AR TARGET SHEET

The following document was too large to scan as one unit, therefore, it has been broken down into sections.

EDMC#:	0063323
SECTION:	3 OF 3
DOCUMENT #:	DOE/RL-2004-14, Draft 1A
TITLE:	Tanks/Lines/Pits/Boxes/Septic Tank & Drain Fields Waste Group OU RI/FS Work Plan and RCRA TSD Unit Sampling Plan

APPENDIX D

200-IS-1 OPERABLE UNIT TREATMENT, STORAGE, AND DISPOSAL UNIT TANK WASTE SITES REVIEW PROCESS

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Table D-1. WIDS RCRA TSD Unit Tank Waste Sites Assigned to 200-IS-1 Operable Unit and Being Considered in this Work Plan.[a]

Code	Names	Classification	Description	Location Description	Lead Regulatory Agency	Operable Unit
241-CX-70	241-CX-70, 241-CX-TK-70 tank, Strontium Hot Semi-Works, IMUST	Accepted	The 241-CX-70 underground tank is surrounded with a post-and-chain barrier. It is posted with "Hazardous Waste, Restricted Area - Inactive Tank" sign	The tank is located south of 7th Street, within the Hot Semi-Works stabilized area (200-E-41).	Ecology	200-IS-1
241-CX-71	241-CX-71, 241-CX-TK-71, 241-CX neutralization tank, Strontium Hot Semi-Works, IMUST	Accepted	The underground tank is surrounded with steel posts and chain. It is posted with "Hazardous Waste, Restricted Area – Inactive Tank" signs.	The tank is located south of 7th Street, within the Hot Semi-Works stabilized area (200-E-41). It is near the northeast corner of the 216-C-1 Crib.	Ecology	200-IS-1
241-CX-72	241-CX-72, 241-CX-TK-72 vault and tank, 241-CX-72 waste self concentrator, Strontium Hot Semi-Works, IMUST	Accepted	Tank 241-CX-72 is located inside a small building. A cover has been placed over the tank with radiological postings and "Keep Out" signs.	The tank is located south of 7th Street within the Hot Semi-Works stabilized area (200-E-41).	Ecology	200-IS-1
276-S-141	276-S-141, 276-S-TK-141, 276-S-306A, 276-S-141 solvent storage tank, tank 276-141, hexone storage tank, 244-SX-15, IMUST	Accepted	The site is a below-grade carbon steel tank enclosed in a chain line fenced area. The tank is the southernmost tank in a two-tank network connected to the 276-S Solvent Handling Facility. The tank had an 89,000-L (23,575-gal) capacity. The tank has been filled with cement.	The underground tank is north of 276-S Building and directly south of tank 276-S-142. The tank is west of the REDOX railroad tracks.	Ecology	200-IS-1
276-S-142	276-S-142, 276-S-TK-142, 276-S-306B, 276-S-142 solvent storage tank, tank 276-142, hexone storage tank, 244-SX-15, IMUST	Accepted	The site is a below-grade carbon steel tank. The tank is the northernmost tank in a two-tank network connected to the 276-S Solvent Handling Facility. The tank has an 89,000-L (23,575-gal) capacity.	The underground tank is north of the 276-S Building and directly north of tank 276-S-141. The system is west of the railroad tracks.	Ecology	200-IS-1

[a] The listing of waste sites is based on the Waste Information Data System (WIDS) database as of September, 2004. Other reference sources for this table include the following:
Hanford Site drawing H-2-4602.
HNF-SD-LL-SP-001, *200 and 600 Areas Sanitary Wastewater Master Plan*
HW-22955, *Hot Semi-Works Manual, Part 1*
Resource Conservation and Recovery Act of 1976 (RCRA)

Ecology = Washington State Department of Ecology
IMUST = inactive miscellaneous underground storage tank
REDOX = Reduction-Oxidation (Plant)
TSD = treatment, storage, and disposal

REFERENCES

HNF-SD-LL-SP-001, 1998, *200 and 600 Areas Sanitary Wastewater Master Plan*, Fluor Hanford, Inc., Richland, Washington.

HW-22955, 1956, *Hot Semi-Works Manual, Part 1*, General Electric Company, Richland, Washington.

Resource Conservation and Recovery Act of 1976 (RCRA), 42 U.S.C. 6901, et seq.

APPENDIX E

200-ST-1 OPERABLE UNIT SEPTIC TANK AND DRAIN FIELD WASTE SITES REVIEW PROCESS

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Table E-1. WIDS Septic Tank and Drain Field Waste Sites Assigned to the 200-ST-1 Operable Unit.[a] (11 sheets)

Code	Names	Classification	Reclassification Status	Description	Location Description	Lead Regulatory Agency
200-E-5	200-E-5, 2607-E2, 2607-E2 septic tank and tile field	Accepted		The septic tank has three access ports. It is a single-compartment, 18,730-L (4,950-gal) capacity tank with a 1,900-L (500-gal) dosing siphon. As of February 15, 2001, it was not marked in the field.	The tank and drain field are located in the south portion of 200 East Area, adjacent to 1st Street and east of Baltimore Avenue.	Ecology
200-E-6	200-E-6, septic tank, sanitary sewer repair and replacement 2607-E4	Accepted		The septic tank is surrounded by chain with four steel posts that are painted yellow. The tank is posted with a septic tank sign. The tank has two 10-cm (4-in.) PVC pipes that protrude vertically from the ground. The sanitary tile field is surrounded with a steel post-and-chain barricade and is posted with "Caution – Underground Radioactive Material" signs.	The site is located just east of the 221-B Building and south of the inactive 2607-E4 septic tank.	Ecology
200-E-7	200-E-7, 2607-EO septic tank and tile field	Accepted		The tank is part of the 2607-EP system. Current and proposed additions to this system bring its design daily flow to 20,440 L (5,400 gal). The tank was prefabricated with a 1,500-gal first chamber and a 1,000-gal second chamber. The associated drain field has been abandoned.	This septic tank/pump station is located east of the 2711-E Building and north of 4th Street.	Ecology
200-E-9	200-E-9, 2607-EN, 2727-E septic system, 2607-EN septic tank/pump station	Accepted		The aboveground area is posted as "Septic Tank 2607-EN." The area is surrounded with metal fence posts and chain. Three concrete and one PVC cylinders (manholes) with covers protrude above grade in the underground tank area. The surface is disturbed and covered with Russian thistle, cheatgrass, and other weedy species. Two "Sanitary Tile Field" signs are located south of the septic tank.	The site is 75 ft south of the southwest corner of the 2727-E Safeguards and Security Building, which is in the 200 East Area on 4th Street.	Ecology
200-E-24	200-E-24, 6607-11, 2704-HV septic system	Accepted		The septic and dosing tank area (about 60 ft by 10 ft) has five manholes at grade and two 7-ft-high, 4-in.-diameter, metal pipe air vents. The drain field is within a fenced area about 300 ft north of the septic tank area. The drain field fenced area is about 130 ft by 360 ft; and has six valve boxes and a gate at the south end. The drain field consists of three trenches and one trench reserved for future use.	The site is west of B Plant and east of Route 4 South. It is east of 2704-HV and west of the 216-B-62 Crib. A GPS survey was performed in August 1998.	Ecology
200-W-34	200-W-34, 272-WA septic system north of 213W, 2607-WL, duplicate of 2607-WL	Rejected (proposed)		This site is a duplicate of 2607-WL, which is also listed in WIDS as servicing the 272-WA Building and being north of that facility.		Ecology

Table E-1. WIDS Septic Tank and Drain Field Waste Sites Assigned to the 200-ST-1 Operable Unit.[a] (11 sheets)

Code	Names	Classification	Reclassification Status	Description	Location Description	Lead Regulatory Agency
200-W-51	200-W-51 septic tank (abandoned)	Accepted		The site is an abandoned septic tank that has been filled and covered. The septic tank was discovered during excavations (for exhauster upgrades) outside SY Tank Farm. The tank is not marked or posted.	The site is located north (and slightly east) of the SY-101 tank, north of the SY Tank Farm fence.	Ecology
600-212	600-212, relocatable latrine facility holding tank system	Accepted		The site is surrounded by 14 steel posts that are painted yellow. The top of the tank is visible at grade level and measures 9 ft by 15 ft. Two concrete covers are located on top of the tank; one cover has a steel access port for pumping. The electrical conduit for transmitting to the alarm system is visible on top of the tank.	The site is located just west of the 200 East Area, between Route 4 North and the 200 East Area perimeter fence. The site is within the trailer village established for the HWVP Project and is located approximately 8 m west of trailer MO-730.	Ecology
600-217	600-217, H-61-H anti-aircraft artillery site sewer system	Accepted		The sewer system extends from the kitchen, toilet, and shower buildings and ran into a septic tank on the east side of the site. The access ports and septic tank have been filled in with clean sand (September 2001). Twelve toilet drains and five floor drains were observed on the toilet and shower building foundation floor. A sewer access port is located just northeast of the toilet and shower buildings. The kitchen foundation has four floor drains and a grease trap. A sewer access port is located northwest of the kitchen. A 34-ft by 37-ft by 10-ft-deep pit located in the northwest portion of the site in 1997 was thought to have been used for sewage disposal, but the septic tank was subsequently located. The bottom of the pit is concrete and was once covered with wooden beams. Visibility of the pit is obscured by blown-in tumbleweeds.	This site is located just southwest of the intersection of Route 11 and Route 6. It is 0.4 mi south of Route 11 and just west of Army Loop Road. The site is in the east half of the northeast quarter of Section 34, Township 13 North, Range 25 East.	Ecology
600 ESST	600 ESST, 600 Area Exploratory shaft septic tank, septic tank - exploratory shaft	Accepted	Closed out	This was the site of the Exploratory Shaft Facility septic tank. This area has been reclaimed because of project cancellation. No visual evidence of a septic tank remains.	This site is at the exploratory shaft facility, west of the 200 West Area and southeast of the Yakima Barricade, near Army Loop Road.	Ecology
600 NSTFST	600 NSTFST, 600 Area Near-Surface Test Facility septic tank, septic tank, Near-Surface Test Facility	Accepted	Closed out	This site is a septic tank and associated tile field. The septic tank serviced the trailer village that was located at the base of Gable Mountain. The septic tank was pumped out and backfilled.	This site is located at the west end at the base of the north side of Gable Mountain.	Ecology
600 NSTFUT	600 NSTFUT, 600 Area Near Surface Test Facility underground tank, underground tank, Near Surface Test Facility	Accepted	Closed out	This site consists of two sanitary waste holding tanks. The tanks supported the mobile office trailers that were located on the tunnel bench for the Near-Surface Test Facility. Each tank had a 3,785-L (1,000-gal) capacity and was emptied every other week. This facility has been decommissioned and reclaimed.	The tanks were located on the tunnel bench for the Near-Surface Test Facility, on the north side of Gable Mountain.	Ecology

