0082666

DOE/RL-2009-39
Revision 0

Investigation-Derived Waste Purgewater Management Action Memorandum

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

U.S. DEPARTMENT OF ENERGY

Richland Operations Office

P.O. Box 550
Richland, Washington 99352

RECEIVED
AUG 10 2009
EDMC

Approved for Public Release;
Further Dissemination Unlimited

DOE/RL-2009-39
Revision 0

Investigation-Derived Waste Purgewater Management Action Memorandum

Date Published
August 2009

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

U.S. DEPARTMENT OF ENERGY
Richland Operations Office

P.O. Box 550
Richland, Washington 99352

Release Approval Date

Approved for Public Release;
Further Dissemination Unlimited

TRADEMARK DISCLAIMER

Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

This report has been reproduced from the best available copy. Available in paper copy.

Printed in the United States of America

Concurrence

Having considered the extent to which the Action Memorandum, DOE/RL-2009-39, *Investigation-Derived Waste Purgewater Management Action Memorandum*, Rev. 0, could be inconsistent with *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* processes or could alter schedules set forth in Appendix D of the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement), the U.S. Environmental Protection Agency approves pursuant to Section 7.2.4 of the Tri-Party Agreement Action Plan.

D. A. Faulk, Program Manager
Office of Environmental Cleanup
Hanford Project Office
U.S. Environmental Protection Agency

8/4/09
Date

Concurrence

Having considered the extent to which the Action Memorandum, DOE/RL-2009-39, *Investigation-Derived Waste Purgewater Management Action Memorandum*, Rev. 0, could be inconsistent with *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* processes or could alter schedules set forth in Appendix D of the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement), the Washington State Department of Ecology concurs pursuant to Section 7.2.4 of the Tri-Party Agreement Action Plan.

J. A. Hedges, Program Manager
Nuclear Waste Program
State of Washington Department of Ecology

8/5/09
Date

Approval

DOE/RL-2009-39, *Investigation-Derived Waste Purgewater Management Action Memorandum*, Rev. 0

M. S. McCormick, Assistant Manager
U.S. Department of Energy,
Richland Operations Office

8/4/09
Date

This page intentionally left blank.

Contents

1 Purpose **1**

2 Site Conditions and Background **1**

2.1 Site Description 1

2.1.1 Removal Site Evaluation 2

2.1.2 Physical Location 2

2.1.3 Site Characteristics 3

2.1.4 Release or Threatened Release into the Environment of a Hazardous Substance, Pollutant, or Contaminant 3

2.1.5 NPL Status 3

2.1.6 Location Map 4

2.2 Other Actions to Date 5

2.3 Federal, State, and Local Authorities' Role 5

3 Threats to Public Health or Welfare or the Environment, and Statutory and Regulatory Authorities **5**

4 Endangerment Determination **5**

5 Proposed Action and Estimated Cost **6**

5.1 Proposed Action 6

5.1.1 Contribution to Remedial Performance 6

5.1.2 Description of Alternate Technologies 7

5.1.3 Engineering Evaluation/Cost Analysis 7

5.1.4 ARARs and Other Criteria, Advisories, or Guidance to be Considered 7

5.2 Project Schedule 8

5.3 Estimated Cost 8

6 Expected Change in the Situation Should Action be Delayed or Not Taken **9**

7 Outstanding Policy Issues **9**

8 Enforcement **9**

9 Selected Alternative **9**

10 References **9**

Appendices

A. Applicable or Relevant and Appropriate Requirements and Other Criteria, Advisories, or Guidance to be Considered ..... A-i

B. Responsiveness Summary ..... B-i

Terms

ARAR	applicable or relevant and appropriate requirement
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
CFR	*Code of Federal Regulations*
DOE	U.S. Department of Energy
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
ERDF	Environmental Restoration Disposal Facility
NCP	"National Oil and Hazardous Substances Pollution Contingency Plan" (40 CFR 300)
NEPA	*National Environmental Policy Act of 1969*
NPL	"National Priorities List" (40 CFR 300, Appendix B)
RL	U.S. Department of Energy, Richland Operations Office
TBC	to be considered
Tri-Parties	DOE, EPA, and Ecology
Tri-Party Agreement	Ecology et al. 1989, *Hanford Federal Facility Agreement and Consent Order*

This page intentionally left blank.

1 Purpose

This Action Memorandum documents concurrence of the proposed *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) non-time-critical removal action to establish dedicated units for purgewater management. These units are needed to manage purgewater generated from cleanup activities performed in accordance with Ecology et al. 1989, *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement). Specifically, additional capacity or an alternative means to disposition purgewater is needed to support continuing and anticipated implementation of the Hanford Site cleanup. The removal action will consist of re-lining an existing storage unit, building additional units, and operating the units to provide environmentally protective management of purgewater. These units will be referred to herein as the modular storage units.

Groundwater is withdrawn from wells for (1) developing newly constructed groundwater-monitoring wells, (2) purging existing wells before sample collection, (3) conducting aquifer testing, (4) performing periodic cleaning and renovating of existing monitoring wells, and (5) abandoning existing wells. Such withdrawn groundwater is called "purgewater." The purgewater is subject to management in accordance with the terms of the Tri-Party Agreement, which represents, in part, the legal document the U.S. Environmental Protection Agency (EPA), the Washington State Department of Ecology (Ecology), and the U.S. Department of Energy (DOE) (the Tri-Parties) have agreed to follow in implementing work performed under the National Priorities List (NPL) (40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan," Appendix B, "National Priorities List").

A public comment and review period was held from April 29 through May 29, 2009, on DOE/RL-2009-31, *Investigation Derived Waste Purgewater Management Engineering Evaluation/Cost Analysis*, which was prepared to document the evaluation of removal action alternatives for purgewater management throughout the Hanford Site. This Action Memorandum and all public comments and responses will be placed in the Administrative Record to provide a publicly accessible record for inspection and copying, consistent with the requirements of 40 CFR 300.415(n)(3)(iii), "Removal Action."

2 Site Conditions and Background

The "site" for this action consists of purgewater, as it is generated on the Hanford Site by various Tri-Party Agreement activities. A summary of the current situation regarding purgewater management at the Hanford Site is provided in DOE/RL-2009-31.

The EPA policy provides for handling, treating, or disposing of waste from investigative activities under CERCLA in compliance with applicable or relevant and appropriate requirements (ARARs) to the extent practicable. Appendix A provides the ARARs for the selected alternative.

Current Tri-Party plans include milestones for continuing Tri-Party Agreement work that drives an increased need for capacity to manage purgewater.

2.1 Site Description

The investigation and remediation of NPL waste sites under the Tri-Party Agreement necessitates the continued generation and management of purgewater. The purgewater has the potential to contain hazardous substances. The area for implementing this removal action will comprise dedicated units for purgewater management. The area consists of an existing, unused, free-standing storage unit constructed of steel sidewalls that support a double layer of flexible membrane liners and additional locations nearby

where similar units will be constructed as needed and vehicles used for transport will be temporarily parked.

2.1.1 Removal Site Evaluation

The key problem addressed by this removal action is a limited management capacity for currently generated and future anticipated purgewater. Specifically, there is a need to establish increased capacity for compliant purgewater management. Failure to provide increased capacity could result in the following:

- Potential for increased exposure to the hazardous substances currently in the environment due to delays in investigation and remediation activities
- Potential for an increased threat to human health and the environment from hazardous substances contained in spills of collected purgewater stored at multiple locations throughout the Hanford Site.

Currently a 3,785,400 liter (1-million-gallon-) capacity modular storage tank is used to store and treat purgewater through evaporation. The purgewater volume in the tank is approximately 3,331,150 L (880,000 gal) with only 454,250 L (120,000 gal) of capacity remaining. The annual evaporation rate for purgewater from the modular storage unit is approximately 3,785,400 liters (1 million gallons).

As shown in Figure 1, the forecasted purgewater volume peaks in fiscal year 2010, exceeding the existing capacity by more than 15,141,600 liters (4 million gallons), and tapers off dramatically for the remainder of the project.

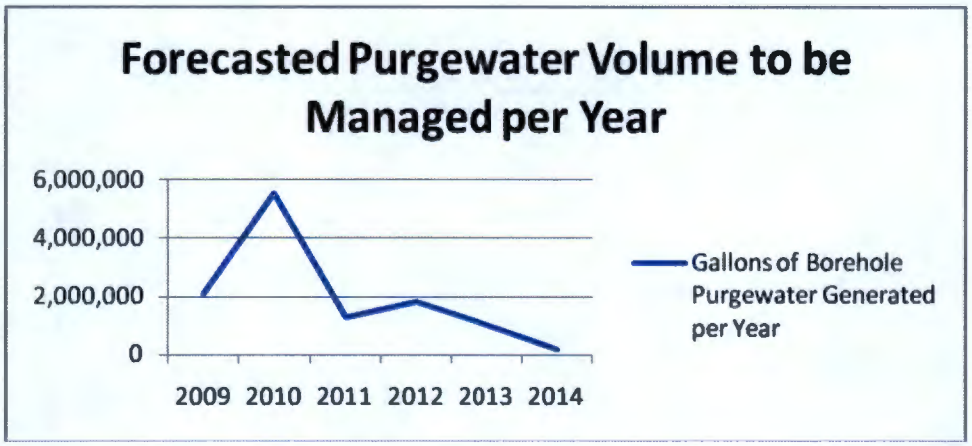

Figure 1. Forecasted Purgewater

2.1.2 Physical Location

The hazardous substances of concern for this removal action are contained in purgewater generated across the Hanford Site during the implementation of Tri-Party Agreement work. Purgewater is currently collected and managed at or near the source, then transferred for consolidation at a central location that has been in service for nearly 20 years.

The investigation and remediation of NPL sites under the Tri-Party Agreement necessitates the continued generation and management of purgewater that must be managed either at the generating site or at a designated location, consistent with the approach agreed to by the Tri-Parties.

