

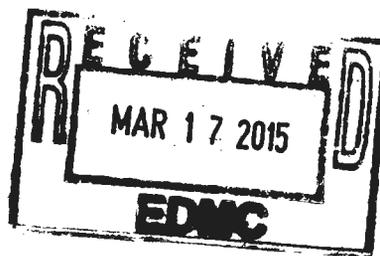
Explanation of Significant Differences

for the

**U.S. Department of Energy
Environmental Restoration Disposal Facility
Hanford Site – 200 Area
Benton County, WA**

EPA ID: WA1890090078

March 2015



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March 2015

Signature sheet for the *Explanation of Significant Differences for the 1999 Amended Record of Decision for the Environmental Restoration Disposal Facility* between the U.S. Department of Energy and the U.S. Environmental Protection Agency.



Ray J. Corey
Assistant Manager for River and Plateau
U.S. Department of Energy

3/11/15

Date

SITE NAME AND LOCATION

U.S. Department of Energy
Environmental Restoration Disposal Facility (ERDF)
Hanford Site – 200 Area
Benton County, Washington

Lead and Support Agencies

The U.S. Environmental Protection Agency (EPA) is the lead regulatory agency for the Environmental Restoration Disposal Facility (ERDF), the U.S. Department of Energy (DOE) is lead agency for operation and management of the ERDF, and the Washington State Department of Ecology (Ecology) is the support agency (the Tri-Parties).

Statutory Citation for an Explanation of Significant Differences

In Section 117(c) of the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA), provisions are made for addressing and documenting changes to the selected remedy that occur after the record of decision (ROD) is signed. This explanation of significant differences (ESD) documents the changes to the selected remedy in accordance with CERCLA Section 117(c). Additionally, since significant, nonfundamental changes are being made to the original remedy, documentation procedures specified by the “National Oil and Hazardous Substances Pollution Contingency Plan” (NCP) (40 CFR 300.435(c)(2)(i)) have been followed.

INTRODUCTION TO THE SITE AND STATEMENT OF PURPOSE

Remediation of waste sites in the 100, 200, and 300 Areas of the Hanford Site is being conducted under CERCLA (42 U.S.C. 9601 et. seq.). A January 1995 ROD (EPA 1995) authorized disposal of remediation wastes from these actions in the ERDF, a *Resource Conservation and Recovery Act of 1976* (RCRA)-compliant landfill located within the 200 Areas of the Hanford Site.

An ESD (EPA 1996) to the ERDF ROD was issued on July 26, 1996, which authorized the conditional use of the leachate generated from ERDF operations for dust suppression and waste compaction through an applicable or relevant and appropriate requirement (ARAR) waiver until the leachate was delisted. The ERDF ESD identified the intention to delist the leachate from regulation as a hazardous waste. The waiver was proposed as an alternative until sufficient data became available to support a determination that the liquid is, in fact, a nonhazardous waste. The leachate was considered a listed hazardous waste because a small volume of soil presumed to have contacted carbon tetrachloride [F001 listed [40 CFR 261.31]] at very low concentrations was disposed to the ERDF. Other listed hazardous constituents could be disposed to the ERDF in the future, causing the leachate to be listed as F039 (40 CFR 261.31). The leachate was also designated as a state-only dangerous waste, F003, due to the presence of methanol.

An ERDF ROD amendment issued in March 1999 delisted the ERDF leachate, removing both the federal-listed and state-only listed waste codes that would otherwise apply to the leachate (EPA 1999).