Table E-1. WIDS Septic Tank and Drain Field Waste Sites Assigned to the 200-ST-1 Operable Unit.[a] (11 sheets)

Code	Names	Classification	Reclassification Status	Description	Location Description	Lead Regulatory Agency
622-R ST	622-R ST, 622-R septic tank, 622-R Atmospheric Physics Laboratory septic tank	Accepted		This site consists of a septic tank, distribution box, and tile field. A pump station was added in 1997 to reroute raw sewage to septic system 6609-09. The septic tank was emptied and will remain available as an emergency holding tank in case of pump failure.	This site is located just northwest of the 622-R Atmospheric Physics Laboratory Building. This building is northwest of the 200 West Area between Routes 2 and 3.	Ecology
2607-E1	2607-E1	Accepted		This septic tank is constructed of reinforced concrete with walls and floors. The associated drain field is 778 m^2 (8,376 ft^2).	This septic tank is located north of 4th Street and east of Baltimore Avenue. The tile field is north of the tank.	Ecology
2607-E1A	2607-E1A, 2607-E1A septic system, L-272 regional system	Accepted		The system includes a septic tank, a dosing chamber, and a three-section drain field. The area is covered with gravel and marked appropriately.	The septic system is located inside the 200 East Area, north of 4th Street and west of Baltimore Avenue.	Ecology
2607-E3	2607-E3, 2607-E3 septic tank and drain field, 2607-E3 septic system, TFS of 218-E-4, tile field south of 218-E-4	Accepted		The site is a septic tank and drain field. It is surrounded with a chain and marked with a sign that reads "Sanitary Sewer/Drain Field." The septic tank is constructed of reinforced concrete. The tank is 8.7 m (28 ft 8 in.) long, 2.7 m (9 ft) wide, and 3.8 m (12 ft 6 in.) deep (interior dimensions). The tank had a design capacity of 38,680 L (10,220 gal) based on a user capacity of 292 persons, a flow of 132 L (35 gal) of sewage per capita per day, and an average detention time of one day. The top of the tank is at the ground surface. The tank was accessed through three 0.9 m (3 ft) manholes. The drain field consists of at least 712 m (2,336 ft) of vitrified clay pipe or drain tile (at least 2.4 m [8 ft] per capita). The laterals are open jointed and are spaced 2.4 m (8 ft) apart.	This unit is located approximately 100 m (400 ft) north of the 221-B Building. The drain field is located north of the septic tank and south of the 218-E-4 Burial Ground.	Ecology
2607-E4	2607-E4, 2607-E4 septic tank and tile field	Accepted		The septic tank and tile field are marked with a "Sanitary Sewer/Drain Field" sign and lie with a posted area. The 2607-E4 septic tank is constructed of reinforced concrete that drains to an adjacent tile field.	The 2607-E4 septic tank is located northeast of the 221-B Building. The tile field is northeast of the tank.	Ecology

Table E-1. WIDS Septic Tank and Drain Field Waste Sites Assigned to the 200-ST-1 Operable Unit.[a] (11 sheets)

Code	Names	Classification	Reclassification Status	Description	Location Description	Lead Regulatory Agency
2607-E5	2607-E5	Accepted		This septic system receives sanitary wastewater and sewage. This system includes a single-compartment tank with a dosing system and a leaching trench. The site includes an abandoned tile field that was replaced by the sanitary leaching trench. The construction details for the sanitary leach trench are contained in Hanford Site drawing H-2-4602. The trench is 22.9 m (75 ft) long, 1.5 m (5 ft) wide at the bottom, and approximately 3.1 m (10 ft) deep. The excavation had a 1.5:1 side slope and is lined with three rows of 20-cm by 20-cm by 41-cm (8-in. by 8-in. by 16-in.) bond beam concrete blocks that run the entire length of the trench site on top of 0.6 m (2 ft) of cobble fill. The trench was covered with 0.3 m (1 ft) of gravel and a polyethylene cover and backfilled with the centerline of the trench to 0.3 m (1 ft) above the original grade. A distribution box at the eastern edge of the trench received waste from the up-gradient septic tanks and distributed it into the concrete block channels. The following information was obtained from HW-22955, *Hot Semi-Works Manual, Part 1*: All waste from the 2704-C office and gatehouse and 2707-C change house was considered sanitary waste and was disposed of separately from the chemical, or production waste. A 10.2-cm (4-in.) tile sewer ran from these buildings to a septic tank and tile field outside the Hot Semi-Works exclusion area. The sewer ran parallel to and 20.7 m (68 ft) south of the exclusion area north fence. The septic tank is 19.2 m (63 ft) west of the exclusion area west fence. The septic tank is a buried concrete settling tank 3.65 m (12 ft) long by 1.8 m (6 ft) long by 1.5 m (5 ft) deep (inside dimensions). The bottom and walls are 20.3 cm (8 in.) thick. The top is 15.2 cm (6 in.) thick and has two 61-cm (24-in.)-diameter access ports. The overflow is 1.18 m (46.5 in.) from the bottom resulting in a hold-up of 7,948.5 L (2,100 gal). The overflow from the septic tank drained to a tile field. This field consists of six runs of 10.2-cm (4-in.) tiles, each 15.2 m (50 ft) long. The tile was laid with open joints in an 45.7 cm (18-in.) gravel bed 61 cm to 91 cm (2 to 3 ft) below grade	This unit lies north of the 209-E Building and east of the 2607-C sanitary crib.	Ecology

Table E-1. WIDS Septic Tank and Drain Field Waste Sites Assigned to the 200-ST-1 Operable Unit.[a] (11 sheets)

Code	Names	Classification	Reclassification Status	Description	Location Description	Lead Regulatory Agency
2607-E6	2607-E6	Accepted		The site is a septic tank and drain field. The drain field is surrounded by a wooden fence. The surface is vegetated with brush.	This unit is located inside the 200 East Area, north of trailer MO405, between two railroad spurs.	Ecology
2607-E7A	2607-E7A, 2607-E7	Accepted		This septic tank receives sanitary wastewater and sewage. This tank is a 1.7-m (5.5-ft) by 2.7-m (8.75-ft), pre-cast concrete septic tank with a single, 61-cm (24-in.)-diameter cover. The tank is inline with the 2607-E5 septic tank and the 2607-E (WIDS 2607-E7B). The septic tank drains to the sanitary leaching trench.	This system lies north of the 209-E Building and west of the 2607-E5 septic tank.	Ecology
2607-E7B	2607-E7B, 2607-E7B septic system, 2607-E7	Accepted		This septic tank receives sanitary wastewater and sewage. This tank is a 1.7-m (5.5-ft) by 2.7-m (8.75-ft), pre-cast concrete septic tank with a single, 61-cm (24-in.)-diameter cover. The tank is in line with the 2607-E5 septic tank and the 2607-E7 (WIDS 2607-E7A). The septic tank drains to the sanitary leaching trench.	This system lies north of the 209-E Building and west of the 2607-E5 septic tank.	Ecology
2607-E8	2607-E8, 2607-E8 septic tank and tile field	Accepted		The septic tank surface is identified by two circular access ports surrounded with concrete. A sign, on the ground in April 2001, reads "2607-E8." The associated drain field had a capacity of 13,400 L/day (3,533 gal/day).	This unit is located north of 1st Street and east of Baltimore Avenue, across from the 2101-M Building.	Ecology
2607-E8A	2607-E8A, 2607-E8A regional septic system	Discovery		The septic system is surrounded with light-duty post-and-chain barricade.	The septic system is located south of the 284-E Powerhouse, on the east side of Baltimore Avenue.	Ecology
2607-E9	2607-E9, 242B/BL septic tank	Accepted		This 1,900-L (500-gal) septic tank received sanitary wastewater and sewage from the 242-B and the 242-BL Buildings. This system has an associated drain field. It was abandoned and the tank filled with sand. The site is in a CA. A brief visit was made to the site in February 2000 to find the drain field and to try to improve the mapping of the site. A "Drain Field" sign was found on the ground on the eastern side of the CA that surrounds the site. The former extent of the drain field can be approximated using fence posts (some of which still have chain attached) inside the CA, fallen chain on the ground, and the fence posts making up the eastern boundary of the CA. No access ports, lids, or risers associated with the septic tank were visible. Evidence of the septic tank may have been obscured by tumbleweeds growing in the center of the CA, near the drain field.	This unit lies north of the 207-B retention basin and east of the 242-B Building.	Ecology
2607-E11	2607-E11	Accepted		This unit is a two-chamber tank. The tank has an associated drain field and a capacity of 3,500 L/day (927 gal/day).	The site is located inside 200 East Area, north of 4th Street and east of Baltimore Avenue. The system is located southeast of the Dry Materials Receiving and Handling Facility silos.	Ecology

Table E-1. WIDS Septic Tank and Drain Field Waste Sites Assigned to the 200-ST-1 Operable Unit.[a] (11 sheets)

