

Draft Advice for the Hanford Facility Dangerous Waste Permit (Site-Wide Permit)

Background:

The Draft Hanford Facility Dangerous Waste Permit for the Treatment, Storage, and Disposal of Dangerous Waste (Permit) is the Washington State Department of Ecology's (Ecology) tool for regulating hazardous waste at Hanford. The Permit(s) establish conditions that the U.S. Department of Energy (DOE) and its contractors must meet to protect human health and the environment. The Permit was last released in its entirety for review and public comment in 1994.

The Hanford Advisory Board (Board) has reviewed the draft Permit and is issuing the following advice¹. Following general advice points, the advice is structured using headings that mirror the structure of the Permit.

General Advice Points: The Board advises Ecology to review all unit-specific Permits in light of these over-arching concerns as many are applicable to other units.

1. The Board advises Ecology to revise the Permit to address a general lack of clarity, rationale and logic presented in the document(s). The Board finds no rationale or logic presented in either the overarching or unit-specific Fact Sheets or the unit-specific Permits to support Ecology's decision-making process. (e.g. Modified/Partial closure of an individual unit is not authorized under WAC 173-303- regulations [see 1325-N]).
2. The Board advises Ecology to comprehensively review and revise the Permit(s) condition(s) to ensure that when the permit conditions reflect site closure and refer to unavailable but appropriate past reference documents, the permit include citations/requirements for periodic re-evaluation (e.g. five year post closure re-evaluations). All references in the Permit(s) should be updated and requirements reflect current or future actions.
3. The Board advises Ecology to include in Unit-Specific Permit(s) within the appropriate Addenda, all identified documents and the cited revision of the document (Examples: CERCLA SAPs used for groundwater which are referenced rather than included in the Permit, and full text of all citations to the Tri-Party Agreement and other external documents). The Board advises Ecology to include an active hyper- link(s) to the section(s) of the cited Permit documents.
4. The Board advises Ecology to use its Omnibus Authority under WAC 173-303-815 and include Permit(s) condition(s) to ensure that where Ecology cites in the Permit(s) external

¹ A document referred to as "Notes" is referenced in this advice. While this document will be provided to Ecology, it is not a consensus product of the Board – it is, instead, a reference document synthesized by the issue managers that provides additional context and background for the advice bullets.

- documents or processes as permit conditions, that those external processes and documents are subject to an equal review and comment time period as required under WAC 173-303.
5. The Board advises Ecology to maintain a central repository for unit-specific permit information (e.g. design information needs, problem reports, corrective action reports etc.) that is open to public review. The Board further advises Ecology that these records should be available electronically with remote access for continuous public review.
 6. The Board advises Ecology to more clearly identify opportunities for public involvement and to make past versions of the Permit available for comparison with the current draft up for public review.
 7. The Board advises Ecology to explicitly reserve its RCRA authority in the Permit instead of abrogating its principle decision-making authority to either DOE or EPA via CERCLA actions (e.g., Deferral to future RI/FS/PP/ROD documents to meet presently required Dangerous Waste Regulation requirements under WAC 173-303 for corrective actions to be in the Permit.)
 8. The Board advises Ecology to revise the Permit Part A Forms and Permit conditions to reflect current operational needs and the waste volumes and appropriate waste codes for currently stored in these units (e.g. 400 Area interim waste storage facility & the LLBG).
 9. The Board advises Ecology to evaluate and confirm at all information on these Part A forms is consistent with Washington State Dangerous Regulations (WAC 173-303); the Dangerous Waste Permit Application; Part A Form and Instruction publication ECY 303-31 (6-2003) requirements as well as information presented in the SEPA checklists submitted with the Part B Permit application, the unit(s) specific draft Permit Conditions, and the draft factsheet(s).
 10. The Board advises Ecology to revise the Permit to replace the words “should” and “may” with enforceable words such as “shall” and “must” when referencing requirements, and make this consistent throughout the entire Permit. (ex: III.10.H.5.d.ii “These drawings *should* include all equipment ... ”)
 11. The Board advises Ecology to include a Part II or Unit-specific Permit condition requiring submittal of a modification request when any unit-specific new waste streams have been identified and that this modification goes out for public comment and review. Any modification requests for additional or new waste codes should go out for public review.
 12. The Board advises Ecology to include a Permit(s) condition(s) for necessary upgrades and equipment replacement required for safe operations of the Hanford RCRA Permitted facilities.
 13. The Board advises Ecology to include a permit condition requiring the use of a Risk Budget Tool to model cumulative effects to groundwater. The permit condition should also include requirements for submittal of the parameters used in the Risk Budget Tool and their selection subject to the permit modification process. The Board suggests this condition be included in the Part II conditions.
 14. The Board advises Ecology not to base the risk budget tool on non-validated models.