2.1.3 Site Characteristics

The modular storage units will include refurbishing an existing but never used unit located adjacent to the operating 600 Area Purgewater Storage and Treatment Facility near the 200 East Area of the Hanford Site near Richland, Washington, and installing additional units. The modular storage units will be designed for purgewater storage through the use of primary and secondary high-density polyethylene liners separated by a geotextile drainage media and supported by metal walls and a structural support. The drainage media is interconnected to a leachate detection system consisting of a standpipe with measurable depth and sampling capability. The refurbishment design will be similar to the adjacent operating unit. The dimensions will be approximately 61 m (200 ft) by 61 m (200 ft) with storage capacity of approximately 3.8 million L (1 million gal). The area is surrounded by a fence, bermed, and has a graveled roadway. Parking for the vehicles used to transport the purgewater to the modular storage units also will be established.

2.1.4 Release or Threatened Release into the Environment of a Hazardous Substance, Pollutant, or Contaminant

The hazardous substances addressed by this Action Memorandum already have been released to the environment and are generated with purgewater during the implementation of NPL and Tri-Party Agreement work. Inadequate capacity for management of this purgewater has the potential to cause delays in developing groundwater-monitoring wells, purging existing wells for sample collection, and developing pump-and-treat systems to mitigate the threat of further release of hazardous substances contained in the groundwater.

The purgewater potentially contains hazardous substances including, but not limited to, the following chemical constituents:

- Carbon tetrachloride in a groundwater plume
- Methanol in the 100-N Area wells
- 1,1,1-trichloroethane, methylene chloride, acetone, methyl isobutyl ketone, total cresols, and methyl ethyl ketone in Single-Shell Tank System wells in the 200 East and 200 West Areas.

In addition to chemical constituents, analysis of soil and purgewater from groundwater wells has identified low levels of the following radiological constituents: actinium-228, americium-241, bismuth-212, bismuth-214, cesium-134, cesium-137, cobalt-60, europium-155, lead-212, lead-214, plutonium-238, plutonium-239/240, radium-226, radium-228, strontium-90, technetium-99, thallium-208, thorium-228, thorium-234, tritium, uranium-233/234, uranium-235, and uranium-238.

Information on the detectable levels of radiological and chemical constituents contained in purgewater may be found in the DOE/RL-2008-66, *Hanford Site Groundwater Monitoring for Fiscal Year 2008* and subsequent annual reports.

2.1.5 NPL Status

The Hanford Site includes many waste sites identified through four separate NPL listings in 1989. The purgewater requiring management under this removal action contains hazardous substances from the NPL sites subject to investigation and cleanup under the Tri-Party Agreement.

2.1.6 Location Map

The Hanford Site and the proposed location for the modular storage units near the 200 East Area are shown in Figure 2.

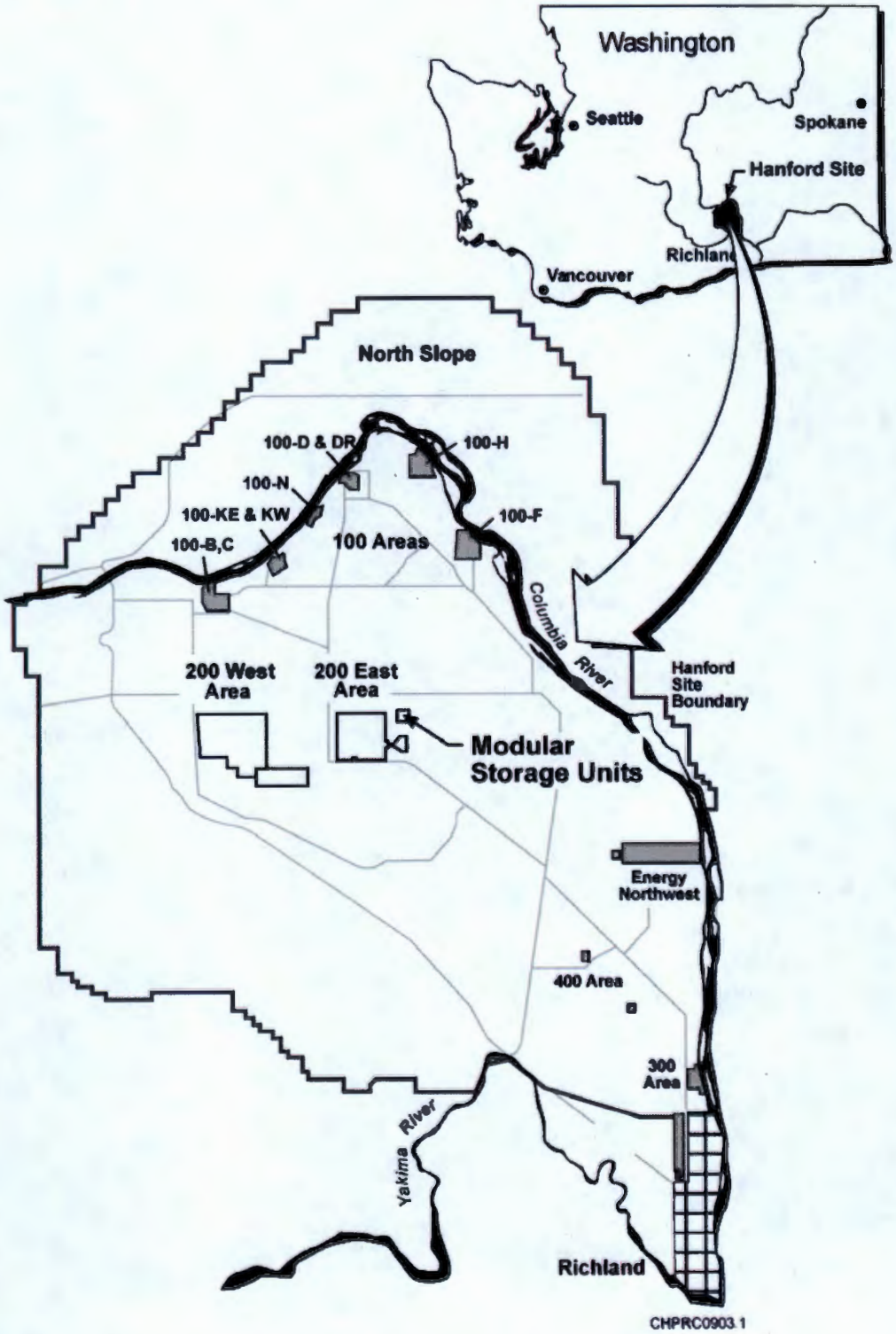

Figure 2. Alternative 3 Purgewater Modular Storage Units

2.2 Other Actions to Date

Other actions to date by the U.S. Department of Energy, Richland Operations Office (RL) include management of millions of gallons of purgewater generated from cleanup work under the Tri-Party Agreement.

2.3 Federal, State, and Local Authorities' Role

The EPA is requested to concur with the selected removal action. RL is the lead agency for this removal action.

The M-24 interim milestone descriptions (e.g., M-24-60) contain the following language:

> *"The management of purgewater and investigation derived wastes from existing wells and wells under the revised M-024 Tri-Party Agreement Milestones (including treatment, storage, and disposal unit wells), will be managed as CERCLA wastes in accordance with a CERCLA Decision Document, Sampling and Analysis Plan, or Waste Control Plan. Non-liquids will be disposed at ERDF [Environmental Restoration Disposal Facility] as long as the wastes meet ERDF Disposal Acceptance Criteria. Purgewater will be stored and/or treated at the 200 Area Effluent Treatment Facility or the 600 Area Purgewater Storage and Treatment Facility, unless the lead regulatory agency approves a discharge request for return to the environment."*

3 Threats to Public Health or Welfare or the Environment, and Statutory and Regulatory Authorities

Conditions presently exist at the Hanford Site, which, if not addressed by implementing the response action, may present an endangerment to the environment from hazardous substances contained in groundwater and purgewater. Conditions at the site meet the criteria for a removal action as stated in 40 CFR 415. The conditions are as follows:

- Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release, 40 CFR 300.415(b)(2)(iii) – Hazardous substances contained in purgewater are managed in containers and at an existing storage facility. However, given the status of the existing storage facility and the anticipated additional purgewater generated from planned work, immediate action must be taken to prevent the threat of release to the environment.
- Other situations or factors that may pose threats to public health or welfare of the United States or the environment, 40 CFR 300.415(b)(2)(viii) – Without the ability to store, treat, and dispose of purgewater, investigation and remediation (pump-and-treat facility extraction and injection wells) cannot be developed or maintained. The inability to continue with existing and future investigation and remediation activities would compromise the ability to comply with milestones set forth in the Tri-Party Agreement and compromise DOE's ability to provide an acceptable level of environmental protection during these activities. This may cause a threat to human health and the environment by the spread and exposure of hazardous substances to the public and environment through groundwater.

4 Endangerment Determination

Threatened release of hazardous substances from purgewater management, if not addressed by implementing the response action in this Action Memorandum, may present an imminent and substantial endangerment to the environment.

5 Proposed Action and Estimated Cost

This removal action uses an action-based approach that will provide for purgewater management in accordance with ARARs to the extent practicable (Appendix A). The selected removal action consists of re-lining the existing unused modular storage unit and building additional storage units as needed for dedicated use in purgewater collection and management from implementation of the Tri-Party Agreement and eventual demolition of the modular storage units.

5.1 Proposed Action

The purgewater will be collected, transported, and consolidated in the modular storage units (described in Section 2.1.3) for management in support of work performed under the Tri-Party Agreement. This action is selected based on the following factors:

- The immediate refurbishment of the previously unused unit will provide the quickest and most cost-effective approach to prevent and eliminate the threat of release to the environment.
- The planned methodology for purgewater management under this action has been demonstrated to be safe and effective for interim purgewater management through the use of another, similar unit over the past 19 years.
- The modular storage units provide readily available storage capacity for upcoming work planned under the Tri-Party Agreement.

