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Revision 0

Hanford Facility Dangerous Waste Closure/Postclosure Plan for the 216-S-10 Pond and Ditch

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

United States Department of Energy
P.O. Box 550
Richland, Washington 99352

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TERMS

200-CS-1	200-CS-1 Chemical Sewer Group
CFR	*Code of Federal Regulations*
DOE	U.S. Department of Energy
Ecology	Washington State Department of Ecology
HEIS	*Hanford Environmental Information System* database
MCL	maximum contaminant level
N/A	not applicable
OU	operable unit
RCRA	*Resource Conservation and Recovery Act of 1976*
REDOX	Reduction-Oxidation (Plant or process)
Tri-Party Agreement	*Hanford Federal Facility Agreement and Consent Order* (Ecology et al. 1989)
Tri-Party Agreement Action Plan	Ecology et al., 1989b, *Hanford Federal Facility Agreement and Consent Order Action Plan*
TSD	treatment, storage, and/or disposal
WAC	*Washington Administrative Code*

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METRIC CONVERSION CHART

Into Metric Units			Out of Metric Units		
If You Know	*Multiply By*	*To Get*	*If You Know*	*Multiply By*	*To Get*
Length			**Length**		
inches	25.4	Millimeters	millimeters	0.039	inches
inches	2.54	Centimeters	centimeters	0.394	inches
feet	0.305	Meters	meters	3.281	feet
yards	0.914	Meters	meters	1.094	yards
miles	1.609	Kilometers	kilometers	0.621	miles
Area			**Area**		
sq. inches	6.452	sq. centimeters	sq. centimeters	0.155	sq. inches
sq. feet	0.093	sq. meters	sq. meters	10.76	sq. feet
sq. yards	0.0836	sq. meters	sq. meters	1.196	sq. yards
sq. miles	2.6	sq. kilometers	sq. kilometers	0.4	sq. miles
acres	0.405	Hectares	hectares	2.47	acres
Mass (weight)			**Mass (weight)**		
ounces	28.35	Grams	grams	0.035	ounces
pounds	0.454	Kilograms	kilograms	2.205	pounds
ton	0.907	metric ton	metric ton	1.102	ton
Volume			**Volume**		
teaspoons	5	Milliliters	milliliters	0.033	fluid ounces
tablespoons	15	Milliliters	liters	2.1	pints
fluid ounces	30	Milliliters	liters	1.057	quarts
cups	0.24	Liters	liters	0.264	gallons
pints	0.47	Liters	cubic meters	35.315	cubic feet
quarts	0.95	Liters	cubic meters	1.308	cubic yards
gallons	3.8	Liters			
cubic feet	0.028	cubic meters			
cubic yards	0.765	cubic meters			
Temperature			**Temperature**		
Fahrenheit	subtract 32, then multiply by 5/9	Celsius	Celsius	multiply by 9/5, then add 32	Fahrenheit
Radioactivity			**Radioactivity**		
picocuries	37	Millibecquerel	millibecquerel	0.027	picocuries

1.0 INTRODUCTION

The original closure plan for the 216-S-10 Pond and Ditch was submitted in March 2006, in accordance with Ecology et al., 1989a, *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) Milestone M-20-39, which required submittal of a closure plan for the 216-S-10 Pond and Ditch *Resource Conservation and Recovery Act of 1976* (RCRA) treatment, storage, and/or disposal (TSD) unit. This closure plan has been written to supersede the March 2006 closure plan.

The 216-S-10 Pond and Ditch TSD unit will be incorporated into a future revision of the WA7890008967, *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*. When the TSD unit is incorporated, the provisions of Permit Condition II.Y.2.c will apply. Permit Condition II.Y.2.c establishes the corrective-action status of the waste site following certification of closure.

Because this closure plan is being coordinated with the activities associated with the 200-CS-1 Chemical Sewer Group (200-CS-1) Operable Unit (OU), the closure plan is written to address only the constituents of concern relating to RCRA TSD unit operations. Any other constituents of concern described in DOE/RL-2005-63, *Feasibility Study for the 200-CS-1 Chemical Sewer Group Operable Unit* (pending), are related to past-practice activities at this waste site and will be addressed under past-practice authority, in accordance with Permit Condition II.Y.2. Deferral of pre-existing contamination to other authorities that occurred prior to dangerous waste management activities is described in Ecology Publication 94-111, *Guidance for Clean Closure of Dangerous Waste Units and Facilities*, Section 2.8. Any physical activities necessary to complete remediation of non-TSD unit constituents are outside the scope of this closure plan and will be performed in conjunction with Tri-Party Agreement past-practice activities for the 200-CS-1 OU and the 200-UP-1 Groundwater OU.

The development of this closure plan has been coordinated with the 200-CS-1 OU remediation activities. This coordinated approach was established in June 2002 following the completion of negotiations between the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency, and Washington State Department of Ecology (Ecology) on the modifications to 200 Areas waste site cleanup milestones through Tri-Party Agreement change requests M-13-02-01, M-15-02-01, M-16-02-01, and M-20-02-01. As a result, much of the text contained in this closure plan has been obtained from existing 200-CS-1 OU *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* documentation.

The proposed closure strategy for the 216-S-10 Pond and Ditch soils is clean closure; the groundwater will require postclosure monitoring. The 216-S-10 Pond and Ditch soils do not meet the clean-closure standards without remediation. This strategy is based on analytical data provided in DOE/RL-2005-63, Appendices A and B. The postclosure groundwater strategy is based on groundwater data contained in the *Hanford Environmental Information System* database (HEIS). Sampling of the soils will be performed to verify that contaminant removal is complete as well as to confirm waste site remedy selection was implemented to achieve clean closure standards.

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2.0 UNIT DESCRIPTION

This chapter provides a physical description of the 216-S-10 Pond and Ditch and describes security related to the pond and ditch.

2.1 PHYSICAL DESCRIPTION AND OPERATIONS

The 216-S-10 Pond and Ditch are located on the Hanford Site near the 200 West Area (Figure 2-1) southwest of the Reduction-Oxidation (REDOX) Plant (S Plant) complex. The pond and ditch begin approximately 445 m (1,460 ft) southwest of the 202-S Canyon Plant Building and 4.05 m (133 ft) south of 10th Street and end approximately 1,330 m (4,364 ft) southwest of the 202-S Canyon Plant Building.

The 216-S-10 Ditch was an uncovered, unlined artificial ditch that received wastewater from the REDOX Facility. The ditch originated outside the 200 West Area perimeter fence and was estimated to be 686 m (2,250 ft) long, 1.8 m (6 ft) wide, and averaged 1.8 m (6 ft) in depth.