Code	Names	Classification	Reclassification Status	Description	Location Description	Lead Regulatory Agency
2607-E12	2607-E12, 2607-E12 septic system	Accepted		The septic system consists of the old 18,927-L (5,000-gal) tank (the old drain field was plugged off) that was converted to a dosing chamber when the new 37,854-L (10,000-gal) septic tank was installed approximately 45 ft (13.7 m) to the south. The trench-like drain field for this system is located approximately 122 m (400 ft) east of the tanks.	Both septic tanks are located east of Canton Avenue, north of 4th Street and west of the 207-A south retention basins. The drain field is located east of the retention basins and has a barricade marker fence around the large depression.	Ecology
2607-EA	2607-EA, 2607-EA septic tank and drywell	Accepted		This unit includes a drain field.	The septic system is located west of A Tank Farm and directly south of the 244-AR Building.	Ecology
2607-EC	2607-EC	Accepted		This unit includes a drain field. It is located inside A Tank Farm, near the northeast corner.		Ecology
2607-EE	2607-EE, 2607-EE septic system	Accepted		The site is a septic tank with a drain field extending northeast of the septic tank. The area is surrounded with light-duty posts-and-chain barricade. One riser pipe is visible.	The septic tank is located northeast of the 202-A Building, east of the railroad cut, inside the PUREX exclusion fence.	Ecology
2607-EH	2607-EH, 2607-EH septic system	Accepted	Rejected	WIDS site 2607-EH has been described as a septic tank and associated drain field.	This septic system has been described as being located on the west side of Baltimore Avenue, adjacent to the east side of the 2101-M Building.	Ecology
2607-EK	2607-EK	Accepted	Closed out	The 2607-EK septic tank is a reinforced-concrete tank and is posted in the field as "Septic Tank 2607EK." The associated drain field is east of the tank. The drain field consists of 11 parallel runs of 15-cm (6-in.), perforated drainpipe. The runs are 27 m (90 ft) long and are spaced 2.4 m (8 ft) apart.	The 2607-EK septic system is located east of Baltimore Avenue, northeast of the 2750-E Building, and south of the 2607-E8 septic system.	Ecology
2607-EL	2607-EL, 2607-EL septic tank/pump station	Accepted		The site is surrounded with steel post-and-chain barricade. It in marked with "Septic Tank" signs. Three access ports are visible on the surface. This septic tank's pump station is a part of the 2607-EP system, which was reconstructed in 1994. 2607-EL is permitted and approved by WDOH for a flow rate of 54,890 L/day.	The site is located south of 4th Street, near the western entrance to the 200 East Area. The septic system is located south of 2727-E and west of the MO-294 Building.	Ecology
2607-EM	2607-EM	Accepted		The 2607-EM septic tank is constructed of reinforced concrete and receives sanitary wastewater and sewage from the 2721-E Building. The system drains to the 2607-ED drain field.	This unit lies northwest of the associated drain field and southeast of the 2721 Building.	Ecology
2607-EP	2607-EP	Accepted		The 2607-EP system includes a septic tank and associated drain field.	This unit lies southeast of the MO-388 trailer and northeast of the 2721-E Buildings.	Ecology

Table E-1. WIDS Septic Tank and Drain Field Waste Sites Assigned to the 200-ST-1 Operable Unit.[a] (11 sheets)

Code	Names	Classification	Reclassification Status	Description	Location Description	Lead Regulatory Agency
2607-EQ	2607-EQ	Accepted		The 2607-EQ septic tank is constructed of reinforced concrete. The associated drain field is approximately 431 m^2 (4,644 ft^2).	This unit lies northwest of the 2753-E Building and southeast of the Ames Avenue and 2nd Street intersection.	Ecology
2607-ER	2607-ER	Accepted	Closed out	The 2607-ER system includes a septic tank and a trench-type drain field. The tank has two access ports. As of February 20, 2001, it was not posted in the field.	The site is located north of the 2101-M Building and west of Baltimore Avenue, just south of the railroad tracks.	Ecology
2607-FSM	2607-FSM, 609 Building septic tank 2607-FSM, 100 Area Fire Station septic tank, 1607-FSM, 6607-FSM	Accepted		The 6607-FSM septic tank is a single-chamber, reinforced-concrete tank. This unit includes a drain field.	The septic system lies at the southwest corner of the 609 Building (100-N Fire Station) and northwest of the intersection of Route 1 and Route 4 North in the 600 Area.	Ecology
2607-FSN	2607-FSN, 609A Building septic tank 2607-FSN	Accepted		The 2607-FSN septic tank and drain field lie beneath an asphalt walkway and several trees. The system was abandoned and replaced by the 6607-4 septic system in 1988.	The 2607-FSN septic system was located at the southeast corner of the 609-A Building, which is located on the south side of Route 3 in the 600 Area.	Ecology
2607-GF	2607-GF, 2607-GF septic system, 2607-GF septic tank and drain field	Accepted	Rejected	WIDS site 2607-GF has been described as a septic tank and associated drain field. However, it likely does not exist.	This system has been described as being located north of the Dry Materials Receiving and Handling Facility (2400E) and across the railroad tracks that run on the north side of the facility.	Ecology
2607-N	2607-N	Accepted		The site is a septic tank and drain field. The tank is a rectangular, open-topped, concrete tank buried to grade level. The 2607-N septic tank is constructed of reinforced concrete. The tank is 1.2 m (4 ft) long, 60 cm (2 ft) wide, and 2.5 m (8.25 ft) deep (inner dimensions). The tank had a design capacity of 795 L (210 gal) based on a user capacity of six persons, a flow of 132 L (35 gal) of sewage per capita per day, and an average detention time of one day. The top of the tank is at the ground surface and the tank is accessible through a 0.9-m (3-ft) access port.	The unit is located 6 m (20 ft) south of the 2743-N guardhouse foundation and south of the 212-N Building. The drain field lies south of the septic tank system.	Ecology

Table E-1. WIDS Septic Tank and Drain Field Waste Sites Assigned to the 200-ST-1 Operable Unit.[a] (11 sheets)

Code	Names	Classification	Reclassification Status	Description	Location Description	Lead Regulatory Agency
2607-P	2607-P	Accepted		The site is a septic tank and drain field. The tank is a rectangular, open-topped, soil-filled concrete tank buried to grade level. The 2607-N septic tank is constructed of reinforced concrete. The tank is 1.2 m (4 ft) long, 0.6 m (2 ft) wide, and 2.5 m (8.25 ft) deep (inner dimensions). The tank had a design capacity of 795 L (210 gal) based on a user capacity of six persons, a flow of 132 L (35 gal) of sewage per capita per day, and an average detention time of one day. The top of the tank is at the ground surface and the tank is accessible through a 0.9-m (3-ft) access port.	The site is located south of the 2743-P guardhouse foundation and south the 212-P Building. The drain field lies south of the septic tank.	Ecology
2607-R	2607-R	Accepted		The site is a septic tank and drain field. The tank is a rectangular, open-topped, soil-filled concrete tank buried to grade level. The 2607-N septic tank is constructed of reinforced concrete. The tank is 1.2 m (4 ft) long, 0.6 m (2 ft) wide, and 2.5 m (8.25 ft) deep (inner dimensions). The tank had a design capacity of 795 L (210 gal) based on a user capacity of six persons, a flow of 132 L (35 gal) of sewage per capita per day, and an average detention time of one day. The top of the tank is at the ground surface and the tank is accessible through a 0.9 m (3-ft) access port.	The unit is located south of the 2743-R guardhouse foundation and south of the 212-R Building. The drain field lies south of the septic tank.	Ecology
2607-W1	2607-W1	Accepted		The 2607-W1 septic tank was constructed in 1994 of reinforced concrete and receives sanitary wastewater and sewage. The system has an associated drain field.	This unit lies southeast and across Bridgeport Avenue from the associated drain field, and northeast of the 2713-WB Building.	Ecology
2607-W2	2607-W2	Accepted		The 2607-W2 septic tank is surrounded by posts with no radiation warning signs. This system was taken out of service and formally abandoned in 1994. The drain field lines have been cut and the septic tank was filled with soil. The drain field had a capacity of 2,970 L/day (785 gal/day). A gravity tie line was installed to connect this small system to a collection that serves the 2607-W1 septic tank.	This unit lies southwest of the main 200 West Area guard gate and southeast of the 2704-W Building.	Ecology
2607-W3	2607-W3	Accepted		The 2607-W3 septic tank has been pumped, filled with sand, and abandoned in place. The 2607-W3 septic tank was constructed of reinforced concrete. At one time, the eastern access was posted with a "Radioactive Material" warning sign. This system includes a drain field that was expanded in the 1950s.	This unit lies northeast of the 241-T-361 settling tank, approximately 61 m (200 ft) north of 23rd Street and 244 m (800 ft) southwest of the 224-T Building.	Ecology
2607-W4	2607-W4, T Plant septic tank and drain field	Accepted		The 2607-W4 septic tank is a single-compartment tank, constructed of reinforced concrete. The drain field measures 3.1 m by 9.2 m (10 ft by 30 ft). The site is surrounded by a light-duty chain barricade. At one time, the area was marked with surface contamination warning signs. A site visit in October 1998 indicates the area is no longer a radiation area. This system includes a drain field and receives sanitary wastewater and sewage from the 221-T Canyon Building.	This unit lies northwest of the 221-T Canyon Building and southwest of the 216-T-1 ditch.	Ecology

Table E-1. WIDS Septic Tank and Drain Field Waste Sites Assigned to the 200-ST-1 Operable Unit.[a] (11 sheets)