The existing unit will be re-lined with two high-density flexible membrane liners separated by a geotextile layer and a leak detection system that provides both measuring and sampling capability. Parking for the vehicles used to transport the purgewater to and/or from the modular storage units will be established as appropriate. Monitoring of the leak detection system will be implemented with routine/scheduled evaluations performed to determine whether additional monitoring associated with groundwater is necessary. In the fourth year of use of the modular storage units, EPA, Ecology, and RL will evaluate the continued usage of the modular storage units and determine if improved methods for purgewater management should be employed for the longer term. If the modular storage units will be used after 5 years or if there is evidence of leakage from the modular storage units to the environment, RL will implement groundwater monitoring. The estimated cost for drilling groundwater-monitoring wells is $915,000. The modular storage units will be operated in accordance with the regulatory standards for miscellaneous units to ensure purgewater management will be protective of human health and the environment. Upon completion of service, the Modular Tank Units will be disassembled and dispositioned in a manner that minimizes the need for further maintenance; is protective; and returns the land to the appearance and use of surrounding land areas to the degree possible, given the nature of the activity. Design, operation, and closure standards for the removal action are addressed in detail in Appendix A.

5.1.1 Contribution to Remedial Performance

This removal action contributes to the efficient performance of any long-term remedial action by:

- Addressing the threat of release from management of current and future anticipated increases in purgewater generation
- Providing direct support to the effort to investigate and remediate Hanford NPL sites.

5.1.2 Description of Alternate Technologies

Other alternate technologies were evaluated in DOE/RL-2009-31 and are listed in Section 5.1.3. The purgewater can be safely and efficiently managed onsite in a previously constructed but unused modular storage unit, with construction of additional units as needed. This was the only alternative that met the short-term effectiveness needs for the project.

5.1.3 Engineering Evaluation/Cost Analysis

The key objective of this removal action is to remove the potential threat presented by purgewater contaminants that are generated through Tri-Party Agreement work in support of the implementation of remedial actions required by 40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan" (NCP) and the Tri-Party Agreement. Based on the potential hazards identified in Section 2.1.4, the specific removal objectives are as follows.

- Reduce or eliminate the potential for public exposure to hazardous substances in purgewater above levels that are protective of human health and environment.
- Reduce or eliminate the potential for release of hazardous substances from purgewater management.
- Prevent adverse impacts to cultural and natural resources.

The removal action for purgewater management must be protective of human health and the environment, and otherwise meet the removal objectives. Based on these considerations, the following five action alternatives were evaluated in DOE/RL-2009-31:

- Alternative 1: No Action
- Alternative 2: Transport Purgewater Directly to a Groundwater Operable Unit Pump-and-Treat Facility
- Alternative 3: Use Modular Storage Units for Purgewater Management
- Alternative 4: Discharge Purgewater at or Near Source
- Alternative 5: Transport Purgewater Directly to the 200 Area Effluent Treatment Facility.

The current site problem is specific to ongoing work and is well understood. The issue is limited to one of facilitating purgewater management anticipated to be generated during future Tri-Party Agreement work. There is no need to collect additional data to determine the specific need for action. Therefore, the removal objectives will be best met through the implementation of an action-based approach.

5.1.4 ARARs and Other Criteria, Advisories, or Guidance to be Considered

The NCP requires that the removal action described in this document comply with ARARs to the extent practicable. Applicable or relevant and appropriate requirements are environmental standards incorporated in promulgated regulations that have been evaluated to be pertinent to the removal action. Appendix A identifies specific regulatory sections in each overarching regulation, which is an ARAR. Each citation includes an explanation as to why it is an ARAR. In addition, "to be considered" (TBC) information consists of nonpromulgated advisories or guidance issued by federal or state governments that are not legally binding and do not have the status of ARARs. However, regulations and guidance state that, as appropriate, TBCs should be considered in determining the removal action necessary for protection of human health and the environment. No TBCs are being considered for this removal action.

5.2 Project Schedule

The removal action operations for the modular storage units are scheduled to begin in August 2009. As stated in Section 5.1, in the fourth year of use of the modular storage units, EPA, Ecology, and RL will evaluate the continued use of the modular storage units and determine if improved methods for purgewater management should be employed for the longer term. If the modular storage units will be used after 5 years or if there is evidence of leakage from the modular storage units to the environment, RL will implement groundwater monitoring.

A removal action work plan will be submitted for approval. The work plan will contain detailed design information, a field execution schedule, and information on implementation of the ARARs, including waste management and air emissions.

5.3 Estimated Cost

The summarized cost estimates are shown in Table 1, which includes a projection of costs over the operation period (approximately 5 years). The total cost in today's dollars is approximately $10,995,000.

Table 1. Alternative 3 – Use Modular Storage Units for Purgewater Management

	Item	Estimated Cost ($)	Comments
1	System Installation	$3,738,000	Includes removal of existing Unit 2 liner and installation of new liner in existing 3,716 m^2 (40,000-ft^2) tank structure – supply and installation of three new 3,716 m^2 (40,000-ft^2) modular storage-type tanks and liners on new concrete ring slab and graded gravel floor surface. Regrade one new tank site. Other tanks will use previously graded sites.
2	O&M	$4,260,000	Over a 5-year plant life, includes all O&M costs based on cost analysis for FY 2006, FY 2007, and FY 2008 of $213,000/year for each tank.
3	D&D	$3,969,100	Decontamination, monitoring, demolition, excavation, containerizing of all demolition materials, hauling, and disposal at the Environmental Restoration Disposal Facility.
4	Total nondiscounted	$11,967,000	
5	Present Worth discounted	$10,995,000	Discount rate of 2.9%.
6*	Groundwater monitoring well installation	$915,000	

*Additional cost.

O&M = operations and maintenance

D&D = decontaminating and demolishing

FY = fiscal year

6 Expected Change in the Situation Should Action be Delayed or Not Taken

Without the ability to store and treat purgewater, investigation and remediation may be delayed. This may cause a threat to human health and the environment by the spread and exposure to the public and the environment through groundwater.

7 Outstanding Policy Issues

There are no outstanding policy issues for this removal action.

8 Enforcement

The DOE is the owner of the Hanford Site and DOE will fund this removal action. The removal action will be conducted in accordance with CERCLA and NCP requirements, the Tri-Party Agreement, and ARARs of federal and Washington State environmental regulations.

9 Selected Alternative

This Action Memorandum represents the selected removal action for dedicated purgewater management in the modular storage units on the Hanford Site in Richland, Washington. Field activities include relining the existing unit and installing up to three additional units using two high-density flexible membrane liners separated by a geotextile layer and a leak detection system that provides both measuring and sampling capability, for each unit. Monitoring of the leak detection system will be implemented with routine/scheduled evaluations performed to determine whether additional monitoring associated with groundwater is necessary. This Action Memorandum was developed in accordance with CERCLA as amended, and is consistent with the NCP. This decision is based on the administrative record for the Hanford Site.

Conditions on the Hanford Site meet 40 CFR 300.415(b)(2) criteria for a removal and this action is approved by RL. The total project costs are estimated at $10,995,000.

Although Alternative 3 was selected because it was the most effective alternative in the short-term, other alternatives for long-term purgewater management will continue to be pursued.

10 References

40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan," *Code of Federal Regulations*. Available at: http://www.access.gpo.gov/nara/cfr/waisidx_03/40cfr300_03.html.

- 40 CFR 300.415, "Removal Action."
- 40 CFR 300.440, "Procedures for Planning and Implementing Off-Site Response Actions."

40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan," Appendix B, "National Priorities List," *Code of Federal Regulations*. Available at: http://edocket.access.gpo.gov/cfr_2008/julqtr/40cfr141.50.htm.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 USC 9601, et seq. Available at: http://www.epa.gov/superfund/policy/cercla.htm .

DOE/RL-2008-66, *Hanford Site Groundwater Monitoring for Fiscal Year 2008*, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www.hanford.gov/cp/gpp/library/gwrep08/html/start08.htm.

Ecology, EPA, and RL, 1989, *Hanford Federal Facility Agreement and Consent Order*, Washington State Department of Ecology, U.S. Environmental Protection Agency, U.S. Department of Energy, Richland Operations Office, Olympia, Washington. Available at: http://www.hanford.gov/?page=91&parent=0.

Appendix A

Applicable or Relevant and Appropriate Requirements and Other Criteria, Advisories, or Guidance to be Considered

This page intentionally left blank.

Applicable or Relevant and Appropriate Requirements and Other Criteria, Advisories, or Guidance to be Considered

The purpose of this appendix is to identify applicable or relevant and appropriate requirements (ARARs) and briefly discuss how the major ARARs identified will be met during the removal action. Each citation includes an explanation as to why it is an ARAR. In addition, "to be considered" (TBC) information consists of nonpromulgated advisories or guidance issued by federal or state governments that are not legally binding and do not have the status of ARARs. However, regulations and guidance state that, as appropriate, TBCs should be considered in determining the removal action necessary for protection of human health and the environment. No TBCs are being considered for this removal action.

Waste Management Standards

The identification, storage, treatment, and disposal of hazardous waste and the hazardous component of mixed waste at *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) response actions are governed by the substantive, non-procedural provisions of the *Resource Conservation and Recovery Act 1976* (RCRA) and corresponding state laws and regulations. The State of Washington, which implements RCRA requirements under WAC 173-303, "Dangerous Waste Regulations," is authorized by the U.S. Environmental Protection Agency (EPA) to implement the RCRA program.

Purgewater will continue to be withdrawn during cleanup work under Ecology et al. 1989, *Hanford Federal Facility Agreement and Consent Order* and will be initially managed at or near the site where it is generated. Purgewater that is transported to the modular storage units for consolidation will be managed in accordance with waste management standards for miscellaneous units (WAC 173-303-680, "Miscellaneous Unit"). These standards will be applied to establish design and operating requirements, detection and monitoring requirements, and requirements for responses to releases of dangerous waste or dangerous constituents from the units.