The 216-S-10 Pond was an irregular-shaped, artificial pond that covered approximately 7,139 m^2 (1.8 a) and included four finger-leach trenches. The pond was approximately 2.4 m (8 ft) at its deepest point. The 216-S-10 Ditch fed the pond. Both the ditch and pond were designed to dispose of liquids through percolation into the soil column.

The ditch was part of a system that included the 216-S-10 and 216-S-11 Ponds. In May 1954, an approximate 4,048 m^2 (1 a) overflow released an estimated 215 kg of uranium from the ditch. Later in September 1954, ammonium nitrate nonahydrate solution was inadvertently dumped into the ditch and plugged the soil at the ditch. During the summer of 1995, the ditch was dredged to improve percolation. The sludge was removed and placed in unknown low spots on both sides of the ditch. The ditch then was covered with 0.6 m (2 ft) of soil.

The south end of the 216-S-10 Ditch remained in use until 1984, when the ditch was backfilled and stabilized. The north end of the ditch remains open to a depth of approximately 3 m (10 ft), and last received discharges during 1991. The supplying pipeline was plugged with concrete near the outfall in July 1994. It is estimated that approximately 505 m (1,660 ft) of the ditch is open, and 180 m (590 ft) was backfilled and stabilized.

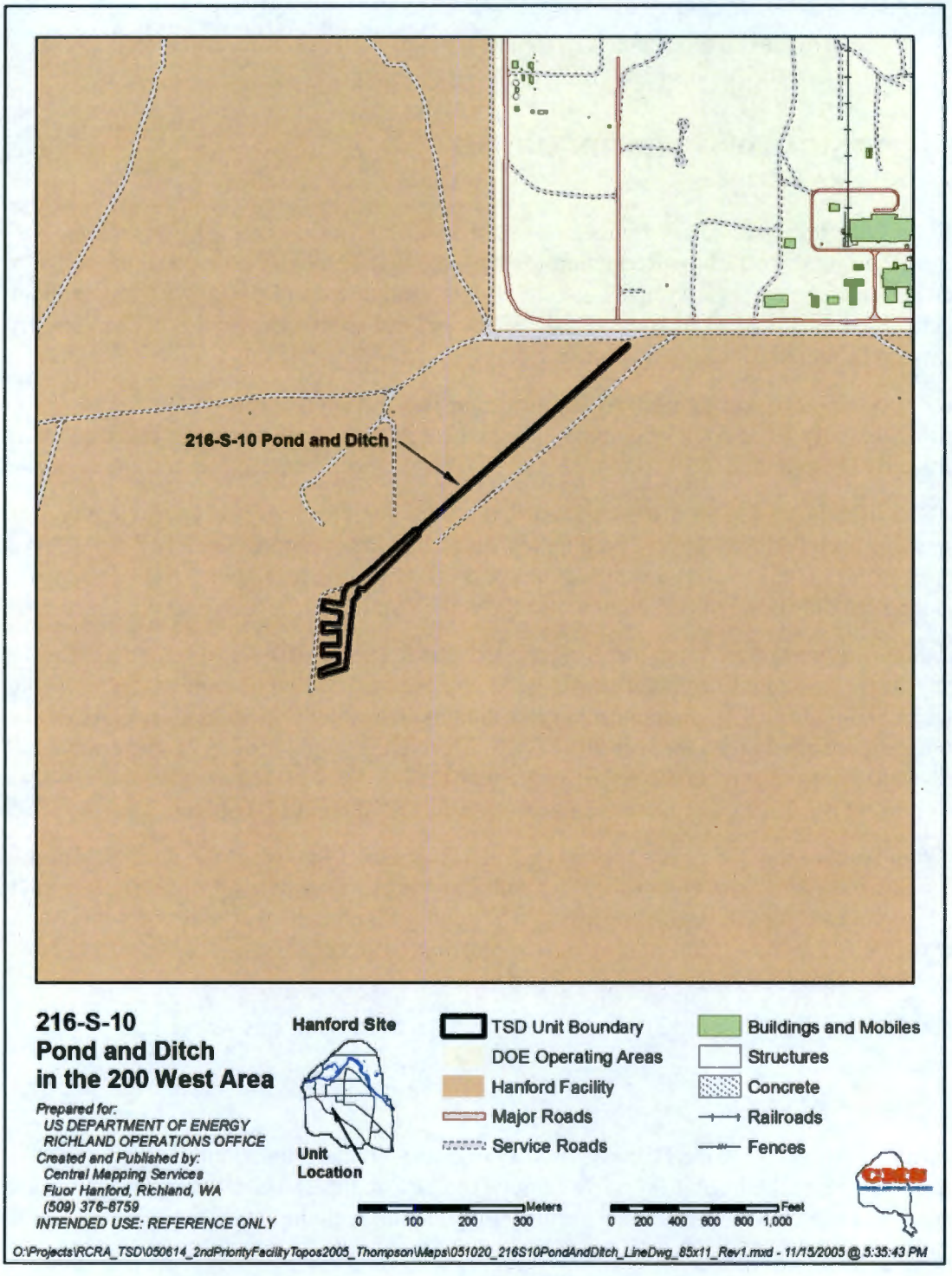
In 1984, concurrent with the 216-S-10 Ditch, the 216-S-10 Pond was stabilized.

2.2 SECURITY

Security information for the Hanford Facility is discussed in Permit Condition II.M and Attachment 33 of the Permit (WA7890008967). Because the 216-S-10 Pond and Ditch are located near the 200 West Area, the security information pertaining to the 200 Areas applies to this TSD unit.

Changes to security are expected to occur during the course of 200 West Area deactivation and decommissioning activities. Security measures will remain in place that limit entry to authorized personnel and that preclude unknowing access by unauthorized individuals.

Figure 2-1. 216-S-10 Pond and Ditch Location and Site Plan.



3.0 PROCESS INFORMATION

The 216-S-10 Pond and Ditch were designed to percolate approximately 570,000 L (150,000 gal) of waste per day. The process design capacity reflects the maximum volume of water discharged daily rather than the physical capacity of the 216-S-10 Pond and Ditch. Section 7.1 provides additional information on physical isolation of the TSD unit.

3.1 216-S-10 DITCH

The 216-S-10 Ditch started receiving discharge from the REDOX Facility in 1951. An unplanned released from the ditch of uranium occurred in May 1954. In September 1954, an inadvertently discharge of ammonium nitrate nonahydrate solution plugged the soil at the ditch. The ditch was dredged during the summer of 1995.