Code	Names	Classification	Reclassification Status	Description	Location Description	Lead Regulatory Agency
2607-W6	2607-W6	Accepted		The 2607-W6 system was reconstructed in 1995 and is labeled correctly. A concrete structure with three metal access port covers lies on the surface. The 2607-W6 septic tank is constructed of reinforced concrete and receives sanitary wastewater and sewage.	This unit lies southwest of the 222-S Laboratory and southeast of the MO-291 Building.	Ecology
2607-W8	2607-W8	Accepted		This system is located adjacent to a posted radiation zone containing the 216-Z-5 and 216-Z-4 Cribs. The 2607-W8 septic tank is constructed of reinforced concrete and has three access port covers visible on the surface. It is a single-compartment tank with an attached dosing siphon. This unit includes a tile field. The site is marked with a sign that reads "Septic Tank – 2607-W8."	This unit lies northeast of the 231-Z Building and east of the 216-Z-16 Crib.	Ecology
2607-W9	2607-W9, 2707-SX septic tank	Accepted		A gravel surface covers the 2607-W9 septic tank and tile field. Two posts with a sun-bleached sign mark the location of the tile field.	This system lies northwest of the 2707-SX change house and southeast of the 216-S-25 Crib. The exact location of this septic tank is not visible from the surface.	Ecology
2607-WA	2607-WA	Accepted		The 2607-WA septic system consists of two separate septic tanks and two separate drain fields. The septic tanks currently receive sanitary wastewater and sewage. This system was upgraded to meet state requirements in 1994.	This unit lies southwest of the 19th Street and Camden Avenue intersection, and north of Z Plant trailers MO-011, MO-244, MO-249, and MO-250.	Ecology
2607-WB	2607-WB, 2607-WB septic system	Accepted	Closed out	The site is a septic system that consists of three inactive septic tanks, one drain field, and the underground lines from connecting the tanks and drain field to the mobile offices they serviced.	The septic tanks are south of the MO-016 trailer (200 West – Z Plant area). The drain field is south of MO-939.	Ecology
2607-WC	2607-WC, 2607-WC septic system	Accepted		The 2607-WC septic system consists of two tanks and a trench-type drain field.	This unit lies west of the 242-S Evaporator Building and northeast of the 272-S maintenance shop.	Ecology
2607-WL	2607-WL, 2607-WL septic system	Accepted		The 2607-WL septic system is constructed of reinforced concrete. The septic system includes a trench-type drain field. The septic tank and drain field are surrounded by a chain barricade with a sign stating "Septic Tank."	This unit lies north of the 272-WA Building and west of the 2401-W Building.	Ecology
2607-WWA	2607-WWA, 2607-WWA septic system	Rejected (Proposed)		This site does not exist as a separate site; it is likely an alias for 2607-WL.		Ecology
2607-WZ	2607-WZ	Accepted		The 2607-WZ septic system includes a drain field. This unit lies within the fenced 200 West Area.	This unit lies southwest of the 241-SX Tank Farm and southeast of the 216-S-25 Crib.	Ecology

Table E-1. WIDS Septic Tank and Drain Field Waste Sites Assigned to the 200-ST-1 Operable Unit.[a] (11 sheets)

Code	Names	Classification	Reclassification Status	Description	Location Description	Lead Regulatory Agency
2607-Z	2607-Z	Accepted		The 2607-Z septic tank and drain field lie in a fenced area. The septic tank is a two-chamber concrete tank. Three access ports are provided for personnel entry. The drain field measures approximately 59 m (150 ft) in length and 110 m (280 ft) in width, located in an otherwise flat field.	This unit lies east of the 236-Z Building and southeast of the 234-5 Z Building.	Ecology
2607-Z1	2607-Z1, septic tank and drain field	Accepted		The system (septic tank and drain field) was constructed in 1958 and has been pumped once a week for the past few years. The drain field location has been used as a laydown area in the past and the underground laterals could have been damaged.	The site is located west of the 2721-Z Building.	Ecology
2607-Z8	2607-Z8	Accepted	Rejected	WIDS site 2607-Z8 has been described as a septic tank and associated drain field. However, it likely does not exist.	This septic system has been described as being located along the fence southeast of the 234-5 Z Building.	Ecology
6607-1	6607-1, H-40 gun site septic tank	Accepted		This site includes an access port located near the kitchen and mess hall and the toilet and shower foundations and a below-ground concrete septic tank with three access ports. The access ports and the septic tank have been backfilled with clean pit run material and are no longer visible, and the ground over the tank is gravel as of June 2001.	This site is located 1.1 km (0.7 mi) southeast of the southeast corner of 200 East Area, on the south side of Route 4 South. Trees viewed from Route 4 South aid in locating the site. The septic tank is located in the eastern portion of the H-40 gun site.	Ecology
6607-2	6607-2, gun site H-42 septic tank	Accepted		This site includes an access port, two septic tanks and the connecting tile field. In May 2001, the open holes associated with the septic system were backfilled. The original manhole measured 71 cm (28 in.) in diameter by 86 cm (34 in.) deep, with two inlet pipes and one outlet pipe and is constructed of cement bricks and mortar. The large septic tank is below grade and had three access ports and a concrete box structure visible above grade. The access ports were covered with concrete covers. The center access port was broken, providing visual access to the interior of the tank before the tank being backfilled. In 1997, the tank contained water. An above-ground structure, located at the west end of the tank, appears to have been used as a pumping station to pump liquid to the smaller tank located to the west. The overall site dimensions of the large tank are 21 m by 9 m (70 ft by 30 ft). The small tank to the west measures 2.2 m by 1.7 m (7.3 ft by 5.8 ft) and has one covered access port. The structures had been surrounded by orange plastic fencing, but the fencing was destroyed in the 2000 grass fire. The open features were backfilled in 2001.	The site is located 6.4 km (4 mi) south of the 200 East Area, on the south side of Army Loop Road and east of the power line road to Rattlesnake Mountain.	Ecology
6607-3	6607-3, anti-aircraft artillery site H-51 septic tank	Accepted		The septic tank is constructed of concrete, has three open access ports, and an above-ground, square, concrete, box-like structure located on the east end. This box-like structure may have been used to support a pump for pumping liquid to the drain field. The tank is below grade. The roped-off section measures 17 m by 4.6 m (55 ft by 15 ft) and the tank interior is 3.4 m (11 ft) deep. The drain field is located east of the septic tank. The septic tank and four access ports are delineated by orange plastic fencing.	This site is located approximately 2.4 km (1.5 mi) southwest of 200 West Area, just west of Army Loop Road, between Highway 240 and Army Loop Road.	Ecology

Table E-1. WIDS Septic Tank and Drain Field Waste Sites Assigned to the 200-ST-1 Operable Unit.[a] (11 sheets)

Code	Names	Classification	Reclassification Status	Description	Location Description	Lead Regulatory Agency
6607-5	6607-5, 616 Building septic system	Accepted		The unit consists of a septic tank and a drain field. The septic tank is surrounded by four yellow posts and is covered by gravel. The drain field is surrounded by metal posts and chain. The drain field is not marked by a sign.	The tank is located on the south side of the 616 Building. The drain field extends southwest of the tank.	Ecology
TFS OF 218-E-4	TFS OF 218-E-4, tile field south of 218-E-4, 2607-E3 tile field	Accepted	Rejected	The tile field south of the 218-E Burial Ground consists of vitrified clay pipe and drain tile. The laterals of the tile field are open jointed and are spaced 2.4 m (7.9 ft) apart.	This tile field is located southwest of the 218-E-4 Burial Ground and north of the 2607-E3 septic tank.	Ecology

a The listing of waste sites is based on WIDS as of September 2004.

Reference information for this table was obtained from the following:

HNF-SD-LL-SP-001, *200 and 600 Areas Sanitary Wastewater Master Plan*
HW-22955, *Hot Semi-Works Manual, Part 1*
Resource Conservation and Recovery Act of 1976
Waste Information Data System.

CA = contamination area
Ecology = Washington State Department of Ecology
GPS = global positioning system
HWVP = Hanford Waste Vitrification Plant
PUREX = Plutonium-Uranium Extraction (Plant)
PVC = polyvinyl chloride
WDOH = Washington State Department of Health
WIDS = Waste Information Data System

Table E-2. WIDS Rejected and Proposed Rejected 200-ST-1 Operable Unit Septic Tank and Drain Field Waste Sites Not Considered in This Work Plan.[a] (2 sheets)

Code	Names	Classification	Reclassification Status	Description	Location Description
200-W-34	200-W-34, 272-WA septic system north of 213W, 2607-WL, duplicate of 2607-WL	Rejected		This site is a duplicate of 2607-WL, which also is listed in WIDS as servicing the 272-WA Building and being north of that facility.	N/A
600 ESST	600 ESST, 600 Area exploratory shaft septic tank, septic tank - exploratory shaft	Accepted	Closed out	This was the site of the Exploratory Shaft Facility septic tank. This area has been reclaimed because of project cancellation. No visual evidence of a septic tank remains.	This site is at the Exploratory Shaft Facility, west of 200 West Area and southeast of the Yakima Barricade, near Army Loop Road.
600 NSTFST	600 NSTFST, 600 Area Near-Surface Test Facility septic tank, septic tank, Near-Surface Test Facility	Accepted	Closed out	This site is a septic tank and associated tile field. The septic tank serviced the trailer village that was located at the base of Gable Mountain. The septic tank was pumped out and backfilled.	This site is located at the west end of Gable Mountain, at the base of the north side.
600 NSTFUT	600 NSTFUT, 600 Area Near-Surface Test Facility underground tank, underground tank, Near-Surface Test Facility	Accepted	Closed out	This site consists of two sanitary waste holding tanks. The tanks supported the mobile office trailers that were located on the tunnel bench for the Near-Surface Test Facility. Each tank had a 3,785-L (1,000-gal) capacity and was emptied every other week. This facility has been decommissioned and reclaimed.	The tanks were located on the tunnel bench for the Near-Surface Test Facility, on the north side of Gable Mountain.
2607-EH	2607-EH, 2607-EH septic system	Accepted	Rejected	WIDS site 2607-EH has been described as a septic tank and associated drain field.	This septic system has been described as being located on the west side of Baltimore Avenue, adjacent to the east side of the 2101-M Building.
2607-EK	2607-EK	Accepted	Closed out	The 2607-EK septic tank is a reinforced-concrete tank, posted in the field as "Septic Tank 2607EK." The associated drain field is east of the tank. The drain field consists of 11 parallel runs of 15-cm (6-in.) perforated drainpipe. The runs are 27 m (90 ft) long and are spaced 2.4 m (8 ft) apart.	The 2607-EK septic system is located east of Baltimore Avenue, northeast of the 2750-E Building, and south of the 2607-E8 septic system.
2607-ER	2607-ER	Accepted	Closed out	The 2607-ER system includes a septic tank and a trench-type drain field. The tank has two access ports. As of February 20, 2001, it was not posted in the field.	The site is located north of the 2101-M Building and west of Baltimore Avenue, just south of the railroad tracks.
2607-GF	2607-GF, 2607-GF septic system, 2607-GF septic tank and drain field	Accepted	Rejected	WIDS site 2607-GF has been described as a septic tank and associated drain field. However, it likely does not exist.	This system has been described as being located north of the Dry Materials Receiving and Handling Facility (2400E) and across the railroad tracks that run on the north side of the facility.