WAC 173-303-680 allows for units whose design or operation resembles that of a specific unit type to be subjected to appropriate requirements from the existing unit-specific standards of WAC 173-303-600 through -670. These requirements should be tailored for the unit(s) based on (1) the type of waste being managed, (2) the particular risks and circumstances associated with the nature of the technology being applied, (3) the site location, and (4) any other site-specific factors.

The modular storage units are similar to tanks because they are constructed primarily of nonearthen materials as defined in WAC 173-303-040, "Definitions." However, unlike conventional tanks, structural support for the bottom is not provided by the unit's bottom, which consists of a liner system. The modular storage units are similar also to surface impoundments because they are similar to diked or artificial areas used to hold accumulations of liquid. However, unlike conventional surface impoundments, the modular storage units are not made primarily of earthen materials. Consequently, requirements for tank systems and surface impoundments were both evaluated to establish appropriate standards for the modular storage units. In evaluating these standards and their suitability for application, factors considered included the nature of the constituents and concentrations present, location of the management area, and anticipated operations for management in the units. Another important factor to consider is whether the units will be used for short- or long-term management.

Constituent concentrations in the purgewater typically have been at low levels and the isolated location where the units will be operated does not readily present threat of exposure to the public. Furthermore, the

units are designed such that they should be capable of managing purgewater for a temporary period of up to 5 years without any releases to groundwater. Therefore, design requirements for surface impoundments will be applied to the extent practicable, including requirements for a double liner and leachate collection system and a leak detection system capable of detecting, collecting, and removing leaks of dangerous constituents through the active life of the units. Provisions for emergency repairs from the surface impoundment standards will be applied. Certain tank standards also will be applied to the modular storage units. Daily inspection requirements from the tank standards will be applied to provide for early detection of problems. Overfill controls and responses to leaks or spills from the tank standards also will be applied. Daily levels will be documented and the liquids will be pumped when the level exceeds 0.33 m (1.1 ft) in the leak detection sump.

Treatment standards for dangerous or mixed waste subject to RCRA land-disposal restrictions (LDRs) are specified in WAC 173-303-140, which incorporates 40 CFR 268, "Land Disposal Restrictions," by reference. Wastes will not be treated at the modular storage units for LDR purposes and there is no intent to land dispose of the purgewater in the units. Wastes removed from the units will be treated as necessary before land disposal. Information gathered based on purgewater properties at the point of generation will be retained to provide necessary LDR information for waste treatment and disposal during closure of the modular storage units.

Purgewater transport vehicles will be parked in established areas. Substantive provisions for containment systems from WAC 173-303-630, "Use and Management of Containers," will be applied to vehicles that are parked with tankers holding dangerous or mixed waste in quantities that exceed those specified in WAC 173-303-160, "Containers."

Waste removed from the modular storage units will meet the LDRs and waste acceptance criteria at the Environmental Restoration Disposal Facility (ERDF) for eventual disposal. The ERDF is engineered to meet minimum technical requirements for landfills under WAC 173-303-665, "Landfills." The ERDF is considered to be onsite for management and/or disposal of waste from removal actions proposed in this document.[1] There is no requirement to obtain a permit to manage or dispose of CERCLA waste at the ERDF. Waste that must be sent offsite will be sent to a facility that has been or could be approved by EPA in accordance with 40 CFR 300.440, "Procedures for Planning and Implementing Off-Site Response Actions," for receiving CERCLA waste.

The ERDF is an engineered facility that provides a high degree of protection to human health and the environment and meets RCRA minimum technical requirements for landfills, including standards for a double liner, a leachate collection system, leak detection, monitoring, and final cover. Construction and operation of ERDF were authorized using a separate CERCLA Record of Decision (ROD) (EPA et al. 1995). The *U.S. Department of Energy Hanford Environmental Restoration Disposal Facility, Hanford Site, Benton County, Washington, Explanation of Significant Differences* (ESD) (EPA et al. 1996) modified the ERDF ROD (EPA et al. 1995, 2002) to clarify the eligibility of waste generated

[1] CERCLA Section 104(d)(4) states that, where two or more noncontiguous facilities are reasonably related on the basis of geography, or on the basis of the threat or potential threat to the public health or welfare or the environment, the President may, at his discretion, treat these facilities as one for the purpose of this section. The preamble to the "National Oil and Hazardous Substances Pollution Contingency Plan" (40 CFR 300) clarifies the stated EPA interpretation that when noncontiguous facilities are reasonably close to one another, and wastes at these sites are compatible for a selected treatment or disposal approach, CERCLA Section 104(d)(4) allows the lead agency to treat these related facilities as one site for response purposes and, therefore, allows the lead agency to manage waste transferred between such noncontiguous facilities without being required to obtain a permit. Therefore, the ERDF is considered to be onsite for response purposes under this removal action. It should be noted that the scope of work covered in this removal action is for a facility and waste contaminated with hazardous substances. Materials encountered during implementation of the selected removal action that are not contaminated with hazardous substances will be dispositioned by DOE.

during cleanup of the Hanford Site. According to the ESD, the ERDF is eligible for disposal of any low-level radioactive waste (LLW), mixed waste, and hazardous/dangerous waste generated as a result of cleanup actions, provided the waste meets ERDF waste acceptance criteria and appropriate CERCLA decision documents are in place.

Aqueous waste designated as LLW, dangerous, or mixed waste that is removed from the modular storage units would be transported to the 200 Area Effluent Treatment Facility (ETF) for treatment and disposal with an approved offsite determination. The ETF is a RCRA-permitted facility authorized to treat aqueous waste streams generated on the Hanford Site and to dispose of these streams at a designated state-approved land disposal facility in accordance with applicable requirements.

Standards Controlling Emissions to the Environment

The state implementing regulation WAC 173-480, "Ambient Air Quality Standards and Emission Limits for Radionuclides," sets standards that are as stringent or more than the federal *Clean Air Act of 1990* and Amendments (42 USC 7401 et seq.), and under the federal implementing regulation, 40 CFR 61, Subpart H, "National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities." The EPA partial delegation of the 40 CFR 61 authority to the State of Washington includes all substantive emissions monitoring, abatement, and reporting aspects of the federal regulation. The state standards protect the public by conservatively establishing exposure standards applicable to even the maximally exposed public individual, be that individual real or hypothetical. To that end, the standards address any member of the public, at the point of maximum annual air concentration in an unrestricted area where any member of the public may be located. Radionuclide airborne emissions from the DOE Hanford Site "facility" are not to exceed amounts that would cause an exposure to any said member of the public of greater than 10 mrem/yr effective dose equivalent. The state implementing regulation WAC 246-247, "Radiation Protection – Air Emissions," adopts the WAC 173-480 standards and the 40 CFR 61, Subpart H standard, and requires verification of compliance with the 10 mrem/yr standard, and would be applicable to the remedial action.

WAC 246-247 further addresses emission sources emitting radioactive airborne emissions by requiring monitoring of such sources. Such monitoring requires physical measurement of the effluent or ambient air. The substantive provisions of WAC 246-247 that require monitoring radioactive airborne emissions would be applicable to the remedial action.

The state implementing regulations discussed above further address control of radioactive airborne emissions where economically and technologically feasible (WAC 246-247-040[3] and -040[4], "Radiation Protection – Air Emissions," "General Standards," and associated definitions). To address the substantive aspect of these requirements, best or reasonably achieved control technology will be addressed by ensuring applicable emission control technologies (those successfully operated in similar applications) will be used when economically and technologically feasible (i.e., based on cost/benefit). If it is determined there are substantive aspects of the requirement for control of radioactive airborne emissions, controls will be administered as appropriate using reasonable and effective methods.

Tables A-1 and A-2 provide the specific requirements pertaining to radioactive and nonradioactive air emissions for this removal action.

Table A-1. Identification of Federal ARARs for the Removal Action

ARAR Citation	Requirement	Rationale for Use
National Historic Preservation Act of 1966 16 USC 470, Section 106	Requires federal agencies to consider the impacts of their undertaking on cultural properties through identification, evaluation, and mitigation processes, and consultation with interested parties.	Cultural and historic sites have been identified within the 100 and 200 Areas, and therefore the substantive requirements of this act are applicable to actions that might disturb these types of sites. This requirement is location-specific.
Native American Graves Protection and Repatriation Act 25 USC 3001, et seq.	Establishes federal agency responsibility for discovery of human remains, associated and unassociated funerary objects, sacred objects, and items of cultural patrimony.	Substantive requirements of this act are applicable if remains and sacred objects are found during remediation and will require Native American Tribal consultation in the event of discovery. This requirement is location-specific.
Endangered Species Act of 1973 16 USC 1531 et seq., Subsection 16 USC 1536(c)	Prohibits actions by federal agencies that are likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. If remediation is within critical habitat or buffer zones surrounding threatened or endangered species, mitigation measures must be taken to protect the resource.	Substantive requirements of this act are applicable if threatened or endangered species are identified in areas where removal actions will occur. This requirement is location-specific.

Table A-2. Identification of State ARARs for the Removal Action

ARAR Citation	Requirement	Rationale for Use
Dangerous Waste Regulations, WAC 173-303		
"Identifying Solid Waste" WAC 173-303-016	Identifies those materials that are and are not solid waste.	Substantive requirements of these regulations are applicable because they define how to determine which materials are subject to the identification of solid waste. Specifically, hazardous substances and media containing hazardous substances that are generated during the removal action would be subject to the procedures for identifying solid waste to ensure proper management. This requirement is action-specific.
"Recycling Processes Involving Solid Waste" WAC 173-303-017	Identifies materials that are and are not solid waste when recycled.	Substantive requirements of these regulations are applicable because they help define how to determine which materials are subject to the designation regulations. Specifically, materials that are generated during the removal action would be subject to the procedures for identifying solid waste to ensure proper management. This requirement is action-specific.