Approximately 50 waste streams contributed to the 216-S-10 Ditch. The routine waste stream sources include the compressor cooling water from the 202-S Canyon Plant Building and the sanitary water overflow from the water tower. The remaining sources were infrequent additions and include 202-S Canyon Building floor drains, chemical sewer line manholes, and 276-S Solvent Handling Facility floor drains. The effluent to the chemical sewer was composed of approximately 60 percent REDOX Facility raw water, 20 percent sanitary water, and 20 percent steam condensate.

3.2 216-S-10 POND

The 216-S-10 Pond received discharge from the REDOX Facility. Both the 216-S-10 Ditch and Pond were designed to dispose of liquids through percolation into the soil column. The 216-S-10 Pond was dug in 1954 at the southwest end of the 216-S-10 Ditch to provide additional leaching surface. The 216-S-10 Ditch fed the Pond. The contributors to the pond are similar to those of the 216-S-10 Ditch.

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4.0 WASTE CHARACTERISTICS

This chapter identifies the estimate of maximum inventory and the characteristics of the waste disposed of at the 216-S-10 Pond and Ditch.

4.1 ESTIMATE OF MAXIMUM INVENTORY OF WASTE

During operations, the maximum volume of wastewater discharged daily to the 216-S-10 Pond and Ditch was approximately 568,000 L/d (150,000 gal/d). The annual volume of effluent discharged was approximately 1.9×10^8 L (5.0×10^7 gal).

4.2 WASTE CHARACTERISTICS

Chemical discharges to the 216-S-10 Pond and Ditch after the effective date of regulation (non-radioactive hazardous waste: November 19, 1980) that designate as a dangerous waste constitute the waste codes appearing on the Hanford Facility Dangerous Waste Part A Permit Application form for the 216-S-10 Pond and Ditch (02-RCA-0385, "Transfer of Hanford Facility Dangerous Waste Part A Permit Application, Form 3s for Certification in Support of Contract Transition for Central Plateau"). The waste codes on the form are based on a documented discharge to the TSD unit. This discharge was identified in the original Part A form for the TSD unit (administrative record accession number D196003121).

The dangerous waste received at the 216-S-10 Pond and Ditch includes sodium nitrite, sodium hydroxide, sodium phosphate, sodium fluoride, sodium chloride, and potassium di-chromate. Some of these chemicals are regulated under WAC 173-303, "Dangerous Waste Regulations," as dangerous wastes because they displayed the characteristic of corrosivity (D002) (closure parameter is pH). Potassium di-chromate is regulated because of the chromium (D007) (closure parameter is total chromium). There are no other closure parameters from D002 because disassociated anions/cations of acids, bases, and salts do not result in a dangerous waste designation and are not subject to the numerical closure performance standard comparison in WAC 173-303-610(2)(b)(i), "Closure Performance Standard," because none of them constitute a "dangerous waste, dangerous waste constituent, or residue."

The 216-S-10 Pond and Ditch received one documented discharge of dangerous waste. This dangerous waste discharge occurred in September 1983 and was from the Chemical Engineering Laboratory. The discharge was sent via the sewer to the pond and ditch and consisted of 420 kg (110 gal) of simulated double-shell tank slurry (consisting of sodium nitrate [46 percent], sodium hydroxide [41 percent], and small quantities of sodium phosphate, sodium fluoride, sodium chloride, and potassium di-chromate).

Based on the dangerous waste received at the 216-S-10 Pond and Ditch, the TSD unit constituents of concern for RCRA closure are pH and total chromium. These constituents constitute the scope of the TSD unit RCRA closure activities (Table 4-1). The pH range for the 216-S-10 Pond and Ditch soils is from 9.3 to 9.4 and is well within the noncorrosive range from WAC 173-303-090(6), "Characteristic of Corrosivity."

Table 4-1. Comparison of 216-S-10 Pond and Ditch Remedial Investigation Data to Residential [a] Clean-Closure Levels.

TSD Unit Constituent Related to Part A Waste Code D002	Maximum Concentration Shallow-Zone Soil (mg/kg) [b]	Maximum Concentration Deep Zone Soil (mg/kg) [b]	90th Percentile Lognormal Hanford Site Background (mg/kg) [c]	Soil Concentration Protective of Groundwater [d] (mg/kg)	Human Health Protection Soil Direct Contact [e] (mg/kg)		Screening Levels for Ecological Protection (mg/kg) [f]	Clean Closure Driver [g]	Meet Clean Closure Standard?
					Carcinogen	Non-carcinogen			
pH	9.4	9.3	N/A	N/A	N/A	N/A	N/A	Non corrosive (>2.0 and <12.5)	Yes
Chromium (total)	815	39	18.5	13,500 [h]	N/A	120,000	42 [i]	Ecological Protection [i]	No [i]

[a] Clean closure evaluations for TSD units are required to use residential levels in WAC 173-340-740(3), "Method B Soil Cleanup Levels for Unrestricted Land Use," based on WAC 173-303-610(2)(b)(i), "Closure Performance Standard."

[b] DOE/RL-2005-63, *Feasibility Study for the 200-CS-1 Chemical Sewer Group Operable Unit,* Appendices A and B. Shallow zone is surface to 15 ft.

[c] DOE/RL-92-24, *Hanford Site Background: Part 1, Soil Background for Nonradioactive Analytes,* Vol. I.

[d] WAC 173-340-740(3)(b)(iii)(A), "Ground Water Protection." Point of compliance is soils throughout the site (WAC 173-340-740(6), "Point of Compliance").

[e] WAC 173-340-740(3)(b)(iii)(B)(I), ""Noncarcinogens," and (II), "Carcinogens." Equations are found in (I) and (II) for human health direct contact. Point of compliance is surface to 15 ft (WAC 173-340-740(6)).

[f] WAC 173-340-740(3)(b)(ii), "Environmental Protection,". Point of compliance is surface to 15 ft (WAC 173-340-7490(4)(b), "Standard Point of Compliance").

[g] Represents the most restrictive level after ensuring the most restrictive level is not less than natural background and for analytical considerations, as indicated in WAC 173-340-700(6)(d), "Natural Background and Analytical Considerations."

[h] 13,500 mg/kg is proposed as the clean closure standard based on site specific calculations, which changed infiltration, groundwater flow rate, and the thickness of the mixing zone parameters in equations 747-A, 747-3, 747-4, and 747-5. Otherwise, 2,000 mg/kg would be the cleanup standard.

i If soil sample analytical results exceed these screening level results, the U.S. Department of Energy may develop another number to be used as the clean up level in accordance with the provisions of WAC 173-340, "Model Toxics Control Act – Cleanup." The screening level from Table 749-3 is not considered a closure performance standard.