15. The Board advises Ecology to revise Closure Plan documents to reflect use of MTCA Method B standards only. Performance standards for soils should be based on the most stringent (lowest) values.
16. The Board advises Ecology to include a Permit(s) condition(s) requiring demonstration of adequate soil characterization (including the vadose zone using WAC 173-303-815 its omnibus authority) of all permitted facilities [examples: tank farms; cribs; ponds; and trenches]. The Board advises Ecology this condition to include/revise a permit condition for statistically based sampling design.
17. The Board advises Ecology to provide within the Permit(s) the supporting documentation for the use of waivers to regulations (WAC 173-303-645(11)).
18. The Board advises Ecology to reduce the surveillance and maintenance cost for the Hanford Facility by accelerating closure of older non-RCRA compliant facilities.
19. The Board advises Ecology to include a Permit(s) condition(s) requiring all RCRA-regulated near- surface pipelines to be clean closed per WAC173-303-610.
20. The Board advises Ecology that simply placing a barrier over the top of an area (e.g. a tank farm) or closing an area to industrial closure standards does not remove the obligations to do the cleanup to the highest standards practicable, in accordance with WAC 173-303-610 & 665.
21. The Board advises Ecology to require all Emergency Management/Plans and Procedures for all Part III (operational) units to be included in Permit(s) Addenda and subject to the WAC 173-303-834/840 process and coordinated with DOE requirements.
22. The Board advises Ecology to include/revise a Permit(s) condition(s) to ensure that the Independent Qualified Registered Professional Engineer (IQRPE) evaluations for all piping used in operating facilities (Part III units & the SSTs) must evaluate internal corrosion and erosion as well as external galvanic corrosion.
23. The Board advises Ecology to include/revise a Permit(s) condition(s) requiring a comprehensive galvanic protection program, both for buried piping and for interplant connected systems, and in facilities to assure that vessels, hangers, wiring, wire trays and other components are protected from galvanic, chemical, electrical and other forms of corrosion.
24. The Board advises Ecology to include a Permit(s) condition(s) to ensure that effluent pollutant levels in stack exhaust meet human health exposure criteria at the point of release.
25. The Board advises Ecology to include/revise a Permit(s) condition(s) requiring frequent verification and calibration and real time monitoring utilizing sample apparatus that ensures accurate and representative sampling.
26. The Board advises Ecology to work with EPA to seek direct delegation of authority from EPA for implementation of RCRA for wastes released from the beginning of RCRA to state authorization.

Definitions, abbreviations, and acronyms:

1. The Board advises Ecology to include and clarify in the Definitions Section that piping and ancillary equipment that formed a component of/part of the tank systems (SSTs, DSTs, MUSTs, vaults, pits, valve boxes, etc.) as well as systems these disposed to (cribs, trenches, etc.) are part of tank systems regulated under Dangerous Waste Regulations and subject to the WAC173-303-610 and WAC 173-303-640 tank closure process.

Attachments:

Hanford Facility Agreement and Consent Order:

Hanford Facility Permit Legal Description:

Security:

Hanford Emergency Management Plan:

1. The Board advises Ecology that changes are needed to the Plan, applicable to many permitted units. See 'Notes' document.
2. The Board advises Ecology that not all Permitted unit have their Contingency Plans as required by WAC 173-303-350 and as designated in Appendix A, 'Crossover Matrix.' The Board advises Ecology to include Contingency Plans in the unit-specific Permits.
3. The Board advises Ecology that Figure F1-1– inappropriately sets the public access limits. See 'Notes' document.
4. The Board advises Ecology to revise/include a Permit(s) condition(s) for Part III (operational) units to ensure the emergency plans include an assessment of various modes of systems failures and their impacts on the emergency plans (e.g. common, cascade, sequential, parallel and other modes; age related failures through erosion, wear, corrosion, etc.).

Hanford Facility Personnel Training Program:

1. The Board advises Ecology to ensure there is a safety-conscious work environment.

Recordkeeping and Reports:

Parts I and II Conditions:

1. The Board advises Ecology to revise the II. Y Condition to the 2010 II. Y condition which better retains Ecology's ability for RCRA oversight of corrective action on the Hanford site and retains public involvement/review opportunities of documents relating to Hanford site cleanup.
2. The Board advises Ecology to revise Part I and II Conditions to include oversight of groundwater for the Hanford site for all TSD units.

3. The Board advises Ecology to revise Part I and II Conditions to include Performance Standards.
4. The Board advises Ecology to revise Part I and II Conditions to include waste analysis/sampling analysis plan(s) criteria.

Part III: Operating Units:

Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facilities:

1. The Board advises Ecology to identify in the Permit conditions the criteria for sending new waste streams to ETF and whether or not it includes a public process.
2. The Board advises Ecology to include a Permit condition to require hazard identification and hazard mitigation in the Permit.
3. The Board advises Ecology to include a Permit condition requiring the waste acceptance criteria to include identification of abnormal feed streams.
4. The Board advises Ecology to take into consideration the uncertainty of characterization and volumes of waste streams primarily coming from WTP and going to ETF, ensure a robust and conservative waste acceptance criterion for ETF, and ensure that this is reflected the Permit conditions.

242-A Evaporator:

1. The Board advises Ecology to include a Permit condition to ensure the 242-A Evaporator has necessary upgrades, including replacing equipment, to safely operate the needed extra campaigns to process WTP waste streams.
2. The Board advises Ecology to include a Permit condition to address accumulation of organics in the facility's tanks.
3. The Board advises Ecology to identify requirements for limiting volatile organics within the waste acceptance criteria condition.
4. The Board advises Ecology to ensure Permit conditions address the dangers of ammonia, including flammability and corrosivity.