Table A-2. Identification of State ARARs for the Removal Action

ARAR Citation	Requirement	Rationale for Use
"Designation of Dangerous Waste" WAC 173-303-070(3)	Establishes the method for determining whether a solid waste is or is not a dangerous waste or an extremely hazardous waste.	Substantive requirements of these regulations are applicable to materials received at or removed from the modular storage units during the removal action. Specifically, solid wastes and media containing solid waste generated during this removal action would be subject to the dangerous waste designation procedures to ensure proper management. This requirement is action-specific.
"Excluded Categories of Waste" WAC 173-303-071	Describes those waste categories that are excluded from the requirements of WAC 173-303.	Substantive requirements of these regulations are applicable because they help define how to determine which wastes are subject to which management standards.
"Land Disposal Restrictions" WAC 173-303-140(4)	Establishes state standards for land disposal of dangerous waste and incorporates by reference the federal land disposal restrictions of 40 CFR 268 that are applicable to solid waste designated as dangerous or mixed waste in accordance with WAC 173-303-070(3).	The substantive requirements of this regulation are applicable to dangerous and mixed wastes generated at the modular storage units from storage and closure activities during the removal action. Specifically, dangerous and/or mixed waste generated and managed at the modular storage units during the removal action would be subject to the identification of applicable land disposal restrictions at the point of waste generation. Dangerous and mixed wastes that are sent to a non-CERCLA facility for treatment will be performed under applicable laws and regulations and, therefore, would not be ARAR to the removal action. This requirement is action-specific.
WAC 173-303-610(2)(b)(i) WAC 173-303-610(2)(b)(ii)	Establishes state standards for closure of treatment, storage, and/or disposal units.	The substantive standards of these regulations are applicable to the modular storage units upon completion of the work necessary to implement the removal action.
"Use and Management of Containers" WAC 173-303-630(7)(a)	Establishes state standards for container storage areas for dangerous waste when managed in containers.	Substantive requirements of this regulation will be used to establish standards for containment systems for containerized wastes and transport vehicles during periods of nonuse when the tankers contain dangerous or mixed waste quantities that exceed the quantities of WAC 173-303-160 for empty containers.

Table A-2. Identification of State ARARs for the Removal Action

ARAR Citation	Requirement	Rationale for Use
"Tank Systems" WAC 173-303-640 Specific subsections: WAC 173-303-640(5)(a) and (b) WAC 173-303-640(6)(b) WAC 173-303-640(7)(a), (b), and (c)	Establishes the requirements for dangerous waste when managed in tank systems.	Substantive requirements of these regulations will be used to establish standards for inspections and response to releases of dangerous and mixed waste in a miscellaneous unit during the removal action. Specifically, the substantive standards for management of dangerous and/or mixed waste identified here will be used as appropriate and designing and operating modular storage units during the removal action for the management of designated purgewater in the modular storage units. This requirement is action-specific.
"Surface Impoundments" Specific subsections: WAC 173-303-650(2)(c) WAC 173-303-650(2)(d) WAC 173-303-650(2)(j) WAC 173-303-650(4)(b) WAC 173-303-650(5)(a) WAC 173-303-650(6)(a)	Establishes the requirements for dangerous waste when managed in surface impoundments.	Substantive requirements of these regulations will be used to establish standards for storage of dangerous and mixed wastes in a miscellaneous unit during the removal action. Specifically, the substantive standards for management of dangerous and/or mixed waste identified here will be used as appropriate and designing and operating modular storage units during the removal action for the management of designated purgewater in the modular storage units. This requirement is action-specific.
"Miscellaneous Unit" WAC 173-303-680(2)	Establishes the requirements for dangerous waste when managed in miscellaneous units.	Substantive requirements of these regulations are applicable for storage of dangerous and mixed waste in a miscellaneous unit. The modular storage units will be designed and operated as a miscellaneous unit during the removal action. Specifically, as appropriate, the substantive standards for management of dangerous and mixed waste in surface impoundments and tanks will be used during the removal action for the management of designated purgewater in the modular storage units. The miscellaneous unit standards require application of requirements for other dangerous waste management unit types based on appropriateness for the miscellaneous unit that will be used. This requirement is action-specific.
WAC 173-303-64620(4)	Establishes standards for corrective action to address releases to the environment of dangerous waste and dangerous constituents.	These standards will be evaluated for applicability under the Tri-Party Agreement if the units cannot be clean closed upon completion of the work or if releases occur from containerized wastes during the removal action such that there is an established need for additional cleanup to satisfy corrective action.

Table A-2. Identification of State ARARs for the Removal Action

ARAR Citation	Requirement	Rationale for Use
General Regulations for Air Pollution Sources, WAC 173-400		
Specific subsection: WAC 173-400-040	Requires all sources of air contaminants to meet emission standards for visible, particulate, fugitive, odors, and hazardous air emissions. This section requires all emission units use RACT, which may be determined for some source categories to be more stringent than the emission limitations listed in this chapter.	Substantive requirements of the general standards for control of fugitive emissions are applicable during the removal action due to the generation of fugitive dust that occurs during unit installation and final demolition activities. These requirements are action-specific.
Specific subsection: WAC 173-400-113	Requires that methods of controls be employed to minimize the release of air contaminants resulting from new or modified sources of regulated emissions. Emissions are to be minimized through application of best available control technology.	Substantive requirements of this regulation would be applicable during the removal action if a treatment technology such as a filtration system that emits regulated air emissions is used during the implementation of the removal action. This requirement is action-specific.
Control of New Sources for Toxic Air Pollutants, WAC 173-460		
"Controls for New Sources of Toxic Air Pollutants" WAC 173-460 Specific subsections: WAC 173-460-030 WAC 173-460-060 WAC 173-460-070	Requires that emissions of toxic air contaminants listed in the regulation be quantified, and ambient impacts evaluated. Best available control technology for toxics shall be used as determined by the lead agency to protect human health and the environment.	Substantive requirements of these regulations are applicable during the removal action, if a treatment technology such as a filtration system that emits toxic air emissions were necessary during the implementation of the removal action. These requirements are action-specific.
Radiation Protection — Air Emissions, WAC 246-247		
"Radiation Protection — Air Emissions" WAC 246-247-035(1)(a)(ii)	Establishes requirements of 40 CFR 61, Subpart H, by reference. Radionuclide airborne emissions from the Hanford Site (facility) shall be controlled so as not to exceed amounts that would cause an exposure to any member of the public of greater than 10 mrem/yr per year effective dose equivalent.	Substantive requirements of this standard are applicable because this removal action will include facility operation and demolition of the purgewater unit, each of which may contribute airborne emissions of radioactive particulates to unrestricted areas. As a result, requirements limiting emissions apply. This is a risk-based standard for the purposes of protecting human health and the environment. This requirement is action-specific.
"Radiation Protection — Air Emissions Standards" WAC 246-247-040(3) WAC 246-247-040(4)	Requires that emissions be controlled to ensure emission standards are not exceeded.	Substantive requirements of this standard are applicable because fugitive, diffuse, and point source emissions of radionuclides to the ambient air may result from management of purgewater and eventual demolition of the unit, performed as part of the removal action. This standard exists to ensure compliance with emission standards. These requirements are action-specific.

Table A-2. Identification of State ARARs for the Removal Action

ARAR Citation	Requirement	Rationale for Use
"Monitoring, Testing, And Quality Assurance" WAC 246-247-075(1) and -(2) and -(4)	Establishes the monitoring, testing, and quality assurance requirements for radioactive air emissions from major sources. Effluent flow rate measurements shall be made and the effluent stream shall be directly monitored continuously with an in-line detector or representative samples of the effluent stream shall be withdrawn continuously from the sampling site following the specified guidance. The requirements for continuous sampling are applicable to batch processes when the unit is in operation. Periodic sampling (grab samples) may be used only with lead agency prior approval. Such approval may be granted in cases where continuous sampling is not practical and radionuclide emission rates are relatively constant. In such cases, grab samples shall be collected with sufficient frequency so as to provide a representative sample of the emissions. When it is impractical to measure the effluent flow rate at a source in accordance with the requirements or to monitor or sample an effluent stream at a source in accordance with the site selection and sample extraction requirements, the facility owner or operator may use alternative effluent flow rate measurement procedures or site selection and sample extraction procedures as approved by the lead agency. Emissions from nonpoint and fugitive sources of airborne radioactive material shall be measured. Measurement techniques may include, but are not limited to, sampling, calculation, smears, or other reasonable method for identifying emissions as determined by the lead agency.	Substantive requirements of this standard are applicable because fugitive, diffuse, and point source emissions of radionuclides to the ambient air may result during management of purgewater, performed during the removal action. This standard exists to ensure compliance with emission standards. These requirements are action-specific.

Table A-2. Identification of State ARARs for the Removal Action

ARAR Citation	Requirement	Rationale for Use
"Monitoring, Testing, and Quality Assurance" WAC 246-247-075(3)	Methods to implement periodic confirmatory monitoring for minor sources may include estimating the emissions or other methods as approved by the lead agency.	Fugitive, diffuse, and point source emissions from the operation and demolition of the unit will require periodic confirmatory measurements to verify low emissions. This requirement is action-specific.
"Monitoring, Testing, and Quality Assurance" WAC 246-247-075(8)	Facility (site) emissions resulting from nonpoint and fugitive sources of airborne radioactive material shall be measured. Measurement techniques may include ambient air measurements, or in-line radiation detection or withdrawal of representative samples from the effluent stream, or other methods as determined by the lead agency.	Fugitive and diffuse emissions of airborne radioactive material due to operation and demolition of the unit will require measurement. This requirement is action-specific.
"General Standards" WAC 246-247-040(4)	At a minimum, all emission units shall make every reasonable effort to maintain radioactive materials in effluents to unrestricted areas, ALARA. Control equipment of facilities operating under ALARA shall be defined as RACT and as low as reasonably achievable control technology (ALARACT).	The potential for fugitive, diffuse, and point source emissions due to operation and demolition of the unit will require efforts to minimize those emissions. This requirement is action-specific.
Ambient Air Quality Standards and Emission Limits for Radionuclides, WAC 173-480		
"Emission Monitoring and Compliance Procedures" WAC 173-480-070-(2)	Determine compliance with the public dose standard by calculating exposure at the point of maximum annual air concentration in an unrestricted area where any member of the public may be.	Fugitive, diffuse, and point source emissions resulting from operation and demolition of the unit will require assessment and reporting. This requirement is action-specific.
"General Standards for Maximum Permissible Emissions" WAC 173-480-050(1)	At a minimum, all emission units shall make every reasonable effort to maintain radioactive materials in effluents to unrestricted areas, ALARA. Control equipment of facilities operating under ALARA shall be defined as RACT and ALARACT.	The potential for fugitive, diffuse, and point source emissions due to operation and demolition of the unit will require efforts to minimize those emissions. This requirement is action-specific.