Part A = Hanford Facility Dangerous Waste Part A Permit Application form for the 216-S-10 Pond and Ditch (02-RCA-0385, "Transfer of Hanford Facility Dangerous Waste Part A Permit Application, Forms 3s for Certification in Support of Contract Transition for the Central Plateau").

N/A = not applicable.
TSD = treatment, storage, and/or disposal (unit).
WAC = *Washington Administrative Code.*

5.0 GROUNDWATER MONITORING

The 216-S-10 Pond and Ditch groundwater closure approach is postclosure monitoring under a final-status detection monitoring program. The closure approach is based on the data gathered to date from the monitoring network (PNNL-14070, *Groundwater Monitoring Plan for the 216-S-10 Pond and Ditch*) contained in the HEIS database, vadose zone characterization data, and DOE/RL-2008-01, *Hanford Site Groundwater Monitoring for Fiscal Year 2007*, Section 2.9.3.3 for the 216-S-10 Pond and Ditch. Groundwater monitoring, as described in this chapter, has shown an elevated level of chromium in an upgradient well. The source of this contamination has not been conclusively determined and, because chromium is a TSD unit constituent, the 216-S-10 Pond and Ditch cannot currently be ruled out as the source of the contamination; therefore, postclosure groundwater monitoring for chromium will be required. Postclosure activities are described in Chapter 8.0.

The current interim-status groundwater monitoring plan (as required by WAC 173-303-400, "Interim Status Facility Standards," and 40 CFR 265, Subpart F, "Ground-Water Monitoring") is in a separate document, DOE/RL-2008-61, *Interim Status Groundwater Monitoring Plan for the 216-S-10 Pond and Ditch* (pending). This document contains further details regarding the geology, hydrology, and current groundwater monitoring programs for the TSD unit.

5.1 HISTORY OF RCRA GROUNDWATER MONITORING

RCRA groundwater monitoring of the 216-S-10 Pond and Ditch began in the third quarter of 1991 with an interim-status indicator parameter evaluation (detection-level) program (DOE/RL-92-03, *Annual Report for RCRA Groundwater Monitoring Projects at Hanford Site Facilities for 1991*). The wells were sampled quarterly for one year to establish background levels. Semiannual sampling for indicator parameters evaluation was instituted in 1992. Upgradient wells were sampled quarterly in 1997 to reestablish the critical mean for total organic halides, and the wells were sampled semiannually thereafter (PNNL-11793, *Hanford Site Groundwater Monitoring for Fiscal Year 1997;* DOE/RL-2008-01). The only exceedance of maximum contaminant levels occurred in the shallow upgradient well 299-W26-7 for hexavalent chromium (above the 100 µg/L drinking water standard) (Figure 5-1).

5.2 AQUIFER IDENTIFICATION

The uppermost or unconfined aquifer beneath the 216-S-10 Pond and Ditch is about 61 m (200 ft) thick and is contained within sediments of the upper unit of the Ringold Formation (Ringold Unit 5). The depth to groundwater ranges from approximately 63 to 70 m (207 to 230 ft). The aquifer extends from the water table to the Ringold lower mud unit (unit 8) of the Ringold Formation. The groundwater flow has been generally to the east-southeast for the last several years. The average linear velocity has remained essentially the same as in fiscal year 2006 and ranges from 0.08 to 2.25 m/d or 29 to 820 m/yr (DOE/RL-2008-01). The water table beneath the pond and ditch has declined significantly since the discharges to the U Pond system ceased in 1984.

5.3 WELL LOCATION AND DESIGN

The current monitoring well network consists of five downgradient wells (299-W26-13, 299-W26-14, 699-33-75, 699-32-76, and 299-W27-2) and one upgradient well, (699-33-76) (Figure 5-1). Wells 299-W26-13, 699-33-75, and 699-32-76 monitors the uppermost aquifer downgradient of the 216-S-10 Pond, 299-W26-14 monitors the uppermost aquifer along the 216-S-10 Ditch, and 299-W27-2, located at the former discharge end of the 216-S-10 Ditch, is a deep monitoring well screened just above the top of the Ringold lower mud unit. Well 699-33-76 is an upgradient well located west of the 216-S-10 Ditch. Wells 699-33-75, 699-32-76, and 699-33-76 were installed in 2008 to support 200-UP-1 Operable Unit and 216-S-10 Pond and Ditch monitoring. Wells 699-33-75, 699-32-76, and 699-33-76 will be sampled quarterly until ambient conditions can be statistically established. Following that period, they will be sampled semiannually. All of the other wells are sampled semiannually with dedicated sampling pumps.

Construction of the wells followed RCRA standard well-construction specifications. The standards in WAC 173-160, "Minimum Standards for Construction and Maintenance of Wells," were used to set the basic design requirements. The initial six interim-status groundwater monitoring network wells for the 216-S-10 Pond and Ditch were constructed from 1990 through 1992. Five of these wells went dry because of regional groundwater declines. Wells 299-W26-13 and 299-W26-14 were added as replacements in 2000 and 2003, respectively; and wells 699-33-75, 699-32-76, and 699-33-76 were installed in 2008. Construction summaries for the current network are contained in DOE/RL-2008-61 and well construction reports.

5.4 RCRA INTERIM-STATUS GROUNDWATER MONITORING DATA

The RCRA indicator parameters are specific conductance, pH, total organic carbon, and total organic halides. Groundwater quality parameters are chloride, iron (filtered), manganese (filtered), phenols, sodium (filtered), and sulfate. The 216-S-10 Pond and Ditch have been in an interim-status indicator parameter evaluation (detection-level) program since 1991.

In fiscal years 1996 and 1997, total organic halides were detected in upgradient well 299-W26-8. Quarterly sampling of the upgradient wells occurred for one year to reestablish critical mean for total organic halides, and then the wells were sampled semiannually. The cause of the upgradient total organic halides is probably the upgradient carbon tetrachloride plume.

