.
Charle: Are they not establishing a footprint in where they will be more or less permanent there?	**Kozlowski**: In the ACP area, there will be a more permanent footprint.
Blackburn: Do you envision any problems with an accelerated clean-up in terms of getting buildings back?	**Kozlowski**: I think it will be a challenge. I think we'll have to work closely to get those buildings back on an accelerated clean-up. They've indicated that the 333 building will be coming back. We've asked them to do some work on the 326 for some deposit removals. That work is to be completed in 2010 and should be able to be transferred back to us. We'll have to work through issues as we get to them. We see this at every site.

4. **Review of operating procedures**
   - ***Francis*** makes a motion to recommend to the full board to form an ad hoc committee to address operating procedure issues. ***Blackburn*** seconds. ***Motion carries.***

5. **Concerns/Issues**
   - We are getting stimulus funds from the D&D fund. We should have our allotment by March 1. The funding is not intended to fully fund accelerated clean-up efforts. Additional funding is a good thing.

6. **Review of Action Items**
   - Committee requests updates on the 706 CERCLA document

- Committee requests a 701B Briefing

Next meeting Thursday, April 9, 2009, 5:30 p.m.

LATA/Parallax Portsmouth, LLC

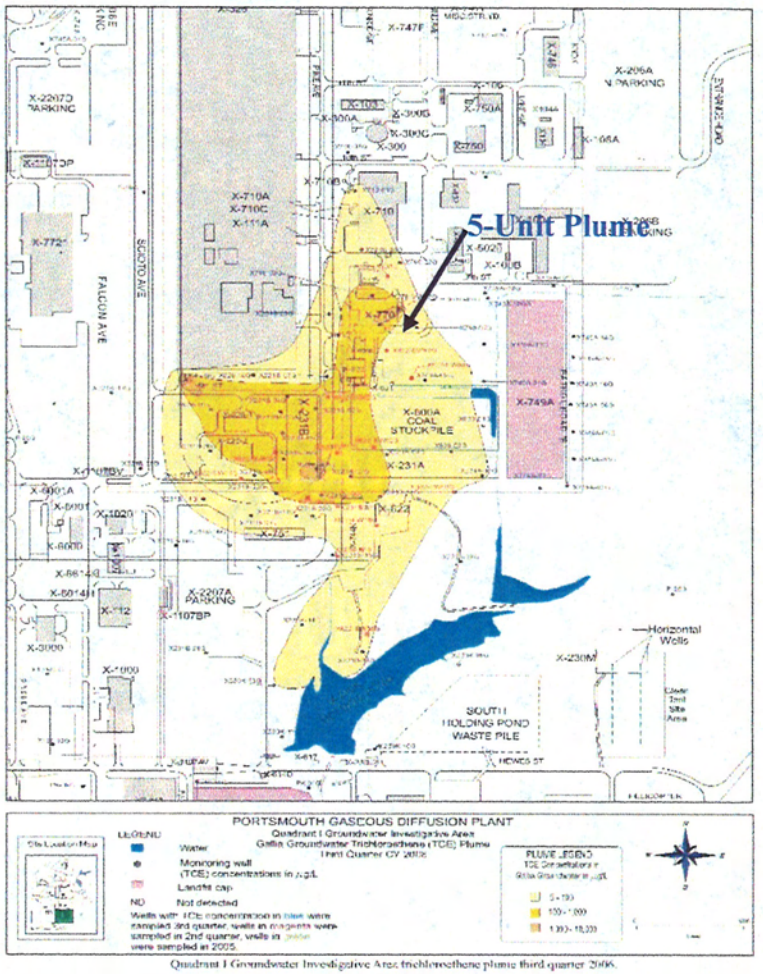
5-Unit and 7-Unit Groundwater Investigations Update