40 CFR 61, Subpart H, "National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities."

WAC 173-303, "Dangerous Waste Regulations."

WAC 173-400, "General Regulations for Air Pollution Sources."

WAC 173-460, "Controls for New Sources of Toxic Air Pollutants."

WAC 173-480, "Ambient Air Quality Standards and Emission Limits for Radionuclides."

WAC 246-247, "Radiation Protection -- Air Emissions."

Table A-2. Identification of State ARARs for the Removal Action

ARAR Citation	Requirement	Rationale for Use

ALARA = as low as reasonably achievable
ALARACT = as low as reasonably achievable control technology
CERCLA = *Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
CFR = *Code of Federal Regulations*
RACT = reasonably available control technology
RCRA = *Resource Conservation and Recovery Act of 1976*
WAC = *Washington Administrative Code*

National Environmental Policy Act

This Action Memorandum documents approval of a DOE non-time-critical removal action to manage purgewater at the Hanford Site. The proposed action (as identified in Chapter 5 of this Action Memorandum) consists of re-lining the existing modular storage unit, building additional storage units as needed for dedicated use in the collection and management of purgewater, operation of the unit(s), and eventual demolition of the units.

Under DOE's *National Environmental Policy Act of 1969* (NEPA) compliance program (DOE O 451.1B, Section 5.a.[13]), DOE will "...incorporate NEPA values, such as analysis of cumulative, off-site, ecological, and socioeconomic impacts, to the extent practicable, in DOE documents prepared under the Comprehensive Environmental Response, Compensation, and Liability Act." The NEPA values associated with management of Hanford Site purgewater were generally summarized in Appendix A of DOE/RL-2009-31, *Investigation Derived Waste Purgewater Management Engineering Evaluation/Cost Analysis*. The aforementioned NEPA values were based on considering the more detailed information presented in the DOE/RL-2009-31 CERCLA Evaluation Criteria, the DOE/RL-2009-31 discussion of the specific site characterization (Chapter 2), the release or threatened release of hazardous substances (Section 2.3), and alternative removal actions (Chapters 4 and 5). Applying a "sliding scale" of NEPA analysis to the management of purgewater (using DOE 2004, *NEPA Recommendations for the Preparation of Environmental Assessments and Environmental Impact Statements*), and considering the CERCLA ARARs (previously detailed in this appendix), the principal resource areas of concern include the contaminants in the purgewater, solid and liquid radioactive and hazardous waste management, air emissions, potential adverse effects to historic and cultural resources, ecological resources, socioeconomics (including environmental justice concerns), and transportation.

For purposes of implementing the preferred removal actions, when purgewater and demolition wastes are found to be contaminated with hazardous substances in concentrations presenting a material threat to human health and the environment, that threat will be mitigated by meeting the applicable ARAR standards as well as following current DOE policy and guidance. The net anticipated effect could be a positive contribution to cumulative environmental effects at the Hanford Site through removal, treatment, and disposal of such hazardous substances and contaminants of concern into a facility that has been designed and legally authorized to safely contain such contaminants. The purgewater would be collected and consolidated in modular storage units (Section 4.3). The DOE expects that the primary facility to receive demolition waste will be the ERDF. The NEPA values in the planning for the ERDF operation are explained in detail in DOE/RL-94-41, *NEPA Roadmap for the Environmental Restoration Disposal Facility Regulatory Package*, for the ERDF remedial investigation/feasibility study (DOE/RL-93-99, *Remedial Investigation and Feasibility Study Report for the Environmental Restoration Disposal Facility*)

as described in the most recent ERDF ROD Amendment (EPA 2007, *U.S. Department of Energy Environmental Restoration Disposal Facility, Hanford Site - 200 Area, Benton County, Washington, Amended Record of Decision, Decision Summary and Responsiveness Summary*).

Any airborne releases of contaminants that could occur during these removal actions will be controlled in accordance with DOE radiation control and Washington State Department of Health air pollution control standards to minimize emissions of air pollutants at the Hanford Site, and protect all communities residing outside the Site boundaries. The modular storage unit(s) is located in the Industrial-Exclusive Zone (designated under DOE/EIS-0222-F, *Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement*). Impacts on ecological resources in the vicinity of the removal actions will continue to be mitigated in accordance with DOE/RL-96-32, *Hanford Site Biological Resources Management Plan*, and DOE/RL-96-88, *Biological Resources Mitigation Strategy*, and with the applicable standards of all relevant biological species protection regulations. Although these sites previously have been disturbed, only isolated cultural resources artifacts would be potentially encountered during project activities. Impacts to other cultural values including the view shed from nearby traditional cultural properties will be minimized through implementation of DOE/RL-98-10, *Hanford Cultural Resources Management Plan*; DOE/RL-2005-27, *Revised Mitigation Action Plan for the Environmental Restoration Disposal Facility*; and consultation with area Tribe Nations throughout the design and project implementation. This will help ensure appropriate mitigation to avoid or minimize any adverse effects on natural and cultural resources and address any other relevant concerns.

In accordance with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (59 FR 7629), DOE seeks to ensure that no group of people bears a disproportionate share of negative environmental consequences resulting from proposed federal actions. Because access to the Hanford Site is restricted to the public, the majority of potential environmental impacts from the proposed action would be associated with onsite activities and would not affect populations residing offsite; thus, the potential for environmental justice concerns is small. There are no impacts associated with proposed activities associated with the modular storage units that could reasonably be determined to affect any member of the public; therefore, they would not have the potential for high and disproportionately adverse impacts on minority or low-income groups.

The actions associated with purgewater management are being implemented to reduce risk to human health or the environment from the release or threat of release of a hazardous substance, and include disposal of materials at existing facilities, including ERDF, currently handling the type of waste involved in the action. These actions will reduce the spread of, or direct contact with, the contamination.

In addition to the above, DOE is including the combined effects anticipated from ongoing CERCLA/ Tri-Party Agreement response actions as part of the cumulative impact analysis in the forthcoming draft Tank Closure and Waste Management (TC&WM) environmental impact statement (EIS). Cumulative groundwater impacts from the proposed actions evaluated in the EIS as well as from other ongoing Hanford Site activities, including Tri-Party Agreement cleanup actions, are included in this site-wide cumulative impact analysis. This will present the public with an additional, separate opportunity for comment as part of the TC&WM EIS NEPA process, and will be used to inform the public concerning the effects of ongoing cleanup actions on the Hanford Site in combination with other planned site activities.

References

40 CFR 61, "National Emission Standards for Emissions of Radionuclides Other Than Radon from Department of Energy Facilities," Subpart H, *Code of Federal Regulations*. Available at: http://www.epa.gov/radiation/neshaps/subparth/index.html.

40 CFR 268, "Land Disposal Restrictions," *Code of Federal Regulations*. Available at: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title40/40cfr268_main_02.tpl.

Clean Air Act, 42 USC 7401, et seq. Available at http://www.epa.gov/air/caa/.

DOE O 451.1B, *National Environmental Policy Act Compliance Program*, U.S. Department of Energy, Washington, D.C. Available at: http://www.directives.doe.gov/pdfs/doe/doetext/neword/451/o4511bc1.pdf.

DOE, 2004, *NEPA Recommendations for the Preparation of Environmental Assessments and Environmental Impact Statements*, Second Edition, U.S. Department of Energy, Washington, D.C. Available at: http://www.gc.energy.gov/NEPA/documents/green_book2004_12_30_final.pdf.

DOE/EIS-0222-F, 1999, *Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement*, U.S. Department of Energy, Washington, D.C. Available at: http://www.hanford.gov/doe/eis/hraeis/maintoc.htm.

DOE/RL-93-99, 1994, *Remedial Investigation and Feasibility Study Report for the Environmental Restoration Disposal Facility,* Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www2.hanford.gov/arpir/?content=findpage&AKey=D196061256.

DOE/RL-94-41, 1994, *NEPA Roadmap for the Environmental Restoration Disposal Facility Regulatory Package*, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www2.hanford.gov/arpir/?content=findpage&AKey=D196074918.

DOE/RL-96-32, 2001, *Hanford Site Biological Resources Management Plan*, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www.pnl.gov/ecomon/docs/brmap/BRMaP.pdf.

DOE/RL-96-88, 2003, *Biological Resources Mitigation Strategy*, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www.pnl.gov/ecomon/docs/BRMiS.pdf.

DOE/RL-98-10, 2003, *Hanford Cultural Resources Management Plan*, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www.hanford.gov/doe/history/?history=rmp.

Endangered Species Act of 1973, 16 USC 1531 et seq. Available at: http://www.fws.gov/laws/lawsdigest/ESACT.html.

EPA, 2007, *U.S. Department of Energy Environmental Restoration Disposal Facility, Hanford Site - 200 Area, Benton County, Washington, Amended Record of Decision, Decision Summary and Responsiveness Summary,* U.S. Environmental Protection Agency, Region 10, Seattle, Washington. Available at: http://yosemite.epa.gov/r10/CLEANUP.NSF/sites/hanford2/$FILE/ERDF-Amended-ROD-2007.pdf.

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* 59 FR 7629. Available at: http://www.epa.gov/Region2/ej/exec_order_12898.pdf.