Table E-2. WIDS Rejected and Proposed Rejected 200-ST-1 Operable Unit Septic Tank and Drain Field Waste Sites Not Considered in This Work Plan.[a] (2 sheets)

Code	Names	Classification	Reclassification Status	Description	Location Description
2607-WB	2607-WB, 2607-WB septic system	Accepted	Closed out	The site is a septic system that consists of three inactive septic tanks, one drain field, and the underground lines that connected the tanks and drain field to the mobile offices they serviced.	The septic tanks are south of trailer MO-016 (200 West - Z Plant area). The drain field is south of trailer MO-939.
2607-WWA	2607-WWA, 2607-WWA septic system	Rejected		This site does not exist as a separate site; it is likely an alias for 2607-WL.	N/A
2607-Z8	2607-Z8	Accepted	Rejected	WIDS site 2607-Z8 has been described as a septic tank and associated drain field. However, it likely does not exist.	This septic system has been described as being located along the fence southeast of the 234-5 Z Building.
TFS OF 218-E-4	TFS OF 218-E-4, tile field south of 218-E-4, 2607-E3 tile field	Accepted	Rejected	The tile field south of the 218-E Burial Ground consists of vitrified clay pipe and drain tile. The laterals of the tile field are open jointed and are spaced 2.4 m (7.9 ft) apart.	This tile field is located southwest of the 218-E-4 Burial Ground and north of the 2607-E3 septic tank.

a The listing of waste sites is based on WIDS as of September 2004.
N/A = not available
WIDS = Waste Information Data System

Table E-3. WIDS 200-ST-1 Operable Unit Septic Tank and Drain Field Waste Sites Considered Active or Under Another Regulatory Authority and Not Considered in This Work Plan. (6 sheets)

Code	Names	Description	Location Description	Justification for Exclusion
200-E-5	200-E-5, 2607-E2, 2607-E2 septic tank and tile field	The septic tank has three access ports. It is a single-compartment, 18,730 -L (4,950-gal)-capacity tank with a 1,900-L (500-gal) dosing siphon. As of February 15, 2001, it was not marked in the field.	The tank and drain field are located in the south portion of 200 East Area, adjacent to 1st Street and east of Baltimore Avenue.	Planned for removal from Appendix C and CERCLA and recategorized as "septic."
200-E-6	200-E-6, septic tank, sanitary sewer repair and replacement 2607-E4	The septic tank is surrounded by chain suspended from four steel posts that are painted yellow. The tank is posted with a septic tank sign. Two 10-cm (4-in.) PVC pipes protrude vertically from the ground. The sanitary tile field is surrounded by a steel post and chain barricade and is posted with "Caution – Underground Radioactive Material" signs.	The site is located just east of the 221-B Building and south of the inactive 2607-E4 septic tank.	This site status is "Active."
200-E-7	200-E-7, 2607-EO septic tank and tile field	The tank is part of the 2607-EP septic system. Current and proposed additions to this system bring its design flow to 20,440 L/day (5,400 gal/day). The tank was prefabricated with a 1,500-gal first chamber and a 1,000-gal second chamber. The associated septic field has been abandoned.	This septic tank-pump station is located east of the 2711-E Building and north of 4th Street.	Planned for removal from Appendix C and CERCLA and recategorized as "septic." Also, this site status is "Active."
200-E-9	200-E-9, 2607-EN, 2727-E septic system, 2607-EN septic tank/pump station	The above-ground area is posted "Septic Tank 2607-EN" and is surrounded by metal fence posts and chain. Three concrete and one PVC cylinders (access ports) with covers protrude above grade in the underground tank area. The surface is disturbed and covered with Russian thistle, cheatgrass, and other weedy species. Two "Sanitary Tile Field" signs are located south of the septic tank.	The site is located 75 ft south of the southwest corner of the 2727-E Safeguards and Security Building (which is in the 200 East Area on 4th Street).	Planned for removal from Appendix C and CERCLA and recategorized as "septic." Also, this site status is "Active."
200-E-24	200-E-24, 6607-11, 2704-HV septic system	The septic and dosing tank area (about 60 ft by 10 ft) has five access ports at grade and two 7-ft-high, 4-in-diameter metal pipe air vents. The drain field is within a fenced area about 300 ft north of the septic tank area. The drain field fenced area is about 130 ft by 360 ft, and has six valve boxes and a gate at the south end. The drain field consists of three trenches in use and one trench reserved for future use.	The site is west of B Plant and east of Route 4 South. It is east of the 2704-HV Building and west of the 216-B-62 Crib. A GPS survey was performed in August 1998.	Planned for removal from Appendix C and CERCLA and recategorized as "septic." Also, this site status is "Active."
600-212	600-212, relocatable latrine facility holding tank system	The site is surrounded by 14 steel posts that are painted yellow. The top of the tank is visible at grade level and measures 9 ft by 15 ft. Two concrete covers are located on top of the tank; one has a steel access port for pumping. The electrical conduit for transmitting to the alarm system is visible on top of the tank.	The site is located just west of the 200 East Area, between Route 4 North and the 200 E Area perimeter fence. The site is within the trailer village established for the HWVP Project. approximately 8 m west of the MO-730 trailer.	This site status is "Active."

Table E-3. WIDS 200-ST-1 Operable Unit Septic Tank and Drain Field Waste Sites Considered Active or Under Another Regulatory Authority and Not Considered in This Work Plan. (6 sheets)

Code	Names	Description	Location Description	Justification for Exclusion
600-217	600-217, H-61-H anti-aircraft artillery site sewer system	The sewer system extended from the kitchen and toilet/shower buildings and ran into a septic tank on the east side of the site. The access ports and septic tank have been filled with clean sand (September 2001). Twelve toilet drains and five floor drains were observed on the toilet/shower building foundation floor. A sewer access port is located just northeast of the toilet/shower building. The kitchen foundation has four floor drains and a grease trap. A sewer access port is located northwest of the kitchen.	This site is located just southwest of the intersection of Route 11 and Route 6. It is 0.4 mi south of Route 11 and just west of Army Loop Road. The site is in the east half of the northeast quarter of Section 34, Township 13 North, Range 25 East.	Planned for removal from Appendix C and CERCLA and recategorized as "septic." Also, this site status is "Active."
622-R ST	622-R ST, 622-R septic tank, 622-R Atmospheric Physics Laboratory septic tank	This site consists of a septic tank, distribution box, and tile field. A pump station was added in 1997 to reroute raw sewage to septic system 6609-09. The septic tank was emptied and will remain available as an emergency holding tank in case of pump failure.	This site is located just northwest of the 622-R Atmospheric Physics Laboratory Building. This building is northwest of the 200 West Area between Route 2 and Route 3.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic."
2607-E1	2607-E1	This septic tank is constructed of reinforced concrete with walls and floors. The associated drain field is 778 m^2 (8,376 ft^2).	This septic tank is located north of 4th Street and east of Baltimore Avenue. The tile field is north of the tank.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic."
2607-E1A	2607-E1A, 2607-E1A septic system, L-272 regional system	The system includes a septic tank, a dosing chamber, and a three-section drain field. The area is covered with gravel and marked appropriately.	The septic system is located inside the 200 East Area, north of 4th Street and west of Baltimore Avenue.	This site status is "Active."
2607-E5	2607-E5	This septic system receives sanitary wastewater and sewage. This system includes a single-compartment tank with a dosing system and a leaching trench. An abandoned tile field that was replaced by the sanitary leaching trench also is included with this site.	This unit lies north of the 209-E Building and east of the 2607-C sanitary crib.	This site status is "Active."
2607-E6	2607-E6	The site is a septic tank and drain field. The drain field is surrounded by a wooden fence. The surface is vegetated with brush.	This unit is located inside the 200 East Area, north of trailer MO405, between two railroad spurs.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic."
2607-E7A	2607-E7A, 2607-E7	This septic tank receives sanitary wastewater and sewage. This tank is a 1.7-m (66-in.) by 2.7-m (105-in.), pre-cast concrete septic tank with a single, 61-cm (24-in.)-diameter cover. The tank is in line with the 2607-E5 septic tank and the 2607-E septic system (WIDS 2607-E7B). The septic tank drains to the sanitary leaching trench.	This system lies north of the 209-E Building and west of the 2607-E5 septic tank.	This site status is "Active."
2607-E7B	2607-E7B, 2607-E7B septic system, 2607-E7	This septic tank receives sanitary wastewater and sewage. This tank is a 1.7-m (66-in.) by 2.7-m (105-in.), pre-cast concrete septic tank with a single, 61-cm (24-in.)-diameter cover. The tank is in line with the 2607-E5 septic tank and the 2607-E7 septic system (WIDS 2607-E7A). The septic tank drains to the sanitary leaching trench.	This system lies north of the 209-E Building and west of the 2607-E5 septic tank.	This site status is "Active."

