

# Hanford Advisory Board River And Plateau Topics November 2020

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## Acronym List

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- HAB – Hanford Advisory Board
- RAP – River and Plateau Committee of the HAB
- BCC – Budgets and Contracts Committee of the HAB
- TPA – Tri-Party Agreement
- ERDF – Environmental Restoration Disposal Facility
- WAC – Waste Acceptance Criteria
- TRU – Trans- Uranic
- PFP – Plutonium Finishing Plant
- PUREX – Plutonium Uranium Reduction Extraction (plant)
- REDOX – Reduction-Oxidation (plant)
- WESF – Waste Encapsulation Storage Facility
- DNAPL – Dense non-aqueous phase liquid
- WIDS – Waste Information Data System
- RASCAL – Representative Analogous Site Coordinating Agency Liaisons
- TSCR- Tank Side Cesium Removal



## Why am I seeing these slides?

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I wanted to provide the new and potential new members with a bit of informal background on what has had our (the RAP's) attention, and see what is missing (what you want to hear about from the TPA agencies).



## Requested topics from September 2020

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- ERDF
- Budgetary impacts on River & Plateau work (joint with BCC)
- Order of demolition of Canyons
- Orphan waste
- Composite Analysis
- WESF
- ERDF
- Technical Impracticability on Iodine on Central Plateau
- Response to advice on Aging Structures and 100 BC
- Recovery mode process plan
- 324 update
- Plutonium Finishing Plant (PFP)
- 300 Area SF-5 and 100K
- T Plant
- RASCAL



## Additional topics since September

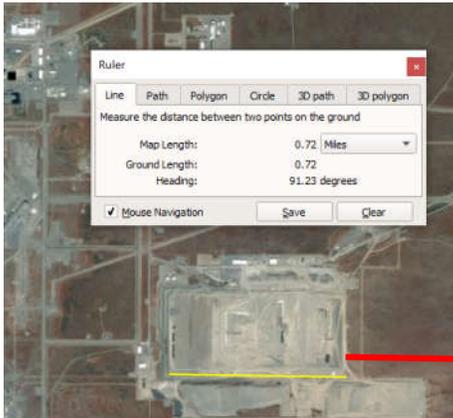
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- Update to “5-year vision” placemat
- 200-W Pump and Treat optimization- carbon tetrachloride
- Central Plateau Principles added to TPA



## ERDF – Environmental Restoration Disposal Facility

See HAB advice 2,75, 219, 281



Giant CERCLA landfill designed to safely move risk away from the river and take certain other wastes from the Central Plateau

Can take Radionuclides, but has acceptance limits, total limits, and can not take certain wastes [tank waste, trans-uranic wastes (TRU)]

During October 2019 Committee of the whole, RAP was tasked with getting information on ERDF in response to a concern that EPA and Ecology raised.

We have requested a brief since then, and one was scheduled for the March 2020 meeting that was cancelled due to COVID.

## ERDF – Framing Questions

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- EPA and Ecology were concerned that the soils used to ensure that DDDD wastes are properly disposed are clean, rather than contaminated. “dirty dirt” is a more appropriate fill source, since there is no shortage on the site, and space may be limited.
  - How much space do we need, and how much space do we have remaining in ERDF
  - Where does ERDF stand in regard to its total limits on certain radionuclides?
- Is there a publicly available performance assessment for ERDF?
- Who decides whether a waste is appropriate for ERDF (ion exchange media, 324 building soils, etc.)



## WESF – Waste Encapsulation Storage Facility



WESF is a big pool that shares a wall with B plant  
Cesium and Strontium were removed from tank wastes and formed into capsules.  
Those capsules were loaned around the country until one failed  
They have been in WESF since.

There is concern about the integrity of the concrete surrounding the pool, so the plan is to take the capsules out of the water and move them to dry storage.  
Milestone M-092-21 is due in 2025 (assume 2026 due to COVID slippage)  
Upgrades to WESF are a capital line item on the budget (and ongoing), but procurement of the storage cannisters is potentially budget-limited

## WESF – Framing Questions

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- How is the project progressing?
- Has there been a day for day milestone slippage due to COVID?
- Is there a seismic study being conducted?
- Why was the storage pad location altered? What waste was encountered?
- What would it take for the cannisters to fall “below the line”?





The 324 building was used to research vitrification.  
In 1986, Tank waste from B-Plant leaked through a felt-like substance in the floor joints of the building, making an extremely radioactive “curtain” under the floor.  
The contamination was found AFTER prep had started for building demo, so a complicated problem was made harder.  
There is an elaborate mockup to make sure the work can be done safely, but there have been periodic stoppages due to contaminant spread.

## 324 Building Questions

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- Since this is a very high-risk project which is close to both the tri-cities AND the river, we receive regular briefings on it. Remaining questions are:
  - How has COVID impacted the schedule? What milestones are going to need to move?
  - Have work modifications been made to prevent additional contamination spread to work force?
  - CHPRC did some calculations based on a PNNL report that says that up to ~700 gallons of water a day can be used during excavation without impacting groundwater- it has been a while, but I think someone was going to speak on those calculations
  - It is anticipated that the wastes will eventually go to ERDF. How does this fit with ERDF's waste acceptance criteria since the contamination is tank waste.