Presentation by Dave Sharp
LATA/Parallax ER Operations Manager
February 3, 2009

Portsmouth Site Specific Advisory Board,
Environmental Remediation Committee

5-Unit Plume Area

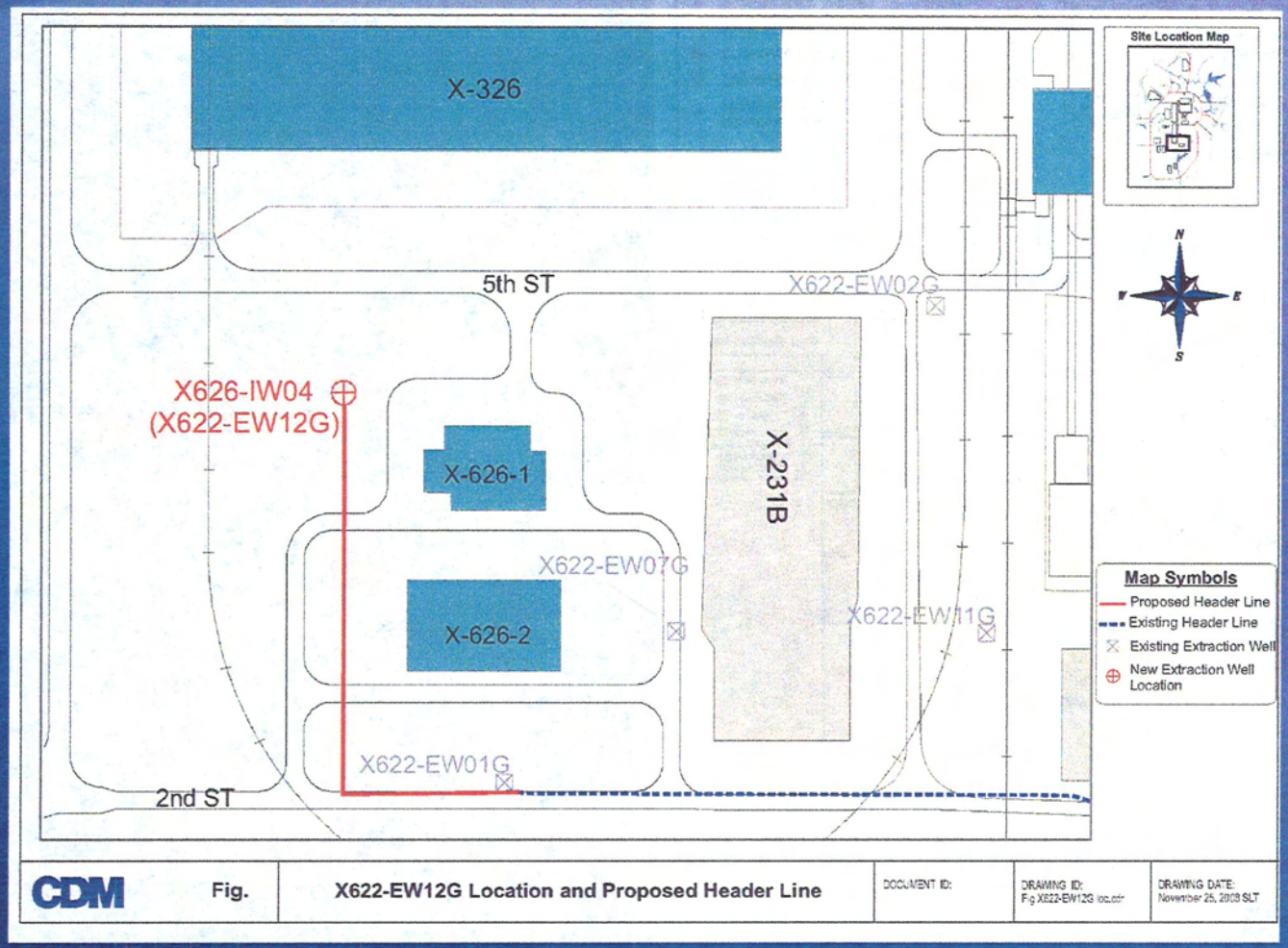
5-Unit Groundwater Plume Area at the Portsmouth Gaseous Diffusion Plant



Quadrant I Groundwater Investigative Area: trichloroethene plume third quarter 2006.