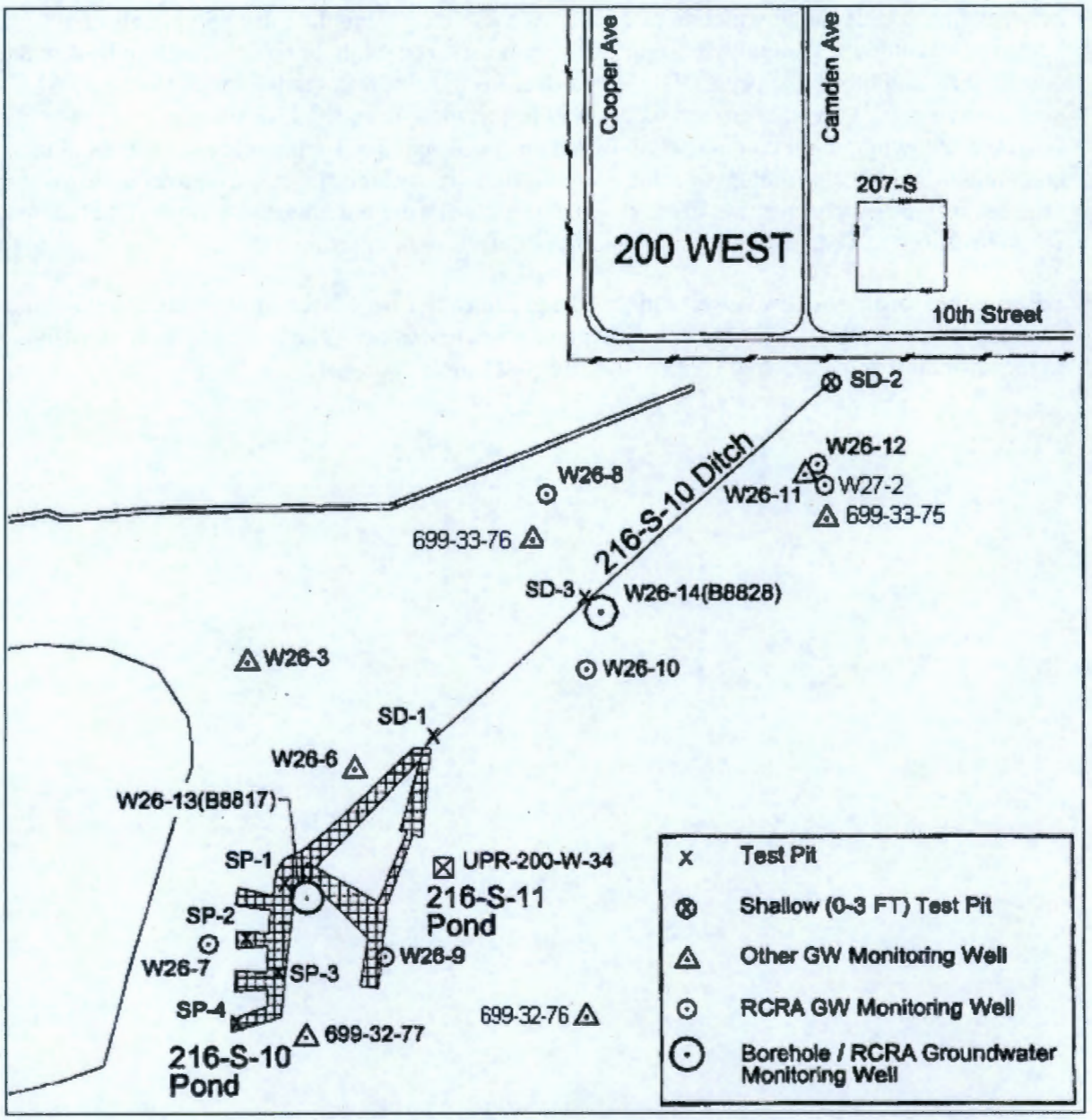
Chromium has been found at levels above the maximum contaminant level in upgradient well 299-W26-7, which is now dry. The source for this contamination has not been determined. Chromium concentrations in well 299-W26-7 varied in the 10 years before it went dry, and were above the 100 µg/L drinking water standard during most of the life of the well; this may be caused by short-term releases traveling through the vadose zone. The December 2002 chromium value was 204 µg/L and was the last sample collected from the well.

Concentrations of chromium have not been detected above drinking water standards in the downgradient wells. Chromium concentrations in well 299-W26-13 (first sampled in February 2000 and located downgradient of well 299-W26-7) were greatest in the most recent samples; January 2008 results were 28.4 (filtered) and 61.3 (unfiltered) µg/L.

Because the only upgradient well, 299-W26-7, went dry in year 2003, the comparison of RCRA indicator parameters (specific conductance, pH, total organic carbon, and total organic halides) between upgradient and downgradient wells was conducted using the most recent collected background values of contaminant indicator parameters from well 299-W26-7 before it went dry (see DOE/RL-2008-01, Appendix B). When data from the new upgradient well (699-33-76) become available, new background values will be calculated and used for the required upgradient/downgradient comparisons. Based on fiscal year 2004 statistical evaluations of the contamination indicator parameters, there are no statistically significant differences in down gradient wells (i.e., constituents in the downgradient wells are not elevated compared to the upgradient well). Therefore, this site remains in detection monitoring.

Based on regional groundwater elevations, the groundwater flow direction continues toward the east-southeast and the water-level elevation continues to decline. The average linear velocity ranges from 0.075 to 2.25 m/d (0.25 to 7.4 ft/d) (DOE/RL-2008-01).

Figure 5-1. Borehole and Test Pit Locations.



6.0 CLOSURE STRATEGY AND PERFORMANCE STANDARDS

This chapter identifies the 216-S-10 Pond and Ditch closure strategy and closure performance standards for soils. Groundwater is discussed in Chapters 5.0 and 8.0.

6.1 CLOSURE STRATEGY

The standards for closure of Hanford Site TSD units are in WAC 173-303-610, "Closure and Post-Closure." The option to clean close a surface impoundment or pursue landfill closure of a surface impoundment is identified in WAC 173-303-650(6), "Closure and Post-Closure Care." The possibility for clean closure for all TSD units at the Hanford Site is described in Ecology et al., 1989b, *Hanford Federal Facility Agreement and Consent Order Action Plan* (Tri-Party Agreement Action Plan), Section 6.3.1.

The 216-S-10 Pond and Ditch soils meet clean-closure standards for soils, with the exception of the ecological screening level for chromium. The closure strategy will remain removal of contaminated soils (i.e., soil with concentrations above standards protective of human health and the environment) to clean-closure levels; however, the Permittees may need to develop an ecological protection cleanup level to replace the screening level found in Table 4-1. Removal of contaminated soils can begin as soon as a decision is made on what the clean up level will be on for ecological protection for chromium.

6.2 CLOSURE PERFORMANCE STANDARDS

This section identifies general clean-closure performance standards and the specific closure standards for the soils.

6.2.1 Treatment, Storage, and/or Disposal Unit Closure Performance Standards

The closure performance standards of WAC 173-303-610(2)(a)(i - iii), "Closure Performance Standard," require the owner or operator of a TSD unit to close the unit in a manner that ensures the following:

1. "Minimizes the need for further maintenance"
2. "Controls, minimizes, or eliminates to the extent necessary to protect human health and the environment, postclosure escape of dangerous waste, dangerous waste constituents, leachate, contaminated runoff, or dangerous waste decomposition products to the ground, surface water, groundwater, or the atmosphere"
3. "Returns the land to the appearance and use of surrounding land areas to the degree possible given the nature of the previous dangerous waste activity."