325 Hazardous Waste Treatment Units:

1. The Board advises Ecology to include a Permit condition to ensure 325 facility has the necessary upgrades, including maintenance and replacement of equipment for safe operations (examples: plumbing, sumps, and associated piping to waste receiving tanks).
2. The Board advises Ecology to include a Permit conditions to ensure the 325 Hazardous Waste Treatment Units identification of all waste codes for all waste processed in the facility.

Central Waste Complex:

1. The Board advises Ecology to modify the Permit condition (III.6.0.4.b) to reflect compliance with Building and Structural Specialty and Fire Code requirements and Secondary Containment volumes.
2. The Board advises Ecology to include necessary Permit conditions to bring the Central Waste Complex into compliance (e.g., RCRA requires dams, berms, and containment be present that equal the content of the drums)
3. The Board advises Ecology to revise/include Permit conditions requiring all waste stored at the CWC to be cataloged and properly labeled.
4. The Board advises Ecology to revise/include Permit conditions requiring all wastes properly characterized to ensure that explosive or flammable chemicals are properly stored.
5. The Board advises Ecology to include a Permit condition requiring all wastes to be tested, characterized and properly designated and removed for treatment on an accelerated schedule which is incorporated into the Permit's compliance schedule.
6. The Board advises Ecology to include a Permit condition requiring all waste stored outdoors to be removed from the facility and properly stored or shipped offsite.
7. The Board advises Ecology to include a Permit condition limiting acceptance of any new waste until proper characterization/designation/and needed treatment of the existing waste has been done.

Waste Receiving and Processing Facility (WRAP):

1. The Board advises Ecology to modify the WRAP Permit condition (III.7.0.4.b) to reflect compliance with Building and Structural Specialty and Fire Code requirements and Secondary Containment volumes.
2. The Board advises Ecology to include a Permit condition requiring characterization for all waste streams processed in the WRAP facility.
3. The Board advises Ecology to include/revise a Permit condition to include the function of the WRAP facility is to package TRU waste for shipment to WIPP, and that mixed waste can have TRU components and be identified as mixed TRU waste or MTW.
4. The Board advises Ecology to include a Permit condition or revise the WAP to include a detailed list/document of the criteria and the methodology for determination of the presence of liquids in the wastes.
5. The Board advises Ecology to include/revise a Permit condition to include criteria on how to obtain representative samples from a drum containing multiple containers of waste which lack identified/associated process information.
6. The Board advises Ecology to include/revise a Permit condition for the following concerns or revise the Sections B.1.1.1; B.1.1.1.2 ; B.1.1.1.2.2 ; B.2.1.3.1 ; B.2.1.1.3.1; B.2.1.3.3; B.7.3 (of the WRAP Facility Waste Analysis Plan:

- a. Clarify the range of dangerous chemicals and the various methods of chemical screening.
- b. Clarify how people on the evaluations committee determine what to sample and sample methods.
- c. Require the Permittee to clearly identify the range of dangerous chemicals and the various waste streams within the packages to be in compliance with the Dangerous Waste Regulations.
- d. Clearly identify who has the responsibility to designate the waste to certify that it meets LDR standards.
- e. Clarify that the “10% rule” should only be applied to where it is absolutely known that the material inside the drums is exactly the same.
- f. Clarify the representativeness of the drum sampling from a package on the top of a drum and the packages located near the bottom of the drum.
- g. Include treatment of peroxides, oxidizers, sulfides, cyanides, and halogenated organic carbon in addition to grouting.

222-S (Laboratory) Dangerous & Mixed Waste:

1. The Board advises Ecology to include a Permit condition to ensure the 222-S identification of all waste codes for all waste processed in the facility.
2. The Board advises Ecology to include a Permit condition to ensure 222-S facility has the necessary upgrades, including maintenance and replacement of equipment for safe operations (examples: plumbing, sumps, and associated piping to waste receiving tanks).

T-Plant Complex:

1. The Board advises Ecology to modify the Permit condition (III.9.0.4.d) to reflect compliance with Building and Structural Specialty and Fire Code requirements and Secondary Containment volumes.

Waste Treatment and Immobilization Plant Unit:

1. The Board advises Ecology to revise/include a Permit condition that defines the criteria and standards to be used to identify and evaluate chemical and radiological constituent hazards that could occur at the WTP facility. The Board advises Ecology to include a Permit condition requiring hazard analysis to be performed early in the process, rather than just prior to receipt of waste, to support necessary design change or mitigation.
2. The Board advises Ecology to revise/include a Permit condition requiring response planning for criticality and natural phenomenon (e.g. Cascadia seismic events) that addresses both the direct and indirect effects from major events.
3. The Board advises Ecology to revise/include a Permit condition requiring contingency planning for suffocating CO2 release events from the cooling systems. The Board advises Ecology to revise/include a Permit condition with specific actions to ensure that CO2 fire