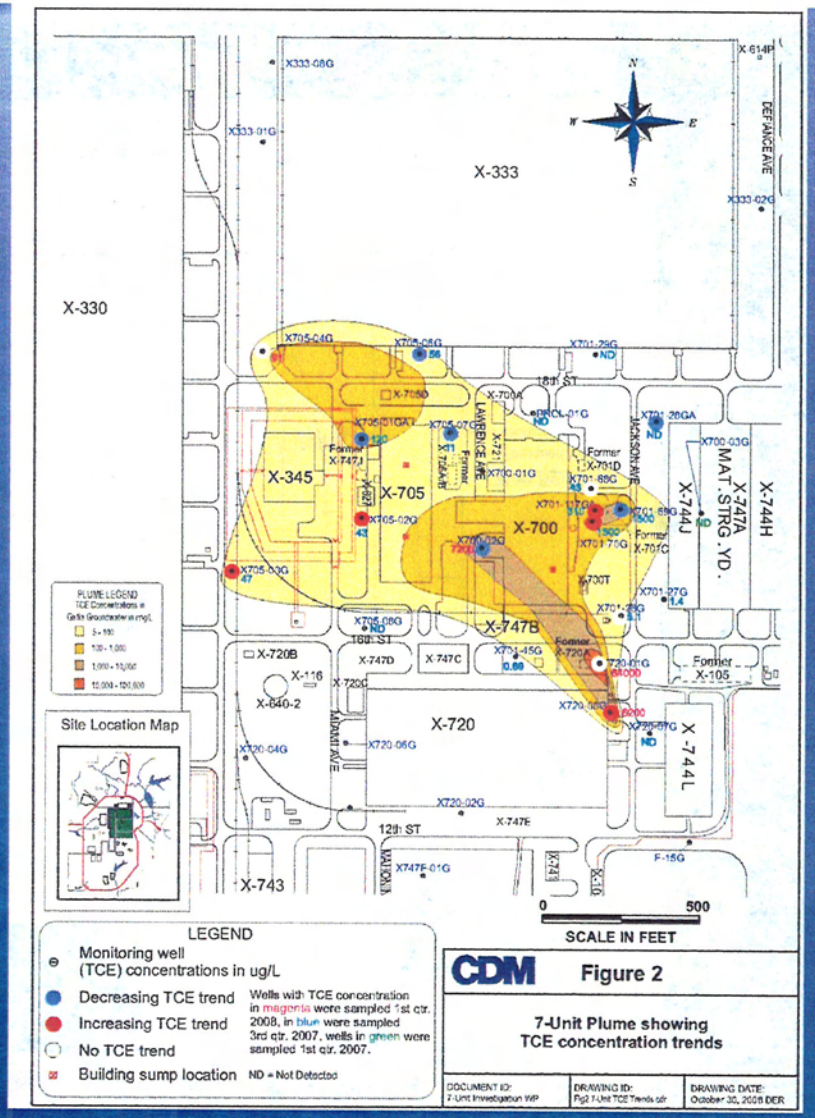
LATA/Parallax PORTSMOUTH, LLC

X-326 New Extraction Well



7-Unit Plume Area

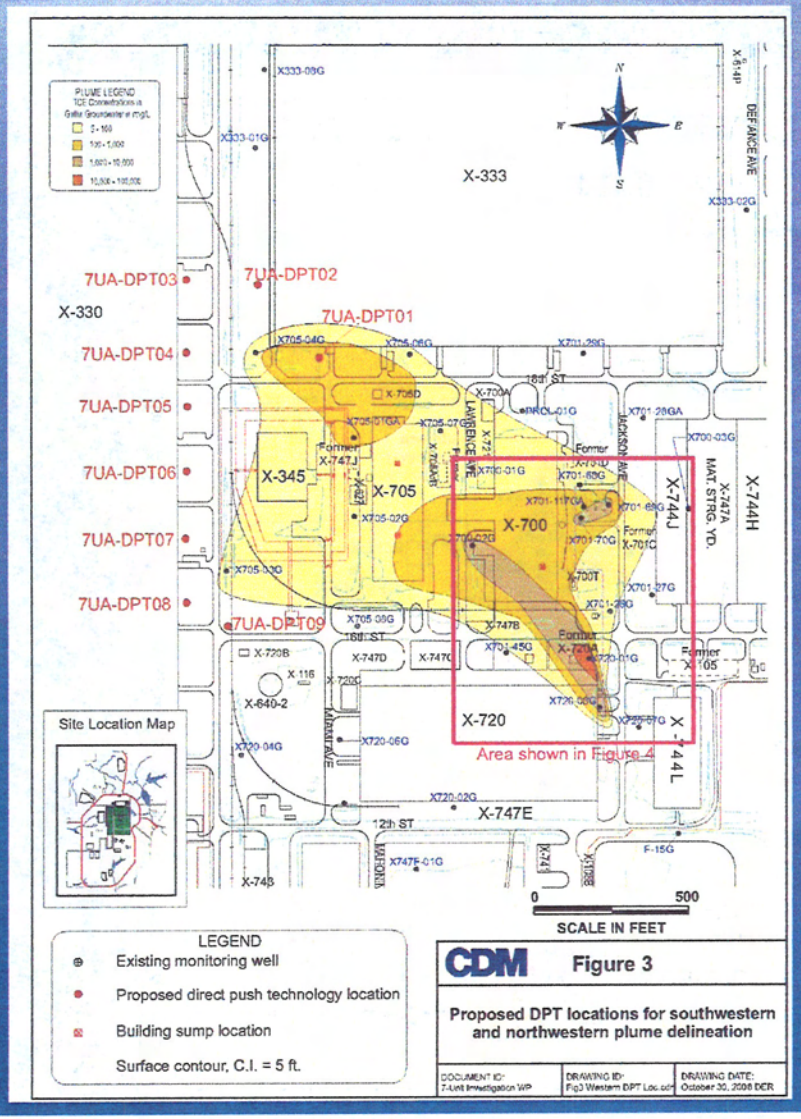
7-Unit Groundwater Plume Area at the Portsmouth Gaseous Diffusion Plant



LATA Parallax

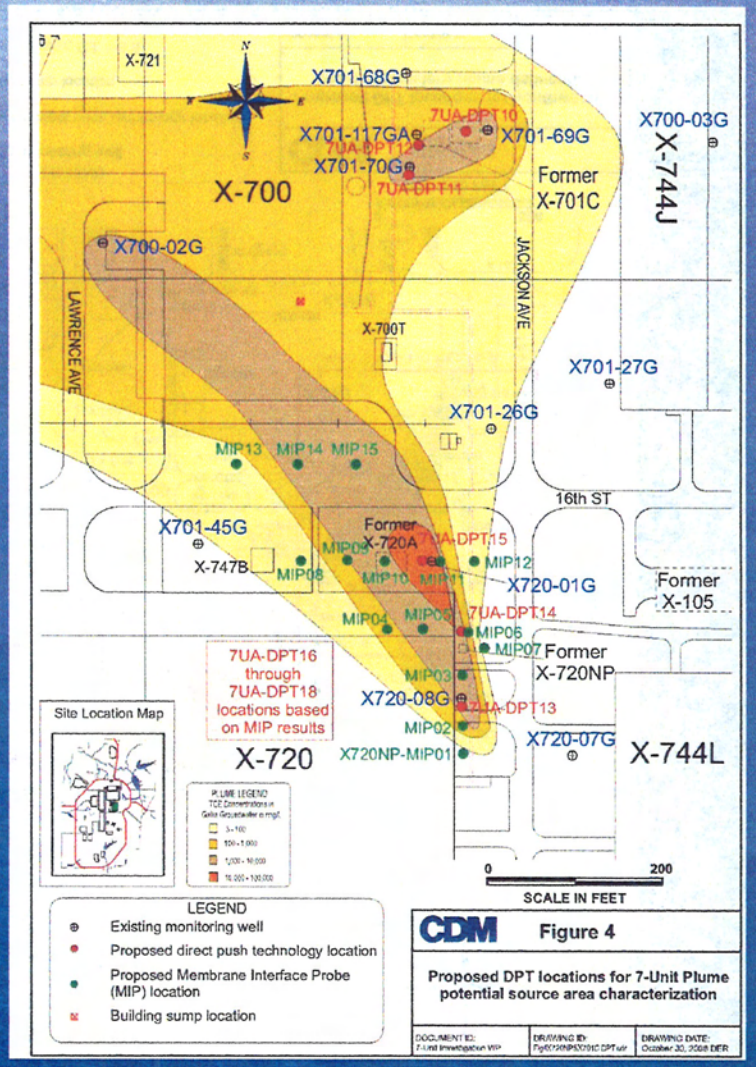
Sampling Locations

7-Unit Groundwater Plume Area at the Portsmouth Gaseous Diffusion Plant



Potential Source Area

7-Unit Groundwater Plume Area at the Portsmouth Gaseous Diffusion Plant



LATA Parallax
LATA/PARALLAX PORTSMOUTH, LLC

Small UF_6 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 UF_6
- 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

