PERMIT ATTACHMENT 10
STRATEGY FOR HANDLING AND DISPOSING OF PURGEWATER AT THE HANFORD SITE
CHANGE CONTROL LOG

Change Control Logs ensure that changes to this unit are performed in a methodical, controlled, coordinated, and transparent manner. Each unit addendum will have its own change control log with a modification history table. The "**Modification Number**" represents Ecology's method for tracking the different versions of the permit. This log will serve as an up to date record of modifications and version history of the unit.

Modification History Table

Modification Date	Modification Number

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TERMS

ARAR	Applicable or relevant and appropriate requirement
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
DOE	U.S. Department of Energy
Ecology	Washington State Department of Ecology
EPA	Environmental Protection Agency
ERDF	Environmental Restoration Disposal Facility
IDW	Investigation Derived Waste
RCRA	*Resource Conservation and Recovery Act of 1976*
RI/FS	Remedial investigation/feasibility study
SAP	Sampling and analysis plan
Tri-Parties	Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy
Tri-Party Agreement	*Hanford Federal Facility Agreement and Consent Order*
WCP	Waste Control Plan

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PERMIT ATTACHMENT 10
STRATEGY FOR HANDLING AND DISPOSING OF PURGEWATER AT THE HANFORD SITE

1. INTRODUCTION

To maintain a holistic strategy for handling and disposing of purgewater on the Hanford Site, Permit Attachment 10, *Strategy for Handling and Disposing of Purgewater* has been derived entirely from the *Hanford Site Strategy for Management of Investigation Derived Waste* (DOE/RL-2011-41). To maintain consistency with the original text, excerpts from DOE/RL-2011-41 pertaining to management of purgewater under Resource Conservation and Recovery Act (RCRA) have been reproduced verbatim in Permit Attachment 10.

The Permittees will submit a permit modification request for Permit Attachment 10 if the referenced portions of DOE/RL-2011-41 are modified.

Some sections of DOE/RL-2011-41 may be numbered differently or omitted from this document. Section references within the text have been footnoted to indicate the current section number in this document.

2. PURPOSE

This Hanford Site Strategy for Management of Investigation Derived Waste (IDW) (herein referred to as the Strategy) protects human health and the environment. It revises the previous Strategy approved March 17, 1999. Remediation waste is managed under approved *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) (Ecology et al. 1989) work plans.

The temporary storage and subsequent disposal of IDW from ... *Resource Conservation and Recovery Act* (RCRA) sites at Hanford will meet the applicable substantive requirements of RCRA, as implemented through the authorized state program by the Washington State Dangerous Waste Regulations (WAC 173-303). Hanford IDW that meets the Environmental Restoration Disposal Facility (ERDF) waste acceptance criteria, applicable land disposal restriction (LDR) standards, and approval authorization requirements is eligible for disposal in the ERDF.

. . . Hanford purgewater can either be returned to the environment in accordance with Section 10 of this Strategy, collected for management at the modular storage unit(s), or transported to another appropriate Hanford facility (e.g., the 200 Area Effluent Treatment Facility or pump and treat operations).

Administrative RCRA requirements such as obtaining permits, documentation, reporting, and record keeping, are not applicable to actions undertaken pursuant to work plans approved under CERCLA authority. The U.S. Department of Energy (DOE) will manage IDW in accordance with the substantive requirements of federal and state regulations. With regard to IDW, the substantive portions of WAC 173-303 are considered to be applicable or relevant and appropriate requirement (ARAR) under CERCLA. Applicable DOE Orders are CERCLA criteria to-be-considered for management of radioactive contaminants. Therefore, the substantive requirements associated with management of dangerous/hazardous and radioactive waste in containers will be complied with to the extent practicable. If any of the Tri-Parties (Washington State Department of Ecology [Ecology], U.S. Environmental Protection Agency [EPA], and DOE), conclude that such compliance is not practicable, they will seek to obtain agreement from the other Parties, and they may initiate dispute resolution in accordance with Article VIII or Article XVI of the Tri-Party Agreement.

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IDW is defined as any waste generated as a result of conducting a CERCLA or RCRA past-practice investigation (including treatability study) or resource protection well construction, maintenance or abandonment activity. IDW may include but is not limited to:

- Drilling mud; cuttings from test pit and well installation;
- Materials from resource protection well maintenance, remediation and abandonment;
- Purgewater, soil, and other materials from collection of samples;
- Residues (e.g., ash, spent carbon) from testing of treatment technologies;
- Contaminated personal protective equipment (PPE); and
- Solutions (aqueous or otherwise) used to decontaminate non-disposable protective clothing and equipment.