- extinguishers are not used on or near high voltage equipment, or in areas that are or may become “confined spaces”.
4. The Board advises Ecology to revise/include a Permit condition requiring contingency planning for response to the damages and difficulties associated with volcanic events (e.g., Highly abrasive ash infiltration into operating spaces resulting secondarily in failure of exit safety equipment to perform).
 5. The Board advises Ecology to revise the Emergency Management Plan to reflect and ensure compliance with new WTP conditions as described in the above advice points for the WTP facility. The Board advises Ecology to revise Permit conditions requiring compliance with Waste Acceptance Criteria and Section 1 Introduction and Addendum B1 to more accurately reflect the NRC’s position on reclassification of ILAW waste as incidental to reprocessing. The NRC has yet to make a determination for Hanford. *Notes:*
 6. The Board advises Ecology not to defer or delegate authority for RCRA actions to external processes and documents and to instead detail standards, requirements, methods and frequencies as permit conditions. The Board advises Ecology to append all referenced versions of documents to the permit with active hyperlinks to the referenced section(s). Some referenced documents appear to be missing from the permit. Examples: Addendum B-1
 - a. Waste Treatment Plant Quality Assurance Project Plan for the Waste Analysis Plan, Rev. 0.;
 - b. 24590-WTP-RPT-MGT-04-001, Rev. 0,Regulatory Data Quality Objectives Optimization Report; and
 - c. RPT-W375LV-EN00002, as amended, Approach to Immobilized Hanford Tank Waste Land Disposal Restrictions Compliance
 7. The Board advises Ecology to update Permit conditions III.10.C.2.n.i through .iv to reflect current dates/future dates.
 8. The Board advises Ecology to revise/include a Permit condition to ensure that Tank Wastes are immobilized in a durable waste form with performance at least equivalent to glass for the entire waste form, and to ensure proper characterization of tank wastes. The Board advises Ecology that it supports vitrification of wastes and opposes alternate waste forms unless there performance can be shown to be at least “as good as glass” (including secondary waste streams - see HAB Advice #258).
 9. The Board advises Ecology to revise/include a Permit condition to ensure the facility’s design is based on sound engineering principles and according to applicable regulations. The Board advises Ecology to include a Permit condition to ensure all necessary testing or studies are performed well in advance of when data is needed for design and construction (see HAB Advice #258).
 10. The Board advises Ecology to revise/include a Permit condition to ensure WTP supporting facilities operate as intended throughout the operational life of the WTP facility while also

performing their respective operations of support for other Hanford facilities (e.g. 242-A Evaporator).

11. The Board advises Ecology to include/revise a Permit(s) condition(s) to require that all engineering drawings included in the permit be stamped by a registered professional engineer [WAC173-303-640].
12. The Board advises Ecology to include/revise a Permit(s) condition(s) to require the Permittee(DOE) to demonstrate that the plant design is technically functional, especially in the case of technical issues identified by the Defense Nuclear Facility Safety Board and/or by Ecology staff related to:
 - a. Mixing (especially for non-Newtonian fluids)
 - b. Particle setting (especially for criticality control, but also for heavy metals – lead, chromium, nickel ...)
 - c. Hydrogen gas generation and deflagration
13. The Board advises Ecology to include/revise a Permit(s) condition(s) to ensure that plant systems and all facility vessel designs contain provisions to accomplish clean closure in accordance with WAC 173-303-610 & WAC 173-303-640.
14. The Board advises Ecology to revise/include a Permit(s) condition(s) to ensure the emergency plans include an assessment of various modes of systems failures and their impacts on the emergency plans (e.g. common, cascade, sequential, parallel and other modes; age related failures through erosion, wear, corrosion, etc.).
15. The Board advises Ecology to include/revise a Permit(s) condition(s) to require equivalent capabilities for each “train of equipment (e.g. Melter off-gas treatment system)” whenever/where ever multiple parallel trains exist in the facilities.

Integrated Disposal Facility:

1. The Board advises Ecology to modify the waste acceptance criteria condition or include a Permit condition which ensures IDF only accepts wastes that have been vitrified or whose entire packages have performance equivalent to vitrification.
2. The Board advises Ecology to delete all references to bulk vitrification in the IDF Permit.
3. The Board advises Ecology to base the Risk Budget Tool evaluation on the sampling results of releases from the bottom of the trench, and not take credit for the soil column.
4. The Board advises Ecology to include a Permit condition requiring submittal of a set of testing protocols to verify how waste will release from the waste packages in IDF.
5. The Board advises Ecology to revise/include a Permit condition to ensure the process for creating the Risk Budget Tool & that this process considers the following parameters; the concentration of contaminants in the waste stream, the waste form leachability, whether or not the releases from that material will exceed groundwater or drinking water protection standards.
6. The Board advises Ecology to include impacts from nearby waste sites/ trenches to bound cumulative impacts to groundwater in the model used in the Risk Budget Tool.

Double Shell Tank System and 204-AR:

1. The Board advises Ecology to revise/include a Permit condition for the DST system requiring implementation of technologies which ensure tank wastes maintain their waste acceptance criteria chemistry.
2. The Board advises Ecology to revise/include a Permit condition to ensure leak detection systems are in place to detect leaks from all waste transfer lines (including HIHT), diversion boxes, and other system components (including all ancillary equipment).
3. The Board advises Ecology to revise/include a Permit condition to ensure that all waste which has escaped into the environment (including the Vadose Zone and outside the boundaries of Tank Farms) is identified, characterized such that the vertical and lateral extent of the contamination is identified, and that such releases are remediated in accordance with the Dangerous Waste Regulations under WAC 173-303-645.
4. The Board advises Ecology to make the report required in Condition III.12.D.3 [name of the report?] available to the Hanford Advisory Board and the general public.