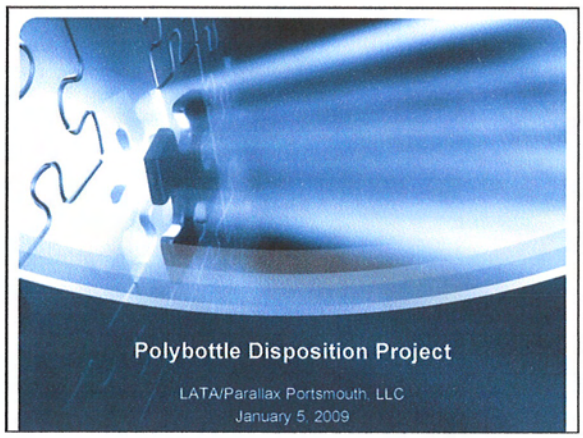
- Multiple safeguards will be in place to prevent inadvertent release of HF gas or criticality during processing:
  - Stabilization work will be performed inside a stainless steel Perma-Con enclosure inside the X-345 facility
  - IES will utilize High Efficiency Particulate Air (HEPA) filtered ventilation 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



Project Background

- Cylinders used to store highly enriched uranium (HEU) were washed by the United States Enrichment Corporation (USEC) to remove uranium compounds.

Project Background

- Wash solution is stored in plastic "Polybottles"
  - Polybottle is a container for safe geometry for uranium liquids
    - Prevents criticality
    - Stored and moved in a controlled fashion

Project Background

Right: This is a cart used to transport polybottles between locations. The location of the six (6) casings on the cart maintains the spacing specifications necessary for safe transport.

Left: The orange lines on the floors designate the path for safe cart travel when working with polybottles. The white lines designate the placement areas for safe operations.

Project Background

- What is in the polybottles?
  - Acids from rinsing residual uranium from cylinders (Nitric acid and water)
  - Uranium materials of <10% enrichment up to 95 grams

Project Work Scope

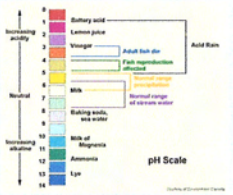
- To characterize, treat (if required) and dispose of 781 polybottles and their contents by September 30, 2009
- No uranium recovery
- Solidification in 55 gallon drums
- Ship material by truck to Nevada Test Site for final disposal

Project Work Scope

- Polybottles are presently stored on-site in a safe geometric configuration based on container type, spacing and inspections.

Regulatory Guidelines

- Sampling for acid and heavy metals.
  - Results will determine if DOE will need to request a Resource Conservation and Recovery Act (RCRA) temporary treatment authorization from the Ohio Environmental Protection Agency (OEPA).
  - Treatment process optimization, if required
    - Meet Land Disposal Restrictions (LDR) requirements and Waste Acceptance Criteria (WAC) (not a mixed waste)



Project Safety

- There are 2 primary safety concerns involved with this project
  - Spilling of material on to the floor
    - Addressed by floor treatment with a chemically resistant epoxy paint. Berms also are in place to contain material.
  - Release of vapors from mixing of product
    - Addressed by self-contained HEPA ventilation hoods placed directly over the work area.

Project Safety

- Personal and air monitoring will be conducted by Industrial Hygiene and Radiation Control Technicians during the solidification process
- Personal protective equipment (respiratory and clothing protection) will be provided as required.

*Image is representative of the equipment expected to be used on project

Project Status

- Preparing Areas
  - Chemical resistant epoxy paint
  - Rack installation
  - Process area (HEPA ventilation hoods)
- Work Package Development
  - Readiness assessment
- Container movement
- Sampling and analysis
- Material solidification

Project Status

- Bench scale testing
  - Sample and analysis
  - "Tweak" process if required
- Production
  - Verification
- Shipment to NTS