The ERDF leachate delisting is considered an up-front and conditional delisting for leachate, including leachate that will be generated in the future operations of the facility. The delisting is conditional because the contaminant concentration requirements specified in the sampling and analysis plan must continue to be satisfied, and management of the leachate must comply with the sampling and analysis plan and the leachate management plan, as approved by the EPA. Exclusion from management as a hazardous waste is conditioned on the leachate meeting the limits established, as demonstrated through a verification sampling program. At a minimum, the leachate is sampled semiannually for all contaminants of concern (COCs). The results of these analyses are compared to the delisting levels provided after each round of sampling. If the leachate achieves compliance with delisting levels, it will be managed as nonhazardous. Those COCs whose analytical results from the first year of baseline sampling indicate that their concentrations are less than 10% of the delisting level will be moved into a less frequent confirmatory sampling regimen. COCs detected at concentrations greater than 10% of the delisting level will be monitored on a routine basis. The DOE shall include additional constituents in the routine sampling list after an evaluation of the data, as required by the EPA. Additionally, an evaluation of the waste streams going to the ERDF shall be done biennially in accordance with the sampling and analysis plan to ensure that the list of COCs adequately addresses contaminants being disposed. Confirmatory sampling for all COCs will take place every 2 years. Routine sampling occurs every 6 months.

As authorized by the 1999 ROD amendment, the delisted leachate from the ERDF operations currently is transferred via pipeline to the Liquid Effluent Retention Facility (LERF) and from there to the Effluent Treatment Facility (ETF), a permitted waste treatment facility.

The 1999 ROD amendment also allows for use of other treatment facilities for ERDF leachate management, if authorized. The Tri-Parties are issuing this ESD to allow the onsite 200 West Area Pump-and-Treat Facility (200 WPTF) to be used as an option for the treatment of ERDF leachate. This change would allow either the ETF or the 200 WPTF to be used for treatment of ERDF leachate, depending upon availability. The 200 WPTF has been evaluated in a separate CERCLA decision document and authorized for operation to treat contaminated groundwater (*Record of Decision Hanford 200 Area 200-ZP-1 Superfund Site Benton County Washington* [EPA 2008]). The Tri-Parties have determined that the 200 WPTF is also capable of treating ERDF leachate to levels that are protective of human health and the environment at substantially lower cost than the ETF.

The concentrations of contaminants in the ERDF leachate are within the process treatment envelope for the 200 WPTF, and there is sufficient capacity to accommodate the addition of the ERDF leachate stream, as documented in SGW-58619, *Impact of Environmental Remediation Disposal Facility (ERDF) Leachate on the 200 West Area Pump and Treat Facility*. Liquid discharges from the 200 WPTF are discharged to groundwater, subject to meeting stringent discharge limits as defined in the 200-ZP-1 ROD (EPA 2008). Solid waste from the facility will

be disposed at the ERDF or other approved facility in accordance with existing CERCLA decision documents.

In order to accommodate transfer of ERDF leachate to the 200 WPTF, the existing single-walled transfer pipeline will need to be extended and minor modifications to the 200 WPTF will be necessary. In addition to the ARARs listed in the original ERDF ROD, this ESD incorporates the following ARARs and other criteria, advisories, or guidance to be considered for this remedial action related to transfer piping design, construction, and installation. The new pipeline crosses over drinking water supply piping and raw water supply piping. As described in WAC 246-290-200, guidance documents have been developed in order to assist in compliance with state and federal rules regarding drinking water. These guidance documents have been used to establish design and construction parameters for the new piping that are consistent with good engineering practices as required by WAC 246-290-200. Where the new piping crosses over the drinking water supply piping and raw water supply piping, it will be encased in high-density polyethylene (HDPE) piping and vertical separation will be maintained as described in *Criteria for Sewage Works Design* (Ecology 2008) and *Pipeline Separation Design and Installation Reference Guide* (Ecology and DOH 2006).

This ESD will also be available for review at the following information repositories.

Public Information Repositories

Public Access Room 2440 Stevens Center, Room 1101 P.O. Box 950, Mail Stop H6-08 Richland, WA 99352	Phone: (509) 376-2530 Fax: (509) 376-4989 POC: Heather Childers E-Mail: Heather_M_Childers@rl.gov
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Suzzallo Library University of Washington P.O. Box 352900 Seattle, WA 98195-2900	Phone: (206) 543-4664 Fax: (206) 685-8049
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DOE-RL Public Reading Room Washington State University Consolidated Information Center Room 101L 2770 University Drive Richland, WA 99352	Phone: (509) 372-7443 Fax: (509) 372-7444
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Gonzaga University Foley Center East 502 Boone Spokane, WA 99258-0001	Phone: (509) 323-6110 Fax: (509) 324-5806
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Portland State University
Branford Price Millar Library
1875 SW Park Avenue
Portland, OR 97207-1151

Phone: (503) 725-4709
Fax: (503) 725-4524

BASIS FOR THE SIGNIFICANT DIFFERENCES

The rationale for the changes to the original remedy is discussed in this section.