Waste Encapsulating Storage Facility (WESF):

1. The Board advises Ecology to bring WESF into RCRA compliance by moving the capsules into dry cask storage and close the facility.
2. The Board advises Ecology to include a Permit condition bounding the acceptance of additional waste at WESF, due to the fact that WESF is currently at capacity and cannot handle additional waste volume.

400 Area Waste Management Unit:

1. The Board advises Ecology to draft a Permit condition preventing acceptance of offsite waste at the 400 Area using its authority under WAC 173-303-815(2).
2. The Board advises Ecology to draft a Permit condition preventing acceptance of incompatible waste by their waste acceptance criteria.
3. The Board advises Ecology to draft a Permit condition with dates for the removal of all sodium-bearing materials and subsequent clean closure.
4. The Board advises Ecology to review and revise the Part A form to limit capacity to currently stored volumes of sodium-bearing mixed waste allowed in the facility.

Low-Level Burial Grounds Trenches 31 & 34:

1. The Board advises Ecology to revise the Part A form to include all trenches as subject to Dangerous Waste Regulations until such time that characterization (including actively digging up waste to be able to conduct sampling) demonstrates it is not RCRA waste.
2. The Board advises Ecology to include permit conditions for the management of retrievably stored waste.

3. The Board advises Ecology to include/revise a Permit condition requiring monitoring of the entire 40 miles of unlined trenches. The monitoring system should include contaminants of concern associated with nearby operable units and the associated groundwater unit(s).
4. The Board advises Ecology to revise/delete text in the Permit conditions supporting 'in-trench treatment or placement of liquids within landfill'.
5. The Board advises Ecology to revise/delete text in Permit conditions supporting placement of [storing] containers in a landfill.
6. The Board advises Ecology to include a Permit condition requiring a new Container Storage facility for LLBG wastes subject to WAC 1783-303-630 regulations.
7. The Board advises Ecology the Waste Analysis Plan & Sampling and Analysis Plan and criteria for waste acceptance at the LLBG should all be informed by results of the Risk Budget Tool.
8. The Board advises Ecology to utilize its omnibus authority under WAC 173-303-815 and revise/include a permit condition requiring on-going groundwater well evaluation and deepening wells as the groundwater level drops.

Low-Level Burial Grounds Trenches 94:

1. The Board advises Ecology to include a Permit condition identifying the groundwater protection standards that satisfy WAC 173-303-645(4), (5), (6), (7), (8), and (9).
2. The Board advises Ecology to utilize its Omnibus Authority under WAC 173-303-815 and include a Permit condition requiring characterization of the vadose zone beneath the trench.
3. The Board advises Ecology to revise the Inspection requirements to ensure that the Permittee can demonstrate its ability to maintain oversight of the trenches.
4. The Board advises Ecology to revise/include a Permit condition to ensure that lead and mercury are included in the analyte list of Contaminants of Concern for the groundwater monitoring plan.
5. The Board advises Ecology to revise/include a Permit condition requiring at a minimum, installation of four additional groundwater monitoring wells (two upstream and two downstream).
6. The Board advises Ecology to utilize its Omnibus Authority under WAC 173-303-815 and revise/include a permit condition requiring on-going groundwater well evaluation and deepening wells as the groundwater level drops.

Part IV: Corrective Action Units:

CA-1 Waste Management and CA-2 Groundwater Operable Unit:

1. The Board advises Ecology that it is inappropriate of Ecology to apply II.Y corrective action conditions to Closure and/or Post Closure Units in lieu of meeting the groundwater protection requirements of WAC 173-303-610.
2. The Board advises Ecology that it is inappropriate to prospectively accept CERCLA work via the II.Y conditions as satisfying the Dangerous Waste WAC 173-303-645 corrective action permit requirements.
3. The Board advises Ecology to include a Permit(s) condition(s) requiring submittal to Ecology of RCRA groundwater monitoring requirements from all CERCLA documents for incorporation into the units-specific Addenda housing the Groundwater Monitoring Plans. Board advises Ecology to require a crosswalk-table which identify RCRA requirements in the CERCLA documents which are cited in the RCRA Permit and subject to WAC 173-303-830/840 process.
4. Until such time that Ecology has accepted the modeled results from the STOMP-1D code according to criteria in the Dangerous Waste Regulations, the Board advises Ecology to require and incorporate unit-specific groundwater monitoring into the Permit(s) in compliance with WAC 173-303-610(2)(b)(i) requirements.
5. The Board advises Ecology that the statement that “Ecology, EPA, and DOE agree that past-practice authority may provide the most efficient means for addressing mixed waste groundwater contamination plumes originating from a combination of TSD and past-practice units” does not comply with the Dangerous Wastes regulations [WAC 173-303]; does not provide for RCRA groundwater monitoring, nor does it provide for public involvement in important groundwater decisions.
6. The Board advises Ecology to include/revise a Permit(s) condition(s) to ensure the Permittee complies with WAC 173-303 requirements to characterize the vertical and horizontal extent of contamination.
7. Since the Board is concerned that while the Permit requires the Permittee to supply “a sufficient number of groundwater monitoring wells, and (to) add new wells as necessary to catch contaminants movement in the groundwater and identify compliance status,” and that the number of usable wells on the Central Plateau is rapidly decreasing due to the dropping Water Table, the Board advises Ecology to revise/include a Permit(s) condition that requires a sufficient number of monitoring wells be sited according to subsurface studies that identify suitable thick intervals of wetted aquifer to support groundwater monitoring into the future.
8. The HAB advises Ecology to revise/include a Permit(s) condition(s) in the Groundwater Monitoring Plan (s) to require identification of the number and location (and criteria for determining these) of groundwater and leaked waste monitoring wells.