These standards can be met by one of the following methods:

1. Clean-closure according to the removal or decontamination standard of WAC 173-303-610(2)(b) based on WAC 173-303-650(6)(a)(i)
2. By landfill closure according to WAC 173-303-650(6)(a)(ii)
3. By implementing the alternative closure requirements of WAC 173-303-610(1)(e), "Applicability."

Potential contaminant exposures and health impacts to humans are largely dependent on land use and related exposure scenarios. The land use for the 200 Areas selected by the DOE through 64 FR 61615, "Record of Decision: Hanford Comprehensive Land-Use Plan Environmental Impact Statement (HCP EIS)," is industrial-exclusive. However, the 216-S-10 Pond and Ditch are located outside of the industrial-exclusive zone, and are included in the conservation (mining) zone.

The first approach to examine for TSD unit closure is clean closure. Clean closure will eliminate the need for future inspections and maintenance necessitated by TSD unit constituent contamination. Clean closure also will eliminate the need for future postclosure monitoring and maintenance of the soils. Clean closure using WAC 173-340-740(3) , "Method B Soil Cleanup Levels for Unrestricted Land Use," residential values were examined first because if the DOE/RL-2005-63, Appendices A and B data showed that the soils met the WAC 173-340-740(3) residential values without further remediation, then the TSD unit clean closure can occur independent of the OU remediation activities.

If the TSD unit constituents cannot meet the WAC 173-340-740(3) residential values as is, then before choosing a postclosure pathway, the OU remediation activities are examined to see if removal of soils is needed for past-practice contaminants. If removal of soils will be pursued for the OU remediation activities, then clean closure using WAC 173-340-740(3) residential values for TSD unit constituents through verification sampling and analysis can still be used. Clean closure can then be pursued for the soils, and the closure approach for groundwater must be considered (Section 5.0).

If neither of the clean-closure approaches can achieve the outcome, then the TSD unit will need to pursue some form of postclosure. The classical landfill closure option described in WAC 173-303-650(6)(a)(ii) would result in the construction of a barrier and long term postclosure care. Before pursuing a landfill closure option with a barrier, however, other options can be explored, with Ecology's approval, through use of the alternative closure requirement in WAC 173-303-610(1)(e), provided the conditions are met. Since the alternative requirements allow Ecology to replace all of the closure requirements except the general closure performance standards of WAC 173-303-610(2)(a), closure approaches other than landfill closure could be pursued.

6.2.2 Soil Closure Standards

The clean-closure requirements are established in WAC 173-303-610(2)(b) and the surface impoundment standards are established in WAC 173-303-650(6)(a) to remove or decontaminate unit soils contaminated above clean-closure standards. These soil clean-closure cleanup levels are the numeric levels identified in WAC 173-340-740(3) that are either levels calculated using the most restrictive WAC 173-340-740(3) formulas for unrestricted use, or are background levels (DOE/RL-92-24, *Hanford Site Background: Part 1, Soil Background for Nonradioactive Analytes*) when the most restrictive WAC 173-340-740(3) formulas are more stringent than Hanford Site background concentrations. WAC 173-340-740(3) formulas for unrestricted use can include site-specific parameters.

WAC 173-340-740(3) contains the following potential clean-closure standards: environmental protection related to ecological receptors, soil concentrations protective of groundwater, soil direct-contact carcinogens, soil direct-contact noncarcinogens, soil direct-contact petroleum vapors, and soil vapors. The environmental protection related to ecological receptors, soil concentrations protective of groundwater, soil direct-contact carcinogens, and soil direct-contact noncarcinogens are applicable and are identified in Table 4-1. The soil direct-contact petroleum vapors and soil vapors standards do not apply because there are no petroleum compounds and no volatile organic compounds related to TSD unit closure, respectively.

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7.0 CLOSURE ACTIVITIES

This chapter summarizes closure activities for the 216-S-10 Pond and Ditch soils performed in coordination with the 200-CS-1 OU remediation process. Physical closure activities included TSD unit physical isolation, borehole and test pit drilling, soil sampling and analysis, removal of 216-S-10 Pond and Ditch contaminated soils, and verification sampling following contaminated soil removal.

The unit soils are planned to be clean closed based on the results of DOE/RL-2005-63, Appendices A and B and remediation of the 216-S-10 Pond and Ditch contaminated soil. Furthermore, sampling of the soils to verify that contaminate removal is complete, as well as to confirm waste site remedy selection was implemented to achieve clean closure also will be performed. Contaminated soil will be removed, require subsequent designation according to WAC 173-303-070(3), "Designation Procedures," and (5), "Additional Designation Required," and managed as part of closure. Because soils are not expected to be designated as dangerous waste, treatment of the soils is not expected before they are disposed of at the Environmental Restoration Disposal Facility.

7.1 TREATMENT, STORAGE, AND/OR DISPOSAL UNIT PHYSICAL ISOLATION

The south end of the 216-S-10 Ditch remained in use until 1984, when two-thirds of the ditch was backfilled and stabilized. In 1984, concurrent with the 216-S-10 Ditch, the 216-S-10 Pond was stabilized. The north end of the 216-S-10 Ditch last received discharges during 1991, and the supplying pipeline was plugged with concrete near the outfall in June 1994. The concrete plug was poured in manhole #2 to achieve positive assurance of isolation.

7.2 TREATMENT, STORAGE, AND/OR DISPOSAL UNIT SAMPLING AND ANALYSIS

The following sections describe sampling and analysis activities that have been completed for the 216-S-10 Pond and Ditch. Additional sampling of the soils will be performed to verify that contaminant removal is complete, as well as to confirm waste site remedy selection was implemented to achieve clean closure.

7.2.1 Completed Soil Sampling and Analysis

As part of the 200-CS-1 OU remedial investigation, data were collected to characterize the nature and vertical extent of contamination and the physical conditions in the vadose zone underlying the 216-S-10 Ditch and Pond. Drilling, test pit excavation, surface and borehole geophysical surveys, and soil sampling and analysis were conducted during the field activities. Borehole and test pit locations are shown in Figure 5-1.

Test Pits SD-1, SD-2, and SD-3 were excavated and sampled in the 216-S-10 Ditch, and borehole B8828 was drilled and sampled adjacent to the 216-S-10 Ditch. Borehole B8828 was completed as a RCRA monitoring well and renumbered as well 299-W26-14 to support the RCRA monitoring program. Test Pit SD-3 was excavated in the 216-S-10 Ditch to gather characterization data below the waste site.