ERDF Leachate

The ERDF is a double-lined landfill meeting RCRA 40 CFR 264, Subpart N landfill and Subpart F groundwater monitoring requirements. The ERDF generates leachate that requires management within a regulatory framework. The ERDF ROD currently requires sufficient leachate storage capacity to ensure uninterrupted operations, complying with 40 CFR 264, Subpart N. Additionally, the 1999 ROD amendment for leachate delisting (EPA 1999) states that leachate collected at the ERDF that is not used for dust suppression within the ERDF will be managed at the ETF, located in the 200 East Area, or at another approved facility.

ERDF leachate is sampled on a routine basis in accordance with the 1999 delisting ROD amendment to ensure that contaminant levels meet the limits established in the amendment. Leachate transfers from the ERDF to the LERF via the existing single-walled pipeline are monitored by flowmeters at each end of the pipeline. Transfer volumes are monitored in accordance with an EPA-approved leachate management plan to ensure that a mass balance is maintained, thereby ensuring that the potential for major leaks along the pipeline is minimized.

Secondary waste, typically in the form of dry powder, generated from treatment of the ERDF leachate at the ETF is disposed at the ERDF in accordance with a 2007 ERDF ROD amendment (EPA 2007). Treated liquid from the ETF is discharged into the State-Approved Land Disposal Site (SALDS), a state-permitted disposal unit.

Treatment of ERDF leachate in the ETF has proven to be an effective approach for managing this waste stream; however, the 200 WPTF has been determined to provide a similar degree of treatment, at a much lower projected cost. Additionally, authorization of the 200 WPTF in addition to the ETF will make available another treatment option for ERDF leachate, thereby helping to ensure uninterrupted operation of the ERDF in support of Hanford Site cleanup activities, such as the ability to free up additional capacity at the LERF/ETF to support single-shell and double-shell tank farm and Waste Treatment Plant operations.

DESCRIPTION OF SIGNIFICANT DIFFERENCES

Disposition of ERDF Leachate

The excess leachate generated from operation of the ERDF is being collected and transferred via pipeline to the LERF and ETF, or another approved facility for management and treatment. This ESD allows ERDF leachate to be transferred either to the ETF or the 200 WPTF for treatment. In order to accommodate use of the 200 WPTF, the existing single-walled transfer pipeline will need to be extended. The Tri-Parties have determined that the 200 WPTF is also capable of treating ERDF leachate to levels that are protective of human health and the environment at substantially lower cost than the ETF.

A summary of the differences between the original remedy and the modified remedy is shown in Table 1.

Table 1. Comparison of Original and Modified Remedy

Element	Original Remedy (Treatment at ETF)	Modified Remedy (Treatment at 200 WPTF)
Leachate transfer method	Uses existing piping	Transfer piping will need to be extended to the 200 WPTF. New piping will be designed and constructed in accordance with good engineering practices, as required by WAC 173-240-120. In the event new piping is in proximity to existing drinking water supply piping, piping will also be required to meet WAC 246-290-200 and associated guidance
Leachate transfer monitoring	In accordance with 1999 ROD amendment; flowmeters on each end of transfer piping	In accordance with 1999 ROD amendment; flowmeters on each end of transfer piping
Leachate management plan	In accordance with existing EPA-approved plan	Existing leachate management plan will be revised as necessary and submitted to EPA for approval
Leachate delisting sampling	In accordance with 1999 ROD amendment	In accordance with 1999 ROD amendment
Treatment facility secondary waste disposal (solids)	In ERDF or other approved facility	In ERDF or other approved facility