3. APPLICABILITY

This Strategy applies primarily to IDW generated from groundwater monitoring activities (well drilling, sampling, maintenance and decommissioning), site characterization activities at past-practice units provided such activities or investigations have been authorized by a remedial investigation/feasibility study (RI/FS) (RCRA Facility Investigation/Corrective Measures Study) work plan, treatability test plan, sampling and analysis plan (SAP), or other document approved by the Lead Regulatory Agency. . . .The Project Manager for the Lead Regulatory Agency may authorize exceptions to the requirements of this Strategy on a case-by-case basis (within the Project Manager's level of authority). Any IDW generated from within the fence line of the following treatment, storage, and/or disposal (TSD) units is excluded from this Strategy: Single-Shell Tanks, Double-Shell Tanks, and any TSD identified in Appendix B of the Tri-Party Agreement as needing an operating permit. If agreed to by the Project Manager from the Lead Regulatory Agency, this Strategy may apply to certain wastes generated during investigation at inactive RCRA TSD units at Hanford pursuant to the ERDF Explanation of Significant Difference and the associated letter of clarification. Project managers shall strive to minimize the generation of IDW through proper planning of activities to reduce the need for special storage or disposal requirements.

. . . For purposes of this Strategy, purgewater shall be defined as water extracted or otherwise derived from the ground in connection with the following activities:[1]

- **Well Development:** Well development is part of the process of constructing a resource protection well. During construction, water, residual drilling fines, and fine-grained aquifer material are removed to ensure groundwater samples from the well are representative of the surrounding aquifer.
- **Well Remediation/Re-construction:** While well development is part of the process of constructing a new well to meet a certain requirement for monitoring or testing, well remediation occurs when an existing well is re-constructed. Water may be pumped out of the well during re-construction.
- **Well Sampling:** Groundwater wells are routinely purged to collect groundwater samples for laboratory analysis. The amount of groundwater purged depends upon the sampling technique, well diameter, saturated interval, and water quality. The frequency of well sampling varies according to the project requirements. Sampling frequency may occur as often as once a month or as infrequently as once every three years.

[1]As related to RCRA.

- **Well Decommissioning:** Old wells that have no further use, and/or are constructed improperly, are candidates for well decommissioning pursuant to WAC 173-160. Well decommissioning consists of cleaning out material from the bottom of a well as necessary, perforating and cutting well casing, removing well casings and screens, and pumping mixed cement grout into the perforated zone.
- **Well Maintenance:** Groundwater wells are maintained in order to assure that representative samples can be obtained. Water extraction is sometimes necessary to facilitate both routine and non-routine maintenance activities. The frequency of routine maintenance activities is typically once every five years for wells on a sampling schedule.
- **Aquifer Testing:** Aquifer testing is performed to help define the physical characteristics of the hydrology at the Hanford Site. The large volume of purgewater generated during such activities may present logistical handling, transportation, and storage problems.
- **Decontamination Water:** Liquids generated from field decontamination of instruments and equipment used to perform the activities identified above are also collected and managed as purgewater. Decontamination water is limited to decontamination liquids that contain no other contaminants than those present in the purgewater at the site.

4. COLLECTION OF WASTE[2]

4.1 Investigations Conducted Outside of a Waste Site

. . . If collection is required for IDW outside the waste site boundaries, samples may be analyzed only for the constituents of concern identified by the project managers in an approved SAP. . . . Contaminated waste and any associated liquid, semi-liquid, and miscellaneous wastes from such areas shall be managed in accordance with the requirements for waste generated within a waste site or suspect waste site.

5. WASTE CHARACTERIZATION

Characterization of IDW can be based on two kinds of samples: site characterization and constituents of concern. Samples collected for site characterization will be submitted for analysis and can provide the basis for IDW characterization. If additional data are needed to characterize IDW, samples of the IDW will be collected and analyzed for the constituents of concern as identified in the associated work plan, treatability test plan or other approved plan.

Process knowledge and/or waste characterization information will be used in conjunction with field screening to identify those wastes that would be designated as characteristic or listed dangerous waste per WAC 173-303. Regardless of any other characterization requirements, a SAP approved by the Lead Regulatory Agency is required for any IDW to be disposed of in the ERDF. This SAP must be sufficient to demonstrate compliance with the ERDF Waste Acceptance Criteria and, where applicable, must address all underlying hazardous constituents present in IDW designated as a dangerous/mixed waste subject to LDR.