9. The Board finds that the vadose zone is not present in the Permit(s) groundwater monitoring plans. The Board advises Ecology that there should be Permit(s) conditions providing for Ecology's oversight of vadose zone characterization and remediation activities as an important segment of the overall Hanford clean-up schema.
10. The Board advises Ecology to utilize its Omnibus Authority under WAC 173-303-815 and include a Permit(s) condition(s) requiring characterization (i.e., physical sampling) and monitoring of the vadose zone beneath the Tank Farms and other mixed waste sites.
11. The Board cautions Ecology that the Central Plateau Water Table level decline is making "wet" monitoring wells much harder to find or sustain. Since the Permit states that "Wells that are no longer sampled due to water table decline (i.e., "dry groundwater monitoring wells"), and for which there is no future use, must be decommissioned," the Board advises Ecology to review/ include a Permit(s) condition(s) requiring evaluation of the utility of using these dry groundwater monitoring wells for use in sampling, using pore water geochemical sampling, radiological or geophysical methods prior to decommissioning.
12. The Board advises Ecology to include a Permit condition to ensure Ecology authority and oversight of all pump & treat systems including how groundwater monitoring wells are installed (WAC 173-160); utilized; and managed.

Part V: Closure Units: 1301-N Liquid Waste Disposal Facility, 216-A-29 Ditch, 216-A-36B Crib, 216-A-37-1 Crib, 216-S-10 Pond and Ditch, 216-B-63 Trench, 216-B-3 Pond

These advice points are in general applicable to most of the Part V unit permits listed above and are stated once only. Additional information is found in the "Notes" document.

1. The Board advises Ecology to utilize the Closure Plans submitted in the Part B application and to write appropriate Closure Permit conditions to rectify any non-compliance with unit specific closure requirements under WAC 173-303.
2. The Board advises Ecology to ensure the approved closure plan is consistent with unit-specific Dangerous Waste Regulations-WAC 173-303 (ex: Surface Impoundment regulations).
3. The Board advises Ecology to include approved Closure Plans and/or Permit Conditions within the Permit(s) to ensure compliance with WAC 173-303-610 and unit specific closure requirements. Ecology should not presumptively approve plans that do not yet exist. The Board is concerned that there is a lack of or requirements for submittal of closure plans in the new RCRA Permit(s). Reference to closure actions under non-existent CERCLA document violates DW closure regulation requirements to have these details in an approved Closure Plan. Required by WAC 173-303-610(3).
4. The Board advises Ecology to include Ecology approved and Dangerous Waste WAC 173-303 compliant RCRA Groundwater Monitoring Plans as attachments to unit specific Permits within their Closure Plan Addendums.

5. The Board advises Ecology that as Ecology deemed the application complete all Addendums identified as “reserved” should include the WAC 173-303 required information in order to be in compliance with the regulations.
6. The Board advises Ecology to require all unit-specific groundwater monitoring plans be consistent with Ecology Publication # 04-03-030, Guidelines for Preparing Quality Assurance Plans for Environmental Studies.
7. The Board advises Ecology to include in each unit-specific Permit the full list of COCs as noted or identified in unit- associated draft RI/FS documents previously submitted to Ecology.
8. The Board advises Ecology to require use of a methods-based approach in the unit-specific Sampling and Analysis Plans.
9. The Board advises Ecology to require use of non-filtered sampling in the Sampling and Analysis. The Board advises Ecology to require repairs and replacement of wells per WAC 173-160.
10. The Board advises Ecology to require the unit-specific training plans are included directly within the Training Addenda.
11. The Board advises Ecology to coordinate and incorporate RCRA inspection requirements for the unit-specific Permits with those for the associated CERCLA groundwater operable unit’s.
12. The Board advises Ecology to ensure that all unit-specific Closure Schedules are compliant with the Dangerous Waste WAC 173-303-610 requirements or 173-303-815(3)(b)
13. The Board advises Ecology to review and revise Part V (closing) Permits to ensure compliance with Land Disposal Restrictions (LDRs).
14. The Board advises Ecology to review and revise Part V (closing) Permits to ensure that non-existent Part II conditions are not cited (e.g.1301-N).
15. The Board Advises Ecology that all RCRA TSDs closure performance standards must use MTCA Method B cleanup levels.
16. The Board advises Ecology that Permit(s) include compliance schedules to be in accordance with WAC 173-303-610 closure regulations.