## Response to Advice

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- The RAP is awaiting response to advice 303 (December 2019), 306 (June 2020), and 308 (October 2020).
  - Response to 303 to be included in Record Of Decision, but formal response to HAB also needed
  - EPA has responded to 306
  - Too soon to expect a response to 308, but included for comprehensiveness
- See HAB Advice 100
  - Written responses are appropriate and should continue.
  - If an agency is not able to make a timely response to a piece of consensus advice, the agency should notify the HAB in writing that a response will be delayed and explain the reason for the delay.
  - Time will be allowed on HAB meeting agendas for Tri-Party agency representatives to make a verbal response to consensus advice. The responding agency should send a representative who can discuss the response in detail and the rationale for the response.



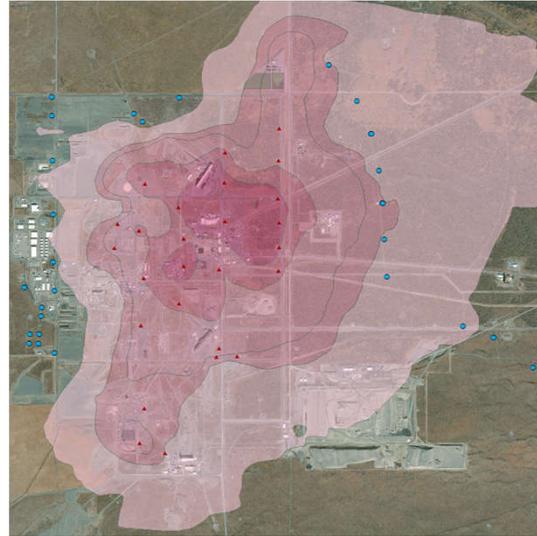
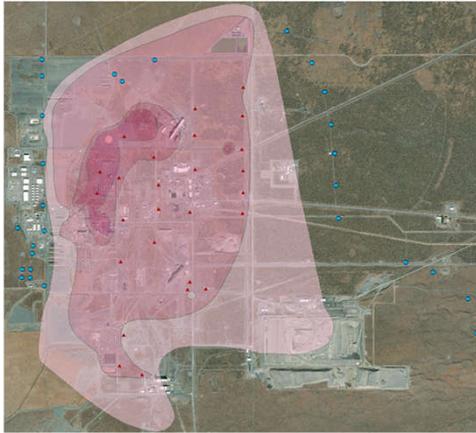
## Recovery mode process plan

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- How are projects weighted when deciding what to begin in Phase 2 remobilization



## 200-W Pump and Treat – Carbon Tetrachloride



2014 Record of Decision says 95% reduction of contaminants in 25 years of pumping, then compliance in about 100 years of MNA

2014 PNNL study says Carbon tet. will take ~630 years instead of 41 years to decay

More carbon tet. is deep, and the plume core is bigger than anticipated

Solution – stop treating for nitrate (evaluate for MNA) add, third air stripper, and more than double carbon tet pump and treat

A RAP Member has requested a brief on this topic

## 5 Year Vision

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- DOE Presented a 5 year vision in October 2019 ([https://www.hanford.gov/files.cfm/Hanford Site 5 Year Plan Rev 0\\_1010191.pdf](https://www.hanford.gov/files.cfm/Hanford_Site_5_Year_Plan_Rev_0_1010191.pdf))
- Hopes to update it annually
- The vision forms the framework for the BCC Cleanup Priorities advice
- Unless it is presented by December, the BCC advice will be delayed to late summer



## Central Plateau Principles and Procedures

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- TPA Agencies added a document as a reference to the TPA
- This document will be cited by clean up documents
- Other docs in Appendix F are not as foundational-more housekeeping
  - Maintenance of WIDS
  - Managing Investigation Derived Waste
  - TPA Databases, Access Mechanism and Procedures
- Formalizes the RASCAL teams
- See Advice 283



## River Corridor Treatment- 100K, 300

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- Two promising remediation/treatment methods are being run, and we are hoping for updates at least annually.
  - 100-K – Using the existing pump and treat system, unsaturated soils are being flushed with clean water to clean out hexavalent chrome.
    - Preliminary results are encouraging, we are hoping for more good news
  - 300 area uranium sequestration
    - Chemicals were injected at and above the water table to create a time release capsule for uranium in soils.
      - It has been a little over a year since the injections stopped, so results may be in.



## Composite Analysis, Cumulative Impact Evaluation, Groundwater Monitoring

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- DOE produces annual reports on groundwater monitoring and a composite analysis of radionuclides on the site
- A new modeling tool, the cumulative impact evaluation, is a framework which quilts together all the groundwater models on the site.
- We have requested annual updates on these three topics (perhaps in joint meeting with Tanks, since the Composite Analysis is part of the tank mission)



## Orphan Wastes – wastes with no disposal pathways

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- Vitriified, (non waste treatment plant) waste
  - German Logs
  - Test logs in PUREX Tunnel 2 "special-case waste with no identified disposal path"
- Other wastes
  - Cesium/Strontium Capsules
  - TSCR Columns
  - 291-B HEPA Filters
  - Soils contaminated with High Level Waste



# Central Plateau Facility Schedule

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- PFP Slab sampling
- Non Time Critical Removal Actions
  - B-Plant
  - PUREX
  - REDOX



## Other topics (not timely, not forgotten)

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- SW-2
- M-091
- Gable Pond cover
- 618-11
- Canyon disposition
- Central Plateau Characterization