Table E-3. WIDS 200-ST-1 Operable Unit Septic Tank and Drain Field Waste Sites Considered Active or Under Another Regulatory Authority and Not Considered in This Work Plan. (6 sheets)

Code	Names	Description	Location Description	Justification for Exclusion
2607-E8	2607-E8, 2607-E8 septic tank and tile field	The septic tank surface is identified by two circular access ports surrounded with concrete. A sign, on the ground in April 2001, reads "2607-E8." The associated drain field had a capacity of 13,400 L/day (3,533 gal/day).	This unit is located north of 1st Street and east of Baltimore Avenue, across from the 2101-M Building.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic."
2607-E8A	2607-E8A, 2607-E8A regional septic system	The septic system is surrounded with light-duty post-and-chain barricade.	The septic system is located south of the 284-E Powerhouse, on the east side of Baltimore Avenue.	This site status is "Active."
2607-E11	2607-E11	This unit is a two-chamber tank. The tank has an associated drain field and a capacity of 3,500 L/day (927 gal/day).	The site is located inside the 200 East Area, north of 4th Street and east of Baltimore Avenue. The system is located southeast of the Dry Materials Receiving and Handling Facility silos.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic."
2607-E12	2607-E12, 2607-E12 septic system	The septic system consists of the old 18,927-L (5,000-gal) tank that was converted to a dosing chamber when the new 37,854-L (10,000-gal) septic tank was installed approximately 13.7 m (45 ft) to the south. The trench-like drain field for this system is located approximately 122 m (400 ft) east of the tanks. (The old drain field was plugged off.)	Both septic tanks are located east of Canton Avenue, north of 4th Street and west of the 207-A south retention basins. The drain field is located east of the retention basins and has a barricade marker fence around the large depression.	This site status is "Active."
2607-EA	2607-EA, 2607-EA septic tank and drywell	This unit includes a drain field.	The septic system is located west of the A Tank Farm and directly south of the 244-AR Building.	This site status is "Active."
2607-EC	2607-EC	This unit includes a drain field. It is located inside the A Tank Farm near the northeast corner.		This site status is "Active."
2607-EL	2607-EL, 2607-EL septic tank/pump station	The site is surrounded with steel posts and chain. It in marked with "Septic Tank" signs. Three access ports are visible on the surface. This septic tank-pump station is part of the 2607-EP system, which was reconstructed in 1994. The 2607-EL system is permitted and approved by WDOH for a flow of 54, 890 L/day.	The site is located south of 4th Street, near the western entrance to the 200 East Area. The septic system is located south of the 2727-E Building and west of the MO-294 trailer.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic." Also, this site status is "Active."
2607-EM	2607-EM	The 2607-EM septic tank is constructed of reinforced concrete and receives sanitary wastewater and sewage from the 2721-E Building. The system drains to the 2607-ED drain field.	This unit lies northwest of the associated drain field and southeast of the 2721 Building.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic." Also, this site status is "Active."
2607-EP	2607-EP	The 2607-EP system includes a septic tank and associated drain field.	This unit lies southeast of the MO-388 trailer and northeast of the 2721-E Building.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic." Also, this site status is "Active."
2607-EQ	2607-EQ	The 2607-EQ septic tank is constructed of reinforced concrete. The associated drain field is approximately 431 m^2 (4,644 ft^2).	This unit lies northwest of the 2753-E Building and southeast of the Ames Avenue and 2nd Street intersection.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic." Also, this site status is "Active."

Table E-3. WIDS 200-ST-1 Operable Unit Septic Tank and Drain Field Waste Sites Considered Active or Under Another Regulatory Authority and Not Considered in This Work Plan. (6 sheets)

Code	Names	Description	Location Description	Justification for Exclusion
2607-FSM	2607-FSM, 609 Building septic tank 2607-FSM, 100 Area Fire Station septic tank, 1607-FSM, 6607-FSM	The 6607-FSM septic tank is a single-chamber, reinforced concrete tank. This unit includes a drain field.	The septic system lies at the southwest corner of the 609 Building (100-N Fire Station) and northwest of the intersection of Route 1 and Route 4 North in the 600 Area.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic." Also, this site status is "Active."
2607-FSN	2607-FSN, 609A Building septic tank 2607-FSN	The 2607-FSN septic tank and drain field lie beneath an asphalt walkway and several trees. The system was abandoned and replaced by the 6607-4 septic system in 1988.	The 2607-FSN septic system was located at the southeast corner of the 609-A Building, which is located on the south side of Route 3 in the 600 Area.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic."
2607-N	2607-N	The site is a septic tank and drain field. The rectangular, concrete tank is open-topped, and buried to grade level. The 2607-P reinforced-concrete septic tank is 1.2 m (4 ft) long, 0.6 m (2 ft) wide, and 2.5 m (8.25 ft) deep (inner dimensions). The tank had a design capacity of 795 L (210 gal) based on a user capacity of six persons, a flow of 132 L (35 gal) of sewage per capita per day, and an average detention time of one day. The top of the tank is at the ground surface and the tank is accessible through a 0.9-m (3-ft) access port.	The unit is located 6 m (20 ft) south of the 2743-N guardhouse foundation and south of the 212-N Building. The drain field lies south of the septic tank system.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic."
2607-P	2607-P	The site is a septic tank and drain field. The rectangular, concrete tank is open-topped, filled with soil, and buried to grade level. The 2607-P reinforced-concrete septic tank is 1.2 m (4 ft) long, 0.6 m (2 ft) wide, and 2.5 m (8.25 ft) deep (inner dimensions). The tank had a design capacity of 795 L (210 gal) based on a user capacity of 6 persons, a flow of 132 L (35 gal) of sewage per capita per day, and an average detention time of one day. The top of the tank is at the ground surface and the tank is accessible through a 0.9-m (3-ft) access port.	The site is located south of the 2743-P guardhouse foundation and south the 212-P Building. The drain field lies south of the septic tank.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic."
2607-R	2607-R	The site is a septic tank and drain field. The rectangular, concrete tank is open-topped, filled with soil, and buried to grade level. The 2607-R reinforced-concrete septic tank is 1.2 m (4 ft) long, 0.6 m (2 ft) wide, and 2.5 m (8.25 ft) deep (inner dimensions). The tank had a design capacity of 795 L (210 gal) based on a user capacity of six persons, a flow of 132 L (35 gal) of sewage per capita per day, and an average detention time of one day. The top of the tank is at the ground surface and the tank is accessible through a 0.9-m (3-ft) access port.	The unit is located south of the 2743-R guardhouse foundation and south of the 212-R Building. The drain field lies south of the septic tank.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic."
2607-W1	2607-W1	The 2607-W1 septic tank was constructed in 1994 of reinforced concrete and receives sanitary wastewater and sewage. The system has an associated drain field.	This unit lies southeast and across Bridgeport Avenue from the associated drain field, and northeast of the 2713-WB Building.	This site status is "Active"

Table E-3. WIDS 200-ST-1 Operable Unit Septic Tank and Drain Field Waste Sites Considered Active or Under Another Regulatory Authority and Not Considered in This Work Plan. (6 sheets)

Code	Names	Description	Location Description	Justification for Exclusion
2607-W2	2607-W2	The 2607-W2 septic tank is surrounded by posts with no radiation warning signs. This system was taken out of service and formally abandoned in 1994. The drain field lines were cut and the septic tank was filled with soil. The drain field had a capacity of 2,970 L/day (785 gal/day). A gravity tie line was installed to connect this small system to a collection that serves the 2607-W1 system.	This unit lies southwest of the main 200 West Area guard gate and southeast of the 2704-W Building.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic."
2607-W6	2607-W6	The 2607-W6 system was reconstructed in 1995. The unit is correctly labeled. A concrete structure with three metal access-port covers lies on the surface. The 2607-W6 septic tank is constructed of reinforced concrete and receives sanitary wastewater and sewage.	This unit lies southwest of the 222-S Laboratory and southeast of the MO-291 trailer.	This site status is "Active."
2607-WA	2607-WA	The 2607-WA septic system consists of two separate septic tanks and two separate drain fields. The septic tanks currently receive sanitary wastewater and sewage. This system was upgraded to meet state requirements in 1994.	This unit lies southwest of the 19th Street and Camden Avenue intersection and north of the Z Plant trailers MO-011, MO-244, MO-249, and MO-250.	Planned for removal from Appendix C and CERCLA and recategorized as "septic." Also, this site status is "Active."
2607-WC	2607-WC, 2607-WC septic system	The 2607-WC septic system consists of two tanks and a trench-type drain field.	This unit lies west of the 242-S Evaporator Building and northeast of the 272-S maintenance shop.	This site status is "Active."
2607-WL	2607-WL, 2607-WL septic system	The 2607-WL septic system is constructed of reinforced concrete. The septic system includes a trench-type drain field. The septic tank and drain field are surrounded by a chain barricade posted with a "Septic Tank" sign.	This unit lies north of the 272-WA Building and west of the 2401-W Building.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic."
6607-1	6607-1, H-40 gun site septic tank	This site includes an access port located near the kitchen/mess hall and toilet/shower foundations and a below-ground concrete septic tank with three access ports. The access ports and the septic tank have been backfilled with clean pit run material and no longer are visible, and the ground over the tank is gravel as of June 2001.	This site is located 1.1 km (0.7 mi) southeast of the southeast corner of the 200 East Area, on the south side of Route 4 South. Trees viewed from Route 4 South aid in locating the site. The septic tank is located in the eastern portion of the H-40 gun site.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic."
6607-2	6607-2, gun site H-42 septic tank	This site includes an access port, two septic tanks, and a connecting tile field. In May 2001, the open holes associated with the septic system were backfilled.	The site is located 6.4 km (4 mi) south of the 200 East Area, on the south side of Army Loop Road and east of the power line road to Rattlesnake Mountain.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic."
6607-3	6607-3, anti-aircraft artillery site H-51 septic tank	The septic tank is constructed of concrete, has three open access ports, and an above-ground, square, concrete, box-like structure located on the east end. This structure might have been used to support a pump for pumping liquid to the drain field. The tank is below grade. The roped-off section measures 17 m by 4.6 m (55 ft by 15 ft) and the tank interior is 3.4 m (11 ft) deep. The drain field is located east of the septic tank. The septic tank and four access ports are delineated by orange plastic fencing.	This site is located approximately 2.4 km (1.5 mi) southwest of the 200 West Area, just west of Army Loop Road, between Highway 240 and Army Loop Road.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic."

Table E-3. WIDS 200-ST-1 Operable Unit Septic Tank and Drain Field Waste Sites Considered Active or Under Another Regulatory Authority and Not Considered in This Work Plan. (6 sheets)

Code	Names	Description	Location Description	Justification for Exclusion
6607-5	6607-5, 616 Building septic system	The unit consists of a septic tank and a drain field. The septic tank is surrounded by four yellow posts and is covered by gravel. The drain field is surrounded by metal posts and chain. The drain field is not marked by a sign.	The tank is located on the south side of the 616 Building. The drain field extends southwest of the tank.	Planned for removal from Appendix C and CERCLA and recategorized as "Septic."

Reference information for this table was obtained from the Waste Information Data System.