DOE/RL-2005-27, 2005, *Revised Mitigation Action Plan for the Environmental Restoration Disposal Facility*, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www2.hanford.gov/arpir/?content=findpage&AKey=00099836.

DOE/RL-2009-31, *Investigation Derived Waste Purgewater Management Engineering Evaluation/Cost Analysis*, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www2.hanford.gov/arpir/?content=findpage&AKey=0904290333.

EPA, Ecology, and DOE, 1995 and 2002, *Environmental Restoration Disposal Facility Record of Decision*, U.S. Environmental Protection Agency, State of Washington Department of Ecology, and U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www.epa.gov/superfund/sites/rods/fulltext/r1095100.pdf and http://www.epa.gov/superfund/sites/rods/fulltext/a1002030.pdf.

EPA, Ecology, and DOE, 1996, *U.S. Department of Energy Hanford Environmental Restoration Disposal Facility, Hanford Site, Benton County, Washington, Explanation of Significant Differences* (ESD), U.S. Environmental Protection Agency, State of Washington Department of Ecology, and U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www.epa.gov/superfund/sites/rods/fulltext/e1096145.pdf.

National Environmental Policy Act of 1969, 42 USC 4321, et seq. Available at: http://www.nepa.gov/nepa/regs/nepa/nepaeqia.htm.

National Historic Preservation Act of 1966, 16 USC 470, Section 106. Available at: http://www.achp.gov/docs/nhpa%202008-final.pdf.

Native American Graves Protection and Repatriation Act of 1990, 25 USC 3001, et seq. Available at: http://www.nps.gov/history/local-law/FHPL_NAGPRA.pdf.

Resource Conservation and Recovery Act of 1976, 42 USC 6901, et seq. Available at: http://wildlifelaw.unm.edu/fedbook/rcra.html.

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

- WAC 173-303-016, "Identifying Solid Waste."
- WAC 173-303-017, "Recycling Processes Involving Solid Waste."
- WAC 173-303-040, "Definitions."
- WAC 173-303-070(3), "Designation of Dangerous Waste."
- WAC 173-303-071, "Excluded Categories of Waste."
- WAC 173-303-140, "Land Disposal Restrictions."
- WAC 173-303-160, "Containers."

- WAC 173-303-610, "Closure and Post-Closure."
- WAC 173-303-630, "Use and Management of Containers."
- WAC 173-303-640, "Tank Systems."
- WAC 173-303-650, "Surface Impoundments."
- WAC 173-303-665, "Landfills."
- WAC 173-303-680, "Miscellaneous Unit."
- WAC 173-303-64620, "Requirements."

WAC 173-400, "General Regulations for Air Pollution Sources," *Washington Administrative Code,* Olympia, Washington. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-400.

- WAC 173-400-040, "General Standards for Maximum Emissions."
- WAC 173-400-113, "Requirements for New Sources in Attainment of Unclassifiable Areas."

WAC 173-460, "Controls for New Sources of Toxic Air Pollutants," *Washington Administrative Code,* Olympia, Washington. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-460.

- WAC 173-460-030, "Applicability."
- WAC 173-460-060, "Control Technology Requirements."
- WAC 173-460-070, "Ambient Impact Requirement."

WAC 173-480, "Ambient Air Quality Standards and Emission Limits for Radionuclides," *Washington Administrative Code*, Olympia, Washington. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=173 480.

WAC 246-247, "Radiation Protection – Air Emissions," *Washington Administrative Code*, Olympia, Washington. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=246 247.

Appendix B

Responsiveness Summary

This page intentionally left blank.

Responsiveness Summary

Introduction

The purpose of this Responsiveness Summary is to summarize and respond to public comments on the *Investigation Derived Waste Purgewater Management Engineering Evaluation/Cost Analysis* (EE/CA). The EE/CA was provided for public comment on April 29, 2009.

The Parties announced the issuance of the EE/CA in the *Tri-City Herald.* A 30-day public comment period was held during which time the public had the opportunity to read, review and submit comments on the EE/CA. The document evaluates the alternatives for a non-time critical removal action for management of investigation derived waste purgewater under the *Comprehensive Environmental Response, Compensation and Liability Act of 1980* (CERCLA).

Public Involvement

A newspaper ad was placed in the Tri-City Herald on April 29, 2009, announcing the availability of the EE/CA and the start of the public comment period. Approximately 1,500 copies of a fact sheet describing the EE/CA were mailed out or sent electronically. A public comment period was held from April 29 through May 29, 2009. No requests were received for a public meeting, and no public meeting was held.

Comments and Responses

The Parties received two letters with comments during the public comment period. One commenter proposed a hybrid alternative combining the recommended alternative to use modular storage units with treatment and reinjection of purgewater into the ground at Hanford pump-and-treat facilities. The other commenter had several comments regarding the compliance of the preferred alternative with State of Washington Dangerous Waste Requirements and felt the alternatives were not evaluated consistently.

The Parties decided to select the preferred alternative, use of modular storage units in order to provide needed short-term purgewater storage capacity. However, based on discussions with stakeholders, the Parties also decided to explore over the next four years other alternatives for long-term purgewater management.

Comments and Responses to the Investigation Derived Waste Purgewater Management Engineering Evaluation/Cost Analysis (DOE/RL-2009-31, REV. 0)

COMMENTER:

KEN NILES
Oregon Department of Energy
Salem, Oregon

Comment 1: Oregon appreciates the opportunity to comment on the Purgewater Management Engineering Evaluation/Cost Analysis (EE/CA) for Hanford's Central Plateau. Given the large number of new wells planned for the Plateau for the ZP-1 pump-and-treat and other purposes, we understand the need to alleviate the shortage of capacity for managing purgewater. We did participate in the April meeting of the Hanford Advisory Board's River and Plateau (RAP) Committee when this topic was discussed but missed the May meeting, so we are unsure of any possible adjustments to DOE's preferred approach since the EE/CA was released. Based on discussion with other RAP committee participants, it sounds as though DOE may be shifting to a hybrid approach similar to what we are recommending below.

Response to Comment 1: Thank you for your comments and interest in the Investigation Derived Waste Purgewater Management Engineering Evaluation/Cost Analysis (EE/CA). Concerning your observation that "DOE may be shifting to a hybrid approach similar to what we are recommending below," please see the response to Comment 2.

Comment 2: DOE's preferred alternative in the EE/CA would use the familiar ModuTank holding system which would include removing accumulated sediment from one of the existing tanks, relining the second tank, and building two additional million gallon retention tanks. This approach relies on slowly evaporating the purgewater from the tanks, leaving the solids for later disposal. The cost of relining the existing but unused tank wasn't separated in the cost analysis provided, but we expect it would be a small part of the $3.74 million total cost for this alternative. In this alternative, disposal of the solids does not occur because the ModuTank is always being used to hold purgewater from the next drilling program and the sediments simply accumulate (e.g. the current 880,000 gallons). DOE also considered disposing of the water to a pump-and-treat system after using expensive filtration ($9 million) as the treatment methodology.

Oregon proposes a hybrid solution. The first component is to use existing tanks as settling ponds rather than as purely evaporative facilities. If the existing but unused tank was relined, it would provide immediate relief in the form of near-term capacity for purgewater volume. Subsequently, the tank currently in use could be emptied of sediment to provide additional capacity. After settling of most of the coarser sediments, a less expensive filtration system could be installed at the pump-and-treat facility to process the de-silted water for more rapid disposal of the accumulating purgewater. This would allow for processing of increased volumes of water to meet the growing demands of future drilling programs.

This approach has several advantages. Using the relined existing ModuTank will allow the process of cleaning the solids from purgewater to proceed quickly and will provide the capacity that would allow the solids to be removed from the currently used tank. The two existing tanks would provide a two million gallon purgewater volume. Since water will be needed to make up the pump-and-treat volume, the additional settled, filtered and treated purgewater could be added to the pump-and-treat water. Finally, by

not purchasing, erecting, and then decommissioning the additional two ModuTanks, considerable expense will be saved. Moreover, less sagebrush environment will be sacrificed for construction and less habitat mitigation and injury will need to be paid for later.

Response to Comment 2: You are correct. The cost of relining the existing, unused modular storage unit is a small portion of the $3.74 million.

As the State of Oregon is aware, the agencies are in the process of finalizing a series of new and accelerated groundwater milestones. The American Recovery and Reinvestment Act funding will enable many of these milestones to be implemented in the next few years. These activities and those associated with the new ZP-1 treatment system will in the near-term greatly increase the projected amounts of purgewater volume. Though your proposal to filter and re-insert purgewater into the aquifer at a pump-and-treat facility is attractive, additional time would be required to design, procure and install filtration equipment. As a result, filtration and re-insertion is not a part of the Parties' selected alternative because it will not meet the immediate need. However, your proposal to reline and use the previously unused modular storage unit is included in the selected alternative. Additionally, it is noted in the Investigation Derived Waste Purgewater Management Action Memorandum that other alternatives for long-term management of purgewater will continue to be pursued, and further, after four years EPA and DOE will evaluate continued usage of modular storage units.

You also proposed to empty sediments from the presently used modular storage unit and to continue its use. The Parties determined that cleanout of sediments from the presently used modular storage unit followed by continued use should not be done due to the age of the unit's liners and the potential to damage them during cleanout.

COMMENTER:

HELEN LITTLE

Comment 1: The executive summary and Section 3, "Removal Objectives," states that one of the specific objectives of the removal action alternatives is to "Reduce or eliminate the potential for release of hazardous substances from the management of purgewater." Further, Section 2.3 states "The ability to safely manage the purgewater anticipated to be generated from planned work could be compromised if immediate action is not taken to ensure adequate purgewater management to prevent threat of re-release to the environment."