Single Shell Tank Unit:

1. The Board advises Ecology to revise Permit condition V.4.B.3.f(e) [refers to releases to the soils and groundwater] to include identification of specific methodology to be used in determining how releases are identified as occurring and the process for compliance with WAC 173-303-640(4) requirements.
2. The Board advises Ecology to include a Permit condition requiring leak detection during any waste retrieval activities. The Board advises Ecology to revise Permit condition V.4.B.3.f (h) [refers to tank integrity assessment]to include identification of the process

- for selection of the methodology/criteria for determining tank integrity citing also WAC 173-303-640(2) regulations and identify the requirements necessary to be in compliance.
3. The Board advises Ecology to revise Permit condition V.4.G.2.c.i [refers to closure Performance Standards] to include all specific criteria which must be met in order meet the required “Impracticability Demonstration.”
 4. The Board advises Ecology to revise Permit Condition V.4.G.2.b.1 (a) [refers to Closure Performance Standards] and delete reference to use of Method A. The Board advises Ecology that it is premature to include Permit conditions for landfill closure (V.4.G.2.c.) [refers to use of Landfill Closure Performance Standards] and advises Ecology to delete this section until such time that a Demonstration of Implacability has been determined. A modification to the Permit can be made once this has been done.
 5. The Board advises Ecology to revise the V.4.C Conditions [refers to SST Groundwater Monitoring] to reflect and cite WAC 173-303-645(11) [Corrective Action Program for release from regulated units] requirements.
 6. The Board advises Ecology to include a Permit condition requiring submittal of all TSAPs (Tank or Component Specific Sampling and Analysis Plans) subject to WAC 173-303-830/840 permit modification requirements.
 7. The Board advises Ecology to include a Permit condition requiring submittal of all RD/RA work Plans to Ecology as subject to WAC 173-303-830/840 Permit modification process.
 8. The Board advises Ecology to revise Permit condition V.4.B.3.g. (k) & (l) [refers to maps and descriptions of tanks/ancillary equipment/piping distribution] (about what?) to include specific criteria which must be met in order to determine integrity status and retrieval status. [see previous comment regarding Tank Assessments]
 9. The Board advises Ecology that the Milestone Schedule for closure of SST does not support WAC 173-303-610 or 173- 340-360(4) requirements. The Board advises Ecology to negotiate a more realistic Closure Compliance Schedule with DOE.
 10. The Board advises Ecology to include/revise a Permit(s) condition(s) requiring the construction of new double shell tanks and emptying of the tanks known or suspected of leaking as expeditiously as possible.
 11. The Board advises Ecology to include/revise a Permit(s) condition(s) to require a priority basis when establishing plans for emptying tanks (i.e., the “Systems Plan”) and the alternatives considered shall require that the tanks be emptied in RCRA priority (i.e., First priority - known leaking tanks, second priority - suspected leaking tanks, third priority - non-compliant single shell tanks, finally all remaining tank wastes).
 12. The Board advises Ecology to include/revise a Permit(s) condition(s) to ensure the Permittee (DOE) complies with WAC 173-303 requirements to characterize the vertical and horizontal extent of SST sites contamination.

13. The Board advises Ecology to utilize its Omnibus Authority under WAC 173-303-815 and include a Permit(s) condition(s) requiring characterization (i.e., physical sampling) and monitoring of the vadose zone beneath the SST Tank Farms and other mixed waste sites.
14. The Board advises Ecology to include/revise a Permit(s) condition(s) to ensure better validating leak detection methodology and capability and to establish the criteria for what constitutes acceptable leak detection capability.
15. The Board advises Ecology to include/revise a Permit(s) condition(s) requiring the pumping of water or waste out of “dry wells” and requiring annual (or more frequent) gamma logging of the dry wells to depths >55 feet past the first wetted zone in the soil, and to the full well depth in most cases, to improve early tank waste leak detection.
16. The Board advises Ecology to include/revise a Permit condition(s) requiring the Permittee (DOE) to extend dry wells that do not extend to at least 60 feet and to utilize these wells to perform gamma logging and detection or leaks or extension of contaminate plumes.
17. The Board advises Ecology to include a Permit(s) condition(s) requiring all changes to all groundwater monitoring as specified in RD/RA Work Plans to be incorporated into the RCRA Permit(s) per the WAC 173-303-830/840 process.
18. The Board advises Ecology to revise/include a Permit(s) condition(s) to ensure IQRPE certifications to comply with WAC 173-303-640(2) requirements and include certification of the SST leak integrity.
19. The Board advises Ecology to revise/include a Permit(s) condition(s) to require annual submittal of a compliance schedule for closure of tanks to meet Milestones M-045-70 & M-62-45 requirements.
20. The Board advises Ecology to utilize their Omnibus authority under WAC 173-303-815 to include a Permit(s) condition(s) to require annual submittal of a budget report which identifies necessary increases in personnel, equipment, and costs to support compliance with Milestones M-045-70 & M-62-45 requirements.
21. The Board advises Ecology to revise/include a Permit(s) condition(s) to ensure closure of the SST System and compliance with Performance Standards is subject to the WAC 173-303-830/840 process.
22. The Board advises Ecology to revise/include a Permit(s) condition(s) to ensure there is a re-evaluation of the Post-Closure care period after 30 years per WAC 173-303-610(7) and WAC 173-303-610(8).
23. The Board advises Ecology to work closely with EPA Headquarters Region 10 RCRA staff to discuss what timeframes are acceptable for the State to allow for known or suspected leaking tanks to remain in that status pending development of treatment. The State should ensure they have written agreement with EPA about what is an acceptable time period to empty the known or suspected leaking tanks, and the non-compliant tanks.
[move to the end of SST bullets – should be tied in with emptying of tanks]

207-A South Retention Basin: Advice?