CERCLA= *Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
GPS = global positioning system.
HWVP = Hanford Waste Vitrification Project
PVC = polyvinyl chloride
WDOH = Washington State Department of Health
WIDS = Waste Information Data System

Table E-4. WIDS 200-ST-1 Operable Unit Septic Tank and Drain Field Waste Sites with ORP Programmatic Responsibility Being Considered in This Work Plan.

Code	Names	Classification	Previous Operable Unit
200-W-51	200-W-51, septic tank (abandoned)	Accepted	200-RO-4
2607-W9	2607-W9, 2707-SX septic tank	Accepted	200-UP-2
2607-WZ	2607-WZ	Accepted	200-RO-1

ORP = U.S. Department of Energy, Office of River Protection
WIDS = Waste Information Data System

Table E-5. Summary of 200-ST-1 Operable Unit Septic Tank and Drain Field Waste Sites Included in This Work Plan. (5 sheets)

Count	Site Code Type	Site Names	Location	Dates of Operation	Source Facility	Contaminant Inventory/ Volume Released	Depth	Waste Site Dimensions	General Description
1	200-W-51	200-W-51, septic tank (abandoned)	The site is located north (and slightly east) of the 241-SY-101 tank, north of the 241-SY Tank Farm fence.			The waste is the heel remaining in abandoned septic tank.			The site is an abandoned septic tank that has been filled and covered. The septic tank was discovered during excavations (for exhauster upgrades) outside 241-SY Tank Farm. The tank is not marked or posted. An Engineering Change Notice (ECN-637974) identifies the location of an abandoned septic tank found during the construction activities associated with the new SY exhauster. Work package #2W-94-1004, WCN #4 describes the activities associated with filling and covering the abandoned tank. The tank is not shown on any known drawings. The ECN requested that drawing H-2-44511, sheets 46 and 54, be updated to show the presence of this abandoned septic tank. A released copy of the ECN will be sent to the WIDS Team. The site should then be closed.
2	2607-E3 septic tank	2607-E3, 2607-E3 septic tank and drain field, 2607-E3 septic system, TFS of 218-E-4, tile field south of 218-E-4	This unit is located approximately 100 m (400 ft) north of the 221-B Building. The drain field is located north of the septic tank and south of the 218-E-4 Burial Ground.	1948 to 1997	The 2607-E3 system is associated with B Plant facilities.	N/A	N/A	8.74 m by 2.74 m by 4.11 m	The site is a septic tank and drain field surrounded with a chain and marked with a sign that reads "Sanitary Sewer/Drain Field." The septic tank is constructed of reinforced concrete tank 8.7 m (28 ft 8 in) long, 2.7 m (9 ft) wide, and 3.8 m (12 ft 6 in) deep (interior dimensions). The tank had a design capacity of 38,680 L (10,220 gal) based on a user capacity of 292 persons, a flow of 132 L (35 gal) of sewage per capita per day, and an average detention time of one day. The top of the tank is at the ground surface. The tank was accessed through three 0.9-m (3-ft) access ports. The drain field consists of at least 712 m (2,336 ft) of vitrified clay pipe or drain tile (at least 2.4 m [8 ft] per capita). The laterals are open jointed and are spaced 2.4 m (8 ft) apart. The system was replaced with the new regional system under Project L-272.
3	2607-E4 septic tank	2607-E4, 2607-E4 septic tank and tile field	The 2607-E4 septic tank is located northeast of the 221-B Building. The tile field is northeast of the tank.	1963 to 1998	The 2607-E3 septic system was associated with B-Plant facilities.	N/A	N/A	1.22 m by 0.61 m by 2.53 m	The septic tank and tile field are marked with a "Sanitary Sewer/Drain Field" sign and lie within a posted URM area. The 2607-E4 Septic Tank is constructed of reinforced concrete that drains to an adjacent tile field. DOE/RL-92-05 states that this system is not known to contain radionuclide or hazardous chemicals. However, the site is posted with URM signs. No information has been located to explain the radiological posting.

Table E-5. Summary of 200-ST-1 Operable Unit Septic Tank and Drain Field Waste Sites Included in This Work Plan. (5 sheets)

Count	Site Code Type	Site Names	Location	Dates of Operation	Source Facility	Contaminant Inventory/ Volume Released	Depth	Waste Site Dimensions	General Description
4	2607-E9 septic tank	2607-E9, 242B/BL septic tank	This unit lies north of the 207-B retention basin and east of the 242-B Building.	1951-present	The 2607-E7B Septic System is associated with the 209-E, 2704-C, 2718-E, MO-337 (moved) and the MO-543 (moved) Buildings. This system is in series with the 2607-E5, 2607-E7A septic tanks and a leaching trench.	N/A	0.46	30.48 m by 3.66 m capacity 5,678 L	This 1,900-L (500-gal) septic tank received sanitary wastewater and sewage from the 242-B and the 242-BL Buildings. This system has an associated drain field. It was abandoned and the tank was filled with sand. The site is in a CA. A brief visit was made to the site in February 2000 to find the drain field and to try to improve the mapping of the site. A "Drain Field" sign was found on the ground on the east side of the CA that surrounds the site. The former extent of the drain field can be approximated using fence posts inside the CA (some of which still have chain attached), fallen chain on the ground, and the fence posts making up the eastern boundary of the CA. No access ports, lids, or risers associated with the septic tank were visible. Evidence of the septic tank may have been obscured by tumbleweeds growing in the center of the CA near the drain field. The area of the 242-B Building, where the 2607-E9 septic tank and associated drain field are located, is barricaded with light-duty chain with "CA" signs. Contaminated particulate releases from the B Tank Farm are the most likely source for the contamination.
5	2607-EE septic tank	2607-EE septic system	The septic tank is located northeast of 202-A, east of the railroad cut, inside the PUREX exclusion fence.	1956 to 1999	The site is associated with the 202-A Facility and 200-E-107 stabilized area	N/A	N/A	18 m by 18 m	The site is a septic tank with a drain field extending northeast of the septic tank. The area is surrounded with light-duty post-and-chain barricade. One riser pipe is visible. The unit is not being used, and is believed to be blanked off. The system was scheduled to be abandoned in 1999. The septic system is located within a larger radiologically posted area known as 200-E-107. The 200-E-107 CA was surface stabilized in the summer of 2001 and downposted to an underground radioactive material area. This site was incorrectly identified in BHI-00178 as 2607-EL. The unit received sanitary wastewater and sewage from the PUREX Facility. The source area is in a potentially contaminated zone; therefore, the waste has the potential of being contaminated.

Table E-5. Summary of 200-ST-1 Operable Unit Septic Tank and Drain Field Waste Sites Included in This Work Plan. (5 sheets)

Count	Site Code Type	Site Names	Location	Dates of Operation	Source Facility	Contaminant Inventory/ Volume Released	Depth	Waste Site Dimensions	General Description
6	2607-W3 septic tank (rep. site)	2607-W3	This unit lies northeast of the 241-T-361 settling tank, about 61 m (200 ft) north of 23rd Street and 244 m (800 ft) southwest of the 224-T Building.	1944 to 1996	The 2607-W1 septic tank is associated with the 2607-W1 drain field, 2707-W, 2713-W, 283-W, 277-W, 275-W, 274-W, 284-W, 2723-W, 2704-W, 2719-WB, 272-W, MO-278, MO-279, MO-235, MO-406, MO-412, MO-215, MO-056, MO-204, MO-240, and MO-287.	N/A	N/A	6.4 m by 2.74 m by 3.81 m	In August 1996, under Project W-396, the 2607-W3 septic tank was pumped, filled with sand, and abandoned in place. The 2607-W3 septic tank was constructed of reinforced concrete. At one time, the eastern access was posted with a "Radioactive Material" sign. This system includes a drain field that was expanded in the 1950s. The 2607-W3 effluent was redirected to the 2607-W1 system. The tie-line is expected to remain operational for the remainder of the Hanford Site mission. A contaminated process sewer line runs parallel to the sanitary sewer line in this area.
7	2607-W4 septic tank	2607-W4, T Plant septic tank and drain field	This unit lies northwest of the 221-T Canyon Building and southwest of the 216-T-1 ditch.	1944 to 1998	The 2607-W3 septic tank is associated with the 221-T, the 222-T, the 224-T, and the 271-T Buildings.	N/A	N/A	1.31 m by 0.61 m	The 2607-W4 septic tank is a single-compartment tank constructed of reinforced concrete. The drain field measures 3.1 m by 9.2 m (10 ft by 30 ft). The site is surrounded by a light-duty chain barricade. At one time, the area was marked with surface contamination warning signs. A site visit in October 1998 indicates that the area no longer is a radiation area. This system includes a drain field and receives sanitary wastewater and sewage from the 221-T Canyon Building. In 1991, the 2607-W4 septic system was within a radiological zone. In 1998, the area had been down-posted. The septic tank was abandoned in June 1998, in accordance with WAC 246-272-18501 requirements. The lid was left on, but the inlet and outlet piping were grouted. The septic tank was filled with sand. The drain field remains in place.