Section 4.3 states that hazardous substances which may be expected to be present in purgewater to be managed by the three proposed Modu-Tanks include carbon tetrachloride, methanol, 1, 1, 1 -trichloroethane, methylene chloride, acetone, methyl isobutyl ketone, and methyl ethyl ketone, all of which are considered volatile organics. Section 4.3, the description of the preferred Alternative 3, clearly states that the three proposed Modu-Tanks will be for "for water storage and evaporation." It is quite clear that the stated function (evaporation) of the three proposed units will result in re-release of volatile organic hazardous substances to the environment. Therefore, Alternative 3 is incapable of satisfying the removal action objective cited above, and should not be identified as the preferred alternative.

Response to Comment 1: Thank you for your comments. The Parties are committed to managing purgewater in a safe and efficient manner and in compliance with all applicable or relevant and appropriate requirements (ARARs) to the extent practicable as required by the *Comprehensive Environmental Response Compensation, and Liability Act of 1980* (CERCLA). The Parties have determined that the removal action objectives can be met by all alternatives evaluated, including Alternative 3.

The Parties manage investigation-derived wastes, including purgewater to implement DOE obligations for both remedial action under CERCLA and corrective action under the *Washington Hazardous Waste Management Act* in accordance with all applicable or relevant and appropriate requirements to the extent practicable. Additionally, existing information indicates that it is not expected that purgewater managed under this action would contain volatile organic concentrations above the levels that would otherwise require controls under WAC 173-303-680.

Comment 2: Section 2.3 identifies a number of chemical hazardous substances that can be expected to be present in purgewater. Unfortunately, the EE/CA does not, state whether any or all of the purgewater that may be managed by the various alternatives examined by the EE/CA would designate as dangerous waste pursuant to WAC 173-303. It is reasonable to expect, however, that at least some purgewater would so designate. This expectation is supported by Table A-2, "Identification of Potential State Applicable and Relevant or Appropriate Requirements for the Removal Action," which cites WAC 173-303-070 as an ARAR. To the extent that at least some purgewater designates as dangerous waste and concentrations of dangerous constituents in the purgewater are above Land Disposal Restriction treatment standards in 40 CFR 268.40, incorporated by reference by WAC 173-303-140, purgewater would require treatment via means other than impermissible treatment to satisfy these treatment standards. Evaporation of purgewater and the associated volatile organic constituents would constitute impermissible dilution, and would not be considered a legitimate form of treatment. Therefore, Alternative 3 fails at least two of the effectiveness criteria identified in Section 5, "Compliance with ARARs and Other Standards (Appendix A)," and "Reduction of Toxicity, Mobility, or Volume Through Treatment," and should not be identified as the preferred alternative.

Response to Comment 2: The Parties agree that some purgewater could designate as dangerous waste. Potential ARARs for all alternatives evaluated include WAC 173-303-070 procedures for designation of dangerous waste. Purgewater that designates as dangerous or mixed waste would be subject to management pursuant to the substantive standards determined to be ARAR for this action, which consist of a combination of surface impoundment and tank standards that have been determined to be protective for this action.

Comment 3: The various alternatives presented in the EE/CA vary widely as to how they address treatment of hazardous substances in purgewater, and how the liquid and solid phases of purgewater are treated and/or disposed of. For example, Alternatives 2 and 5 comprehensively establishes treatment and disposal requirements for both the liquid and solid phases of purgewater, including treatment performance standards implicit in the specified method of treatment and disposal for each phase (for example, re-injection of treated purgewater, disposal of solids in ERDF). The description of Alternative 3, the preferred alternative, includes no discussion of treatment or disposal requirements for solids other than D&D of the entire unit in year 6, and relegates treatment requirements for hazardous substances in the liquid phase of purgewater to evaporation back into the environment with no discussion of potential human health or environmental impacts of this practice. Therefore, the various options are presented on a clearly inconsistent basis. It is not clear how Alternative 3 can be selected as the preferred alternative given the degree to which treatment/disposal requirements are documented in the EE/CA compared to Alternatives 2 and 5

Response to Comment 3: Each alternative is evaluated against the ARARs based on the proposed action. ARARs can be location-specific, chemical-specific, or action-specific. Alternative 3 will address liquid and solid waste disposal accordingly. Wastes removed from the modular storage units will be treated as appropriate to meet the acceptance criteria of the ERDF, including any applicable land disposal restrictions.

Comment 4: The EE/CA appears silent on what solids will be accumulated in Modu-Tanks under Alternative 3, or how they will be managed. Presumably, solids will be allowed to accumulate over the full 5-year operating life of the relined Modu-Tank 2 and the proposed three additional units. As noted in Comment 2 above, however, at least some purgewater can be expected to be subject to LDR treatment standards and require treatment to meet LDR treatment standards. Use of the Modu-Tanks to manage such purgewater is permissible, subject to the provisions of 40 CFR 268.4, "Treatment surface impoundment exemptions." These provisions include sampling and testing of treatment residuals, which would specifically include solids accumulating in the basins, and removal of treatment residuals (including any liquid waste) at least annually. The EE/CA is silent on this regulatory requirement, and the cost estimates in Appendix B do not appear to consider removal, treatment and disposal costs of accumulated treatment residuals (including any liquid waste) at least annually. Therefore, it is not possible to evaluate whether or not Alternative 3 satisfies the Effectiveness criteria in Section 5, or have defensible cost estimates for evaluating the various alternatives. Given the engineering design of the Modu-Tank units, it may not be technically feasible to remove accumulated solids on an annual basis as necessary to comply with the requirements of 40 CFR 268.4, incorporated by reference by WAC 173-303-140.

Response to Comment 4: Purgewater management of necessity involves some management of entrained solids, which will be managed in the modular units in a manner that is protective of human health and the environment and that meets all ARARs identified in this Action Memorandum. The modular storage units do not meet the surface impoundment definition in WAC 173-303-040 because they are not "formed primarily of earthen materials." Nevertheless, the modular storage units will be operated as miscellaneous units in accordance with certain surface impoundment standards. The standard of 40 CFR 268.4 has not been established as ARAR to this removal action based on the operational history of the existing modular storage tank currently in service under the standards of WAC 173-303.

It should be noted that current storage activities in the existing modular storage tank include annual sampling and analysis of solids within the unit and it is anticipated that such sampling will be continued for storage in additional modular units. Solids will be removed from the modular units during closure activities, treated if necessary, and disposed at the Environmental Restoration Disposal Facility (ERDF).

Comment 5: Section 4.3 states "Relining the existing unit and installing the three additional units would be accomplished using two high-density flexible membrane liners separated by a geotextile layer and a leak detection system that provides both measuring and sampling capability, for each unit. Monitoring for leakage would be implemented with periodic evaluations performed to determine whether additional monitoring is necessary." Whether regulated as a surface impoundment or a miscellaneous unit, the requirements of WAC 1 73-303-650(2)(j) should apply. More specifically, the composite liner system of the proposed Modu-Tanks must have not only a leachate detection system as documented in the quoted text, but a leachate removal system complying with the requirements of WAC 1 73-303-650(2)(j)(iii).

The quoted text states that the function of leak detection (monitoring for leakage) would be implemented with periodic evaluations (of unspecified frequency) to determine whether additional monitoring is necessary. This text is inconsistent with regulatory requirements in two specific areas. First, surface impoundments (and surface impoundment-like miscellaneous units) are subject to the groundwater monitoring requirements of WAC 173-303-645 or the unsaturated zone monitoring requirements of WAC 173-303-655(6). The text of the EE/CA is silent on this monitoring requirement. Second, monitoring must also include measurement and recording of the amount of leachate removed from the leak detection sump, followed by comparison of this amount to an action leakage rate. If the action leakage rate is exceeded, then specific response actions must be followed as specified in

WAC 173-303-650(10). Again, the text of the EE/CA is inconsistent with applicable regulatory requirements.

While it is recognized that the specifics of compliance with ARARs is typically not documented in an EE/CA, the language that is currently in the EE/CA is inconsistent with regulatory requirements that should apply to the proposed units. EPA and Ecology must ensure that details of compliance with ARARs must be clearly and completely specified in the appropriate removal action documentation.

Response to Comment 5: As suggested by the comment, requirements from WAC 173-303-650(2)(j) will be ARAR for the removal action as specified in the associated Action Memorandum.

The commenter indicates that "surface-impoundment-like miscellaneous units" are subject to the groundwater monitoring standards of WAC 173-303-645. This is an inaccurate reading of the provisions of WAC 173-303-680. Standards of other units are not pre-determined for miscellaneous units, but are instead established on a case-by-case basis for a given miscellaneous unit. Standards for miscellaneous units must be established as necessary to protect human health and the environment, including but not limited to, as appropriate, design and operating requirements, detection and monitoring requirements, and requirements for responses of releases of dangerous waste or dangerous constituents from the unit. For this removal action, ARARs will be met to the extent practicable. The existing modular unit has operated for nearly 20 years without any evidence of leakage from the unit to the surrounding soils. The detection and collection systems are robust and monitoring is performed on a daily basis. The Parties can see no reason for applying WAC 173-303-645 to this cleanup work at this time. If the situation change, or should new information reveal inadequacies in the current approach, we would re-evaluate the matter. Additionally, it is noted in the *Investigation-Derived Waste Purgewater Management Action Memorandum* that other alternatives for long-term management of purgewater will continue to be pursued, and further, after four years EPA and DOE will evaluate continued usage of modular storage units.

The unsaturated zone monitoring standards of WAC 173-303-655(6) are specific to activities that involve placement of dangerous wastes onto or incorporating them into soil so that the wastes will degrade or decompose. The purgewater for this removal action will be managed in a manner that is intended to prevent direct contact with soil. Therefore, the standards of WAC 173-303-655 would not be appropriate for this action.

Based on external discussions, the Parties determined that should modular storage units continue to be used beyond five years, groundwater monitoring of these units will be implemented. This is noted in the Action Memorandum.

Distribution

Onsite

U.S. Department of Energy, Richland Operations Office	
DOE Public Reading Room	H2-53
Lockheed Martin Enterprise Solutions & Services	
Administrative Record	H6-08
Document Clearance	H6-08

This page intentionally left blank.