Table 1. Comparison of Original and Modified Remedy

Element	Original Remedy (Treatment at ETF)	Modified Remedy (Treatment at 200 WPTF)
Treatment facility liquid waste discharge method	Into State-Approved Land Disposal Site in accordance with state-issued permit	CERCLA-authorized discharge from 200 WPTF
Treatment facility liquid waste discharge criteria	Must meet permit specified technology-based or groundwater quality standards	Must meet the discharge requirements of the 200-ZP-1 Groundwater OU ROD (except tritium)
Treatment facility liquid waste discharge monitoring	In accordance with state-issued permit	In accordance with EPA-approved 200 WPTF monitoring plan (as revised to include ERDF leachate)
Estimated cost of facility modifications	\$0 (existing facility)	\$3 million

NONLEAD REGULATORY AGENCY COMMENTS

Consistent with EPA guidance, Ecology reviewed the ESD. Suggested changes were incorporated into the text. Ecology supports this action and the implementation of the described to the ERDF ROD. Additionally, the Washington State Department of Health reviewed the design requirements for the new piping where it crosses over existing drinking water supply piping.

AFFIRMATION OF STATUTORY DETERMINATIONS

The revised remedy is protective of human health and the environment, will comply with the federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost effective.

The preamble to the NCP clarifies 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)(i) 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 having to obtain a permit. The ERDF and the 200 WPTF are considered to be a single site for response purposes under this ESD.

PUBLIC PARTICIPATION

The public participation requirements set forth in 40 CFR 300.435(c)(2)(i) of the NCP are met through the issuance of this ESD and associated informational sheet, and through notification to the public via a newspaper publication placed in the *Tri-City Herald* on <date>, 2015.

REFERENCES

- 40 CFR 261, "Identification and Listing of Hazardous Waste," *Code of Federal Regulations*, as amended.
- 40 CFR 264, "Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," *Code of Federal Regulations*, as amended.
- 40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan," *Code of Federal Regulations*, as amended.
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980*, 42 U.S.C. 9601, et seq.
- Ecology, 2008, *Criteria for Sewage Works Design*, Publication No. 98-37 WQ, Washington State Department of Ecology, Olympia, Washington.
- Ecology and DOH, 2006, *Pipeline Separation Design and Installation Reference Guide*, Publication Number 06-10-029, Washington State Department of Ecology and Washington State Department of Health, Olympia, Washington.
- EPA, 1995, *Record of Decision: U.S. DOE Hanford Environmental Restoration Disposal Facility, Hanford Site, Benton County, Washington*, U.S. Environmental Protection Agency, Washington, D.C.
- EPA, 1996, *U.S. DOE Environmental Restoration Disposal Facility, Hanford Site, Benton County, Washington – Explanation of Significant Difference (ESD)*, U.S. Environmental Protection Agency, Washington, D.C.
- EPA, 1999, *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, Washington, D.C.
- EPA, 2002, *Clarification of the 1999 Amendment to the Environmental Restoration Disposal Facility (ERDF) Record of Decision*, March 18, 2002, U.S. Environmental Protection Agency, Washington, D.C.
- EPA, 2008, *Record of Decision Hanford 200 Area 200-ZP-1 Superfund Site Benton County, Washington*, U.S. Environmental Protection Agency, Washington, D.C.
- EPA, 2009, *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, Washington, D.C.

Resource Conservation and Recovery Act of 1976, 42 U.S.C. 6901, et seq., as amended.

SGW-58619, 2015, *Impact of Environmental Remediation Disposal Facility (ERDF) Leachate on the 200 West Area Pump and Treat Facility*, Rev. 0, CH2MHILL Plateau Remediation Company, Richland, Washington.

WAC 173-240, "Submission of Plans and Reports for Construction of Wastewater Facilities," *Washington Administrative Code*, as amended.

WAC 246-290, "Group A Public Water Supplies," *Washington Administrative Code*, as amended.

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Dennis Faulk
U.S. Environmental Protection Agency, Region 10

Date