600 Area Purgewater Storage and Treatment: Advice?

241-CX Tank System:

1. The Board advises Ecology not to refer to closure actions in non-existent CERCLA documents [e.g. 200-IS-1OU]. Dangerous Wastes closure regulations require these details in an approved Closure Plan.
2. The Board advises Ecology to include a Permit condition(s) citing use of MTCA Method B values to meet the Performance Standards requirements.
3. The Board advises Ecology to revise the cleanup of associated ancillary facilities. Partial closure of facilities is not allowed under WAC -610 or -640

1706-KE Waste Treatment System: Advice?

Hexone Storage and Treatment Facility:

1. The Board advises Ecology to revise the Permit to require RTD for the Hexone Storage Tanks and all associated ancillary equipment.

Nonradioactive Dangerous Waste Landfill:

1. The Board advises Ecology that WAC 173-303-650 require details and a complete cover design to be in compliance with the Dangerous Waste regulations.
2. The Board advises Ecology to include a Permit condition requiring submittal within 30days of permit issuance, of a complete cover/barrier design and attachment of this design into the RCRA Permit for NRDWL.
3. The Board advises Ecology to write a Permit condition that requires DOE to identify the source of soils and materials to be used for the construction of a landfill cap.

Grout Treatment Facility: Advice?

B Plant Complex: Advice?

PUREX:

1. The Board advises Ecology to write Permit conditions that requires secondary containment and leak detection and monitoring.
2. The Board advises Ecology to write Permit conditions for characterization of the unidentified materials in the tunnels and their volumes.
3. The Board advises Ecology to remove, treat, and dispose the materials in the PUREX tunnels as appropriate. The Board advises Ecology to reconsider the reliance on water transport and electrical systems over a long period of time to maintain protections such as water doors.
4. The Board advises Ecology to clean close the PUREX Tunnels.
5. The Board advises Ecology to expand the contaminant of concern list to include lead (need to check on other COC's that may need to be added).

Low-Level Burial Ground Closing Units (Green Islands):

1. The Board advises Ecology to include Ecology approved RCRA groundwater monitoring plans as attachments to unit specific Permits within their closure plan addendums.
2. The Board advises Ecology to include a Permit condition requiring characterization of all areas within the 1997 Part A boundary lines. (HAB Advice# 226) The assumption should be that it is all mixed waste until it is proven otherwise.

Part VI: Post-Closure Units:

300 Area Process Trenches:

1. The Board advises Ecology that it is inappropriate to prospectively accept CERCLA work via the II.Y conditions as satisfying the Dangerous Waste WAC 173-303-645/646 corrective action permit requirements while the remedy selected remains an unproven technology.
2. The Board advises Ecology to include a Permit condition to ensure that natural attenuation is not “determined” by the Director of Ecology as meeting the corrective action Permit requirements of WAC 173-303-646.

183-H Solar Evaporation Basins:

1. Groundwater contamination and other issues associated with the evaporation basins suggest that they have not been closed appropriately under the regulations. The Board advises Ecology to place this unit in Part V rather than Part VI and include Permit conditions to ensure compliance with WAC 173-303-610 and WAC 173-303-650.

1325-N Liquid Waste Disposal Facility:

1. Groundwater contamination and other issues associated with the facility suggest that they have not been closed appropriately under the regulations. The Board advises Ecology to place this unit in Part V rather than Part VI and include Permit conditions to ensure compliance with WAC 173-303-610 and WAC 173-303-650.

1324-N Impoundment and 1324-NA Percolation Pond:

1. Groundwater contamination and other issues associated with the facility suggests that it has not been closed appropriately under the regulations. The Board advises Ecology to place this unit in Part V rather than Part VI and include Permit conditions to ensure compliance with WAC 173-303-610 and WAC 173-303-650.

SEPA Determinations

1. The Board advises Ecology to make the over-arching SEPA determination an Mitigated Determination of Non-Significance.
2. The Board advises Ecology to utilize the SEPA checklists submitted with the Part B Applications and make Permit conditions to mitigate known impacts.

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3. The Board advises Ecology to withdraw its determination of non-significance regarding the current phase until it is known what all the Hanford Site mitigation plans will be.
4. The Board advises Ecology to review all SEPA determinations for consistency with Washington State Dangerous Waste Permit Application; Part A Forms; the Unit-specific Permits; and the SEPA submitted with the Part B application of 9-2004.

Other

324 Building:

1. The Board advises Ecology to add 324 Building to the Permit. Due to the B-Cell leak which requires extensive cleanup, the Board believes this unit should be included in the Permit at the very least as a Part IV Corrective Action Unit.

PUREX Tunnels: Advice?