Test Pits SP-1, SP-2, SP-3, and SP-4 were excavated and sampled in the 216-S-10 Pond. Borehole B8817 was drilled and sampled adjacent to the 216-S-10 Pond in fiscal year 1999, and details are provided in PNNL-13198, *Borehole Data Package for the 216-S-10 Pond and Ditch Well 299-W26-13*. Borehole B8817 was completed as a RCRA monitoring well and renumbered as well 299-W26-13.

The test pit locations were prepared by removing 0.3 to 0.6 m (1 to 2 ft) of topsoil from the site. The test pits were excavated to a maximum depth of 7 m (25 ft) below ground surface using a trackhoe. Samples were obtained directly from the trackhoe bucket at intervals of approximately 0.7 m (2.5 ft). Samples were analyzed for chemical and physical properties. The test pits were backfilled in the reverse order from which they were excavated using the trackhoe, and a front-end loader was used to backfill the site with topsoil and/or gravel.

Soils from the boreholes and test pits were screened in the field both for indications of contamination and to assist in determining the discrete sample locations or depths before the samples were collected. Soil samples were collected for analysis and determination of physical properties. The sampling approach generally required a greater sample frequency near the bottom of the waste site, which is the area of highest suspected contamination. Sample collection was always attempted at depths of 4.6 and 7.6 m (15 and 25 ft) below ground surface to define contamination profiles. Sample frequency generally was reduced to 6.1 to 15.2 m (20 to 50 ft) intervals below a depth of 7.6 m (25 ft) in the boreholes.

Soil samples were analyzed for the constituents of concerns from DOE/RL-2004-17, *Remedial Investigation Report for the 200-CS-1 Chemical Sewer Group Operable Unit*. Samples were analyzed selectively for field bulk density and moisture content. In addition, pond and ditch bottom samples from each of the test pits were analyzed for an expanded list of compounds, to satisfy waste designation requirements. Soil descriptions were recorded to better define stratigraphic relationships in the OU. The results obtained from previous characterization activities also were evaluated as part of this remedial investigation.

7.2.2 Soil Sample Results and Verification Sampling

Analytical results obtained from the remedial investigation were intended for refining and/or validating the site conceptual contaminant distribution model and are defensible for use in this closure plan for determining constituents of concern (DOE/RL-99-44, Appendix B). Table 4-1 identifies the maximum concentration of TSD unit constituents in shallow soils and deep-zone soils from DOE/RL-2005-63, Appendices A and B. As a first review, the maximum values were compared to the clean-closure levels (Section 6.2.2).

After comparing the TSD unit constituent concentrations in DOE/RL-2005-63, Appendices A and B to the WAC 173-340-740(3) residential values, the TSD unit was not eligible for clean

closure without remediation. The TSD unit constituent concentrations were then compared to the WAC 173-340-745(5) , "Method C Industrial Soil Cleanup Levels," industrial values with the same result as the ecological protection screening level was the same for both standards. Because the level of chromium exceeds the ecological protection screening level by over 12 times, it is believed that remediation of the 216-S-10 Pond and Ditch soils will prevent the need for barrier construction as part of the 200-CS-1 OU decision making. However, since the ecological protection screening levels are not cleanup levels, the Permittees may develop a cleanup level for chromium and propose a modification to amend the closure plan.

Table 4-1 shows that pH meets the clean-closure standard. Total chromium does not meet the ecological protection screening level. To meet WAC 173-340-740(3) residential cleanup levels, 216-S-10 Pond and Ditch contaminated soils will require removal. As the 200-CS-1 OU activities remove the 216-S-10 Pond and Ditch contaminated soils, the closure approach for the soils also will be to remove the 216-S-10 Pond and Ditch contaminated soils and conduct verification sampling. The sampling and analysis plan for verifying that contaminant removal is complete is contained in DOE/RL-2005-63, Appendix K.

7.2.3 Confirm Waste Site Remedy Selection was Implemented to Achieve Clean Closure

Additional sampling and analysis of the soil is planned to confirm waste site remedy selection was implemented to achieve clean closure. The sampling will be documented and developed as described in DOE/RL-2005-63, Appendix K.

7.3 OTHER ACTIVITIES REQUIRED FOR CLOSURE

The 200-CS-1 OU activities planned to support clean closure of the TSD unit include the removal of the 216-S-10 Pond and Ditch contaminated soils. This activity is expected to achieve clean closure for the TSD unit soils. In addition, a data quality objective process with follow-on sampling will be performed to determine if the clean-closure levels have been met, in coordination with the 200-CS-1 OU activities (DOE/RL-2005-63, Appendix K). After closure, appearance of the land will be consistent with land-use determinations of the Hanford Site.

7.4 INSPECTIONS

The TSD unit has been inspected to meet interim-status requirements. Annual inspections are performed based on Ecology approval in 2003. Following closure certification (Section 7.8), inspections for the 216-S-10 Pond and Ditch will be discontinued.

7.5 TRAINING

A dangerous waste training plan has been maintained for the TSD unit, to meet interim-status requirements. The duties associated with dangerous waste management activities include

performing inspections, notifying Ecology of any potential threats to human health and the environment, and performing groundwater monitoring. Following closure certification (Section 7.8), inspections for the 216-S-10 Pond and Ditch will be discontinued. A dangerous waste training plan will be maintained for groundwater monitoring during postclosure monitoring.

7.6 SCHEDULE OF CLOSURE

The remaining closure activities for this TSD unit include the following:

1. Removal of the 216-S-10 Pond and Ditch contaminated soils
2. Completion of a data quality object process for verification sampling
3. Verification sampling of the soils.

These activities will be conducted as part of the 200-CS-1 OU activities. Following submittal of this closure plan to Ecology, Ecology's 90-day review period begins in accordance with the Tri-Party Agreement Action Plan, Figure 9-2.

7.7 AMENDMENT OF CLOSURE PLAN

As required by WAC 173-303-610(3)(b), "Closure Plan; Amendment of Plan," the closure plan will be amended if changes to closure activities require a modification of the approved closure plan. Modifications to this plan could occur as a result of the activities identified in Section 7.6. Furthermore, a modification is expected when the environmental protection cleanup level for chromium is established.

7.8 CERTIFICATION OF CLOSURE

Upon removal of the 216-S-10 Pond and Ditch contaminated soils, sampling be performed to verify that contaminant removal is complete, as well as to confirm waste site remedy selection was implemented to achieve clean closure. When sampling results have been evaluated, closure activities under this closure plan are planned to have been completed (Chapter 8).