. . . Screening for radiological contamination will be performed as indicated in the controlling document. Waste analysis to identify radiological constituents will be performed when necessary. The above actions, along with the use of existing process knowledge, will serve to identify major risks and to protect human health and the environment during sampling and screening activities.

[2]Only one subsection within Collection of Waste was retained from DOE/RL-2011-41.

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6. WASTE MANAGEMENT DETERMINATIONS

6.1 Groundwater

All extracted groundwater, including purgewater and free liquids separated from sediments and/or other materials generated during well drilling, well construction and well development, will be discharged to the ground surface in accordance with Section 10 of this Strategy, collected for management at the modular storage unit(s), or transported to another appropriate unit (e.g., the 200 Area Effluent Treatment Facility or pump and treat facilities). Transportation of the groundwater by truck, the storage of nonempty trucks during off-hours, and collection of the groundwater at the modular storage unit is governed by *Investigation Derived Waste Purgewater Management Action Memorandum* (DOE/RL-2009-39, as amended), and the *Investigation Derived Waste Purgewater Management Work Plan* (DOE/RL-2009-80, as amended).

For returning groundwater to the environment, DOE can discharge according to the guidelines in Section 10 of this Strategy. When a discharge request is required, DOE can propose a discharge to the Lead Regulatory Agency for a well or group of wells through Tri-Party Agreement project manager meetings. The Lead Regulatory Agency will evaluate the discharge request and when approved, the discharge request will be recorded in Tri-Party Agreement project manager meeting minutes.

6.2 Decontamination Fluids

Unless discharge is allowed as described in Section 10 of this Strategy, decontamination fluids (water and/or non-hazardous cleaning solutions) generated from operations conducted within the boundaries of a waste site or suspect waste site will be contained and managed in accordance with Section 6.2[3] below or in accordance with Section 7 of this Strategy as determined by the Project Manager from the Lead Regulatory Agency.

Decontamination fluids and other liquid materials accumulation from operations conducted outside the boundaries of a waste site or suspect waste site will be managed as non-contaminated unless the area under investigation is suspect as described in Section 4.1 of this Strategy. If not a suspect area, these wastes may be disposed to the ground at or near the point of excavation. These waste disposal locations will be documented.

6.3 Treatability Waste

Treatability tests may be conducted at a waste site or at an offsite location. Waste resulting from onsite (as defined by CERCLA) treatability tests performed in conjunction with CERCLA or RCRA past practice remediation site activities will be managed as described in Section 4. Wastes from offsite treatability tests, if returned to the Hanford Site, will normally be managed for disposal at ERDF or other approved location as IDW.

7. CONTAINER MANAGEMENT

This section provides the information for storage and management of containerized IDW where specified by this Strategy.

7.1 Storage Location

IDW will be stored at the waste site or at another storage location specified in the approved WCP [Waste Control Plan] or other approved plan until analytical data is evaluated for proper waste designation. While in storage, IDW will be managed in accordance with an approved plan. …

[3]Section 6.2, Groundwater, is Section 6.1 of this document.

IDW that cannot be treated to meet the waste acceptance criteria for the approved disposal facility will remain on the waste site or in a centralized storage area pending disposal at an appropriate facility. If, after characterization of the waste is completed, the waste must be stored for longer than 6 months, DOE will obtain concurrence from the Lead Regulatory Agency on the current storage, treatment and disposal options and schedule for disposition of the waste.

7.2 Substantive Container Management Requirements

The federal and state regulatory requirements for management of containers are established at 40 CFR 264 Subpart I, WAC 173-303-630 and WAC 173-303-160. All containers of IDW will be managed in accordance with the applicable substantive federal and/or state requirements including labels which define the known major risk(s), dangerous waste codes, and if awaiting analysis, wording which states "waste pending analysis" with the date of initial sampling.

7.3 Release Reporting

Reporting of any release of IDW shall be done in accordance with applicable provisions of WAC 173-303-145 and 40 CFR 302.

8. DISPOSAL OF IDW

. . . The IDW will be stored in accordance with the approved WCP or other approved plan until disposal is authorized in an appropriate decision document (e.g., work plan, SAP, treatability test plan, action memorandum, record of decision, or other document approved by the Lead Regulatory Agency). Upon receiving the analytical results and profiling the waste, waste resulting from that action will be treated, stored and/or disposed as appropriate. Liquids will be managed as described in Sections 6.2 through 6.4[4] of this Strategy, as applicable. . . .

