

# River and Plateau Committee

March 15, 2016

## Environmental Restoration and Disposal Facility Discussion

The Hanford Advisory Board was briefed on plans for a vertical expansion of ERDF during its Feb 2016 full Board meeting, and again at the Feb 2016 RAP committee meeting. Board members expressed concerns about the lack of public involvement in the consideration of vertical expansion and asked if the agencies would consider bringing this topic before the public for input.

ERDF is an enormous lined landfill in the heart of Hanford's central plateau. This is essentially where Hanford waste goes to die, a grave that is meant to hold low-level and mixed waste such as debris from demolished Hanford buildings, contaminated soil, contaminated sampling equipment from Hanford's tank farms, equipment from the demolition of the Plutonium Finishing Plant and other contaminated material for millennia. ERDF's liner is designed to last 1,000 years. Once all of ERDF's massive cells are filled, a cap/barrier will be placed over the landfill. A 2010 Washington Closure Hanford presentation<sup>1</sup> mentioned that approximately 100,000 gallons of leachate are pumped into holding tanks each month before being sent via underground piping to the Effluent Treatment Facility where it is treated and released into a permitted drain field. The filter media and removed contaminants are returned to ERDF for disposal.

DOE has been putting waste into ERDF for 20 years, since 1996. Since that time, there have been a number of changes to the performance assessment; changes to various assumptions about future impacts; and changes to the limits on certain contaminants. Given that cleanup has several decades to go, and that additional huge volumes of waste will end up in ERDF, it seems an opportune time to take an overall look at ERDF and what additional changes (and their potential impact) may be anticipated for the next 15-20 years.

The last presentation to the RAP on February 9, 2016 about the vertical expansion noted that:

- Without expansion, ERDF will be filled to capacity in 2017
- Vertical expansion provides additional waste disposal capacity equivalent to one super cell or 3.6 million tons
- The existing ERDF liner, leachate collection, and instrumentation systems will support vertical expansion
- Vertical expansion will result in a 20 foot elevation increase
- The cover over cells 1-4 will be removed or penetrated to ensure leachate generated from waste in the vertical expansion infiltrates into the underlying waste and leachate collection system.
- Vertical expansion saves \$30 million

---

<sup>1</sup> <http://www.wmsym.org/archives/2010/pdfs/10342.pdf> p.6

## **Comments/Potential Advice**

Given that cleanup has several decades to go, and that additional huge volumes of waste will end up in ERDF, it seems an opportune time to take an overall look at ERDF and what additional changes (and their potential impact) may be anticipated for the next 15-20 years.

The Board advises the Tri-Party Agencies to provide background information about ERDF during this process that includes:

- Rationale for consolidating Hanford waste in ERDF
- Descriptions of waste that ERDF receives using specific examples
- How contaminant levels are monitored for waste slated for disposal at ERDF and how total contaminant levels are inventoried for the landfill.
- How the leachate collection system works and where the leachate is treated.
- How the liner, leachate collection system, and instrumentation will be maintained hundreds of years into the future.
- How groundwater/vadose zone monitoring will be maintained into the future.

The Board advises the Tri-Party Agencies to conduct a public involvement process to share information about the proposed vertical expansion of the Environmental Restoration and Disposal Facility and solicit input about these plans.

## **Proposed Questions for Further Development of this Topic**

- 1) What do the Tri-Parties plan for the rest of the operating life of ERDF?
  - a. What wastes?
  - b. What hazards?
  - c. What characteristics?
  - d. What changes in limits (waste acceptance plan ...)?
- 2) How does ERDF's current inventory stack up against the aggregate allowance limits for uranium and technetium-99 (or other key nuclides like C-14 ...)?
- 3) Has the performance assessment been updated? What does it indicate about allowable quantities that can go into ERDF?
- 4) How will the agencies handle/deal with the liner versus cap problem? I.e. If the cap fails before the liner, then the wastes may be submerged in a bathtub effect before the liner fails in a surge. If the liner fails first, wastes may leak and intrusion may become a question. And what will the agencies do to maintain whatever resolution is arrived at for this problem.
- 5) How will the agencies permanently prevent the use of ERDF by future persons as a building site for homes or agriculture? If these ever occur, roads will be cut into the cap and the cap may be breached during the construction. People love to have nice views. Accordingly they like to build on hills. They also need water...
- 6) How will Tri-Parties physically preclude drilling into ERDF (e.g. water wells for homes built on top of the site)?

- 7) How will the Tri-Parties assure the maintenance of institutional knowledge about the contents and hazards of the site for as long as the wastes remain dangerous?
- 8) There has been indication in the past of possible release of carbon 14 from ERDF from detections in down gradient monitoring wells. Has there been any detection of hazardous or radioactive constituents in groundwater that may originate in ERDF?
- 9) Has the performance assessment been updated to include preferential transport (not retardation) in the subsurface (both vertical and horizontal). Lateral transport has been observed in this part of the site, and major clastic dikes intrude directly into the ERDF site.