In accordance with WAC 173-303-610(6), "Certification of Closure," within 60 days of completion of TSD unit closure, the DOE will submit to Ecology a certification of closure. Both the DOE and the Co-Operator identified on the current Part A Permit Application for the TSD unit will sign the certification of closure, and an independent registered professional engineer will state that the unit has been closed in accordance with the approved closure plan. The certification will be submitted by registered mail or an equivalent delivery service. Documentation supporting the independent registered professional engineer's certification will be placed in the Administrative Record.

8.0 POSTCLOSURE PLAN

The closure strategy for the 216-S-10 Pond and Ditch is clean closure with regard to TSD unit constituents for soils; therefore, no postclosure plan for the soils is required.

Clean closure of the groundwater is not possible because of chromium contamination in the groundwater. A postclosure final-status detection monitoring program is required. Postclosure groundwater monitoring will be performed as described in a postclosure groundwater monitoring plan to meet the postclosure plan requirements of WAC 173-303-610(8)(b)(i), "Post-Closure Plan; Amendment of Plan," and WAC 173-303-645, "Releases from Regulated Units," stated in WAC 173-303-610(8)(b)(ii) (PNNL-15731, *Post-Closure RCRA Groundwater Monitoring Plan for the 216-S-10 Pond and Ditch*).

Postclosure requirements of WAC 173-303-610(8)(b)(ii) regarding planned maintenance activities and frequencies do not apply. Training requirements apply for the collection of groundwater monitoring samples.

The contact information required by WAC 173-303-610(8)(b)(iii) is as follows.

Name:	Director, Environmental Management Division, U.S. Department of Energy, Richland Operations Office
Address:	P.O. Box 500, Richland, Washington 99352
Phone Number:	(509) 372-0879

The alternative requirement provisions identified in WAC 173-303-610(8)(b)(iv) are not being applied to the groundwater monitoring of the 216-S-10 Pond and Ditch.

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9.0 REFERENCES

02-RCA-0385, 2002, "Transfer of Hanford Facility Dangerous Waste Part A Permit Application, Form 3s for Certification in Support of Contract Transition for Central Plateau," (letter to M. A. Wilson, Washington State Department of Ecology, from J. Hebdon), U.S. Department of Energy, Richland Operations Office, Richland, Washington, July 1.

40 CFR 265, Subpart F, "Ground-Water Monitoring," Title 40, *Code of Federal Regulations*, Part 265, Subpart F.

64 FR 61615, "Record of Decision: Hanford Comprehensive Land-Use Plan Environmental Impact Statement (HCP EIS)," *Federal Register*, Vol. 64, No. 218, pp. 61615-61625, November 12, 1999. http://www.epa.gov/EPA-IMPACT/1999/November/Day-12/i29325.htm

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 USC 9601 et seq.

DOE/RL-92-03, 1992, *Annual Report for RCRA Groundwater Monitoring Projects at Hanford Site Facilities for 1991*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-92-24, 2001, *Hanford Site Background: Part 1, Soil Background for Nonradioactive Analytes*, Rev. 4, 2 vols., U.S. Department of Energy, Richland Operations Office, Richland, Washington. http://www2.hanford.gov/arpir/?content=detail&AKey=D196078863 and http://www2.hanford.gov/arpir/?content=detail&AKey=D196078869

DOE/RL-2004-17, 2004, *Remedial Investigation Report for the 200-CS-1 Chemical Sewer Group Operable Unit*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-2005-63, pending, *Feasibility Study for the 200-CS-1 Chemical Sewer Group Operable Unit*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-2008-01, 2008, *Hanford Site Groundwater Monitoring for Fiscal Year 2007*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-2008-61, pending, *Interim Status Groundwater Monitoring Plan for the* 216-S-10 Pond and Ditch, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Ecology, EPA, and DOE, 1989a, *Hanford Federal Facility Agreement and Consent Order*, 2 vols., as amended, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington. http://www.hanford.gov/?page=91&parent=0

Ecology, EPA, and DOE, 1989b, *Hanford Federal Facility Agreement and Consent Order Action Plan*, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.

Ecology Publication 94-111, 2005, *Guidance for Clean Closure of Dangerous Waste Units and Facilities*, as amended, Washington State Department of Ecology, Olympia, Washington.

Hanford Environmental Information System, Hanford Site database.

PNNL-11793, 1998, *Hanford Site Groundwater Monitoring for Fiscal Year 1997*, Pacific Northwest National Laboratory, Richland, Washington.

PNNL-13198, 2000, *Borehole Data Package for the 216-S-10 Pond and Ditch Well 299-W26-13*, Rev. 0, Pacific Northwest National Laboratory, Richland, Washington.

PNNL-14070, 2002, *Groundwater Monitoring Plan for the* 216-S-10 Pond *and Ditch*, Pacific Northwest National Laboratory, Richland, Washington, October 2002.

PNNL-15731, 2006, *Post-Closure RCRA Groundwater Monitoring Plan for the 216-S-10 Pond and Ditch*, Pacific Northwest National Laboratory, Richland, Washington.

Resource Conservation and Recovery Act of 1976, 42 USC 6901, et seq.

WA7890008967, 2007, *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*, Washington State Department of Ecology, Richland, Washington.

WAC 173-160, "Minimum Standards for Construction and Maintenance of Wells," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

WAC 173-303, "Dangerous Waste Regulations," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

- 173-303-070(3), "Designation Procedures."
- 173-303-070(5), "Additional Designation Required."
- 173-303-090(6), "Characteristic of Corrosivity."
- 173-303-400, "Interim Status Facility Standards."
- 173-303-610, "Closure and Post-Closure."
- 173-303-610(1), "Applicability."
- 173-303-610(2), "Closure Performance Standard."
- 173-303-610(3), "Closure Plan; Amendment of Plan."
- 173-303-610(6), "Certification of Closure."
- 173-303-610(8), "Post-Closure Plan; Amendment of Plant."
- 173-303-645, "Releases from Regulated Units."
- 173-303-650(6), "Closure and Post-Closure Care."

WAC 173-340, "Model Toxics Control Act – Cleanup," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

- 173-340-700(6)(d), "Natural Background and Analytical Considerations."
- 173-340-740(3), "Method B Soil Cleanup Levels for Unrestricted Land Use."
- 173-340-740(3)(b)(ii), "Environmental Protection."
- 173-340-740(3)(b)(iii)(A), "Ground Water Protection."
- 173-340-740(3)(b)(iii)(B)(I) and (II), "Noncarcinogens" and "Carcinogens."
- 173-340-740(6), "Point of Compliance."
- 173-340-745(5), "Method C Industrial Soil Cleanup Levels."
- 173-340-7490(4)(b), "Standard Point of Compliance."

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