9. SPECIAL CIRCUMSTANCES

. . . If management of IDW is not conducted in accordance with this Strategy and agreement on special management actions cannot be reached by the project managers, the IDW will be managed in accordance with WAC 173-303 until the issue is resolved.

10. GROUNDWATER DISCHARGE GUIDELINES

The following guidelines may be used to evaluate and discharge purgewater. Discharges authorized in existing documents on the effective date of this revised Strategy (e.g., WCP, RI/FS work plan, remedial design report/remedial action work plan [RDR/RAWP]) may continue in accordance with the approved documents. DOE can discharge without a discharge request for purgewater meeting the following criteria:[5]

Purgewater may be discharged to the ground surface in accordance with Section 10.2 under the following criteria:

- Water from wells where groundwater is below maximum contaminant levels (MCLs), when purgewater is generated in support of environmental investigations (e.g., aquifer testing), or
- Low-purge and low-flow sampling methods for groundwater sample collection resulting in purgewater volumes of five gallons or less, or
- Purgewater from aquifer tube samples.

[4]Section 6.2 of DOE/RL-2011-41, Groundwater has been retained and is found in Section 6.1 of this document; Section 6.3 of DOE/RL-2011-41 was not retained; Section 6.4 of DOE/RL-2011-41 has been retained and is found in section 6.2 of this document.

[5]As related to RCRA.

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For purgewater not meeting these criteria, DOE will prepare a discharge request. Discharge requests will be prepared with the information required by Sections 10.1 through 10.3 of this Strategy. Before the Lead Regulatory Agency will grant a new discharge request allowing groundwater to be discharged to the environment, the Lead Regulatory Agency will evaluate the potential impact of the proposed action based on the criteria in Sections 10.1 through 10.3 of this Strategy. If the Lead Regulatory Agency does not approve the discharge request within 30 days, the request will be considered denied. If the request is denied, the purgewater will be collected and transported to the Modular Storage Unit(s) or other appropriate Hanford location.

Some aquifer tubes are located within the seasonal high-water mark of the Columbia River. When these tubes are sampled during high-water periods, these very low-volume discharges to the Columbia River are allowed.

10.1 Chemistry

DOE will evaluate radiological groundwater data to meet DOE Order requirements (e.g., 5400.5 or subsequent replacement). DOE will submit discharge requests for purgewater to the Lead Regulatory Agency relating to non-radiological parameters. Decisions will be based on existing data and will consider the following:

- Applicable regulatory requirements.
- Approved, applicable Tri-Party Agreement decision documents.
- Previously-approved contained-in determinations.

The discharge request will contain applicable analytical data and associated quality assurance/quality control data to demonstrate the discharge decision is appropriate.

A discharge request will not be approved by Ecology if the purgewater in question designates as a dangerous waste in accordance with WAC 173-303-070 through 100. Any contained in determinations for listed waste needs to be approved by Ecology prior to submittal of a discharge request.

10.2 Location

Except where allowed by a document approved by the Lead Regulatory Agency, (e.g., WCP, Rl/FS work plan, RDR/RAWP), discharge to the ground is not allowed where it may remobilize potential existing contamination, and may not occur within or on the following:

- Waste Information Data System waste site boundary.
- Solid Waste Management Unit.
- Burial grounds.
- Effluent disposal sites (ponds, cribs, ditches, or trenches).
- Surface or subsurface soil contamination areas.

Discharges will be 20 feet or greater from the well head to prevent channeling of water along the annulus of the well. DOE shall not propose to establish new waste sites by the approval of discharge requests.

10.3 Volume

DOE will evaluate purgewater volume along with chemistry and location considerations. Purgewater discharges to the ground are exempt from WAC 173-216 permitting based on condition G.12.A of Permit No. ST 4511 (Ecology 2005).

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11. REFERENCES

40 CFR 264, *Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities* Code of Federal Regulations. Available at: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-I/part-264.

40 CFR 302, *Designation, Reportable Quantities, and Notification*, Code of Federal Regulations. Available at https://www.ecfr.gov/current/title-40/chapter-I/subchapter-J/part-302.

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Resource Conservation and Recovery Act of 1976, 42 U.S.C. 6901, et seq. Available at: https://www.govinfo.gov/content/pkg/STATUTE-90/pdf/STATUTE-90-Pg2795.pdf.

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WAC 173-303, *Dangerous Waste Regulations*, Washington Administrative Code, as amended, Washington State Department of Ecology, Olympia, Washington. Available at http://apps.leg.wa.gov/WAC/default.aspx?cite=173-303.

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