Table E-5. Summary of 200-ST-1 Operable Unit Septic Tank and Drain Field Waste Sites Included in This Work Plan. (5 sheets)

Count	Site Code Type	Site Names	Location	Dates of Operation	Source Facility	Contaminant Inventory/ Volume Released	Depth	Waste Site Dimensions	General Description
8	2607-W8 septic tank	2607-W8	This unit lies northeast of the 231-Z Building and east of the 216-Z-16 Crib.	1944 to 1998	The 2607-W7 septic tank is associated with the 221-U Canyon Building.	N/A	N/A	5.94 m by 1.83 m by 3.66 m	This system is located adjacent to a posted radiation zone containing the 216-Z-5 and 216-Z-4 Cribs. The 2607-W8 septic tank is constructed of reinforced concrete and has three access port covers visible on the surface. It is a single-compartment tank with an attached dosing siphon. This unit includes a tile field. The site is marked with a sign that read "Septic Tank - 2607-W8." The 2607-W8 septic tank is associated with a sanitary tile field and the 231-Z Building. The system was abandoned 1998 in accordance with WAC 246-272.
9	2607-W9	2607-W9, 2707-SX septic tank	This system lies northwest of the 2707-SX Change House and southeast of the 216-S-25 Crib. The exact location of this septic tank is not visible from the surface.	1950	The 2607-W9 septic tank is associated with the 2707-SX change house.				A gravel surface covers the 2607-W9 septic tank and tile field. Two posts with a sun bleached sign mark the location of the tile field. This system is abandoned. A field investigation may be necessary to verify the site name and location coincide.
10	2607-WZ	2607-WZ	This unit lies southwest of the 241-SX Tank Farm and southeast of the 216-S-25 Crib.	1944 to	The 2607-WZ septic tank is associated with the 241-SX Tank Farm.				The 2607-WZ septic system includes a drain field. This unit lies within the fenced 200 West Area. The 2607-WZ septic system is listed in WHC-EP-0216; however, it does not show up on Hanford Site drawing H-2-44511, sheets 22 or 30. Due to the limited reference material, a field investigation may be necessary to verify the existence of this system.
11	2607-Z septic tank	2607-Z	This unit lies east of the 236-Z Building and southeast of the 234-5 Z Building.	1949 to present	The 2607-Z septic tank is associated with the 234-5Z, 2704-Z, 270-Z, 236-Z, 292-Z, 2701-Z, 2701-ZA, and 2701-ZB Buildings	N/A	N/A	10.97 m by 3.35 m by 7.01 m	The 2607-Z septic tank and drain field lie in a fenced area. The concrete two-chamber septic tank has three access ports for personnel entry. The drain field measures approximately 59 m (150 ft) long and 110 m (280 ft) wide, located in an otherwise flat field. This system was replaced. An upgrade or replacement of the existing system was necessary as this unit was well beyond its useful life. The new regional system also serves the 2607-Z1, the 2607-WL, and the 2607-WB systems.

Table E-5. Summary of 200-ST-1 Operable Unit Septic Tank and Drain Field Waste Sites Included in This Work Plan. (5 sheets)

Count	Site Code Type	Site Names	Location	Dates of Operation	Source Facility	Contaminant Inventory/ Volume Released	Depth	Waste Site Dimensions	General Description
12	2607-Z1 septic tank	2607-Z1, septic tank and drain field	The site is located west of the 2721-Z Building.	1944 to 1997	The 2607-Z septic tank is associated with the 234-5Z, 2704-Z, 270-Z, 236-Z, 292-Z, 2701-Z, 2701-ZA, and the 2701-ZB Buildings.	N/A	N/A	2,839 L	The septic tank and drain field were constructed in 1958 and have been pumped weekly for the past few years. The drain field has been used as a laydown area in the past and the underground laterals could have been damaged. The septic system was abandoned per the requirements of WAC 246-272-1851. All seepage inside the tank was removed and the empty tank was filled to eliminate void spaces. No records of sampling during abandonment are available. By agreement with the WDOH, the septic system lids were left in place.

The following reference information was used in this table:

ARH-780, *Chronological Record of Significant Events in Chemical Separations Operations*
DOE/RL-92-05, Rev. 0, *B Plant Source Aggregate Area Management Study Report*
HNF-SD-LL-SP-001, *200 and 600 Areas Sanitary Wastewater Master Plan*
Resource Conservation and Recovery Act of 1976
WAC 246-272, "Onsite Sewage Disposal"
Waste Information Data System

CA = contamination area
ECN = Engineering Change Notice
N/A = not available
PUREX = Plutonium-Uranium Extraction (Plant)
URM = underground radioactive material
WAC = *Washington Administrative Code*
WDOH = Washington State Department of Health
WIDS = Waste Information Data System

REFERENCES AND BIBLIOGRAPHY

ARH-780, 1968, *Chronological Record of Significant Events in Chemical Separations Operations*, Atlantic Richfield Hanford Company, Richland, Washington.

BHI-00178, 1995, *PUREX Plant Aggregate Area Management Study Technical Baseline Report*, Rev. 0, Bechtel Hanford, Inc., Richland, Washington.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. 9601, et seq.

DOE/RL-92-05, 1993, *B Plant Source Aggregate Area Management Study Report*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

HNF-SD-LL-SP-001, 1998, *200 and 600 Areas Sanitary Wastewater Master Plan*, Fluor Hanford, Inc., Richland, Washington.

HW-22955, 1956, *Hot Semi-Works Manua, Part 1*, General Electric Company, Richland, Washington.

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

WAC 246-272, "Onsite Sewage Disposal," *Washington Administrative Code*, as amended.

WHC-EP-0216, 1989, *Preliminary Operable Units Designation Project*, Westinghouse Hanford Company, Richland, Washington.

APPENDIX F

200-IS-1 PIPELINES, DIVERSION BOXES, AND ASSOCIATED WASTE SITES – ATTRIBUTES AND SITE PROFILES SUMMARY

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Table F-1. 200-IS-1 Pipelines, Diversion Boxes, and Associated Waste Sites – Attributes and Site Profiles Summary. (13 sheets)

Count	Site Code	Site Type	WIDS Site Description	Burial Depth: Less than 15 ft (LT), Greater than 15 ft (GT), Unknown (U)	Leak Evaluation[a]: Reported Leaks (RL), Reported Releases (RR), Suspected Leak (SL), Unknown (U)	Waste Stream Activity[b]: Low (L), Medium (M), High (H), Transuranic (TRU)*	Site Profile Number
1	200-E-111	Tank farm process piping	The site is an underground piping encasement that contains three 7.5-cm (3-in.)-diameter, stainless-steel waste transfer pipelines, numbered "V108," "8618," and "8653," that run from the 241-ER-151 diversion box through a "Y," which branches to the 241-C Tank Farm and the 244-AR vault. The section from the "Y" junction to the 244-AR vault contains two 7.5-cm (3-in.) pipelines numbered "809" and "818." An area posted is as a CA on top of the line at the "Y" junction, where the line branches to the 241-C Tank Farm and the 244-AR vault. The entire length of the pipeline is marked with steel fence posts and posted as a URM area. The ground surface above the pipeline is bare in spots; other sections are vegetated with crested wheatgrass, tumbleweeds, and native grass species.	LT & GT	RR	H/TRU	13, 14
2	200-E-116	Tank farm process piping	The pipeline is posted as "Underground Radioactive – Pipeline," which extends from the 241-B-154 diversion box to the 241-C-151 and 241-C-152 diversion boxes. Vegetation over the pipeline has been crushed due to vehicle traffic. An area located just north of the 241-B-154 diversion box was posted as HCA in September 2000 but was covered with a bio-barrier and gravel in February 2001; it is now a rectangular, posted URM area over a portion of the pipeline. Another area of contamination was found on this pipeline in June 2001, and this area was covered with gravel and posted as a URM area in August 2001.	LT	RR	H/TRU	10
3	200-W-100	Tank farm process piping	The site is a cement-encased, underground pipeline. The pipeline is marked with "Underground Radioactive Material – Pipeline" signs.	LT	U	H/TRU	13, 14
4	200-W-105	Tank farm process piping	The site is a cement-encased, underground pipeline. The pipeline is marked with "Underground Radioactive Material – Pipeline" signs.	U	U	H/TRU	13, 14
5	200-W-125	Radioactive process sewer	The site is a cement-encased, underground pipeline. The pipeline is marked with "Underground Radioactive Material – Pipeline" signs.	U	SL	M/TRU	6, 8, 10, 12

Table F-1. 200-IS-1 Pipelines, Diversion Boxes, and Associated Waste Sites – Attributes and Site Profiles Summary. (13 sheets)

Count	Site Code	Site Type	WIDS Site Description	Burial Depth: Less than 15 ft (LT), Greater than 15 ft (GT), Unknown (U)	Leak Evaluation[a]: Reported Leaks (RL), Reported Releases (RR), Suspected Leak (SL), Unknown (U)	Waste Stream Activity[b]: Low (L), Medium (M), High (H), Transuranic (TRU)[a]	Site Profile Number
6	200-W-16	Storage tank	Two metal riser pipes extend approximately 0.5 m (1.5 ft) above grade, near the southeast corner of the 292-T Building addition. Both pipes are capped, and one appears to have a pressure-relief vent. These pipes extend from two buried tanks (292-TK-1 and -2). A chain-link fence encloses the area where the tanks are located. The fence is posted with "Access Restricted" signs. The site is within a chained area posted as a CA.	U	U	M	5, 6, 7, 8
7	200-W-58	Diversion box	The concrete lid of the diversion box is visible above ground. The Z Plant fenced exclusion area is covered with gravel.	LT	U	M/TRU	13, 14
8	200-W-59	Diversion box	The diversion box is buried with its concrete lid slightly above ground level. The Z Plant fenced exclusion area is covered with gravel.	GT	U	M/TRU	15, 16
9	200-W-7	Catch tank	The underground tank is inside a chained area that measures approximately 3 m by 3 m (9 ft by 9 ft), with three risers extending to the surface. The tank is posted with IMUST signs and radiological postings.	U	U	M	5, 6, 7, 8
10	200-W-78	Tank farm process piping	The site is an encased, underground pipeline that runs between the 241-TXR-151 diversion box (in the 241-TX Tank Farm) and the 241-TR-153 diversion box (in the 241-T Tank Farm). Outside the tank farm fence, the line is marked with "Radioactive Pipeline" signs. There are several stabilized, individually radiologically posted areas on top of (or adjacent to) this pipeline, near the east side of the 241-TY Tank Farm perimeter fence.	U	RR	H	13, 14, 15, 16
11	200-W-97	Tank farm process piping	The site is an underground, concrete-encased pipeline. The surface is marked with "Underground Radioactive Material – Pipeline" signs. Yellow swab risers are located along the pipeline. One swab riser near the 204-S Facility has been surrounded with post-and-chain barricade and posted with SCA signs.	LT & GT	RR	H	13, 15
12	200-W-98	Tank farm process piping	The site is a cement-encased, underground pipeline. The pipeline is marked with "Underground Radioactive Material – Pipeline" signs.	GT	U	H	15, 16

Table F-1. 200-IS-1 Pipelines, Diversion Boxes, and Associated Waste Sites – Attributes and Site Profiles Summary. (13 sheets)

Count	Site Code	Site Type	WIDS Site Description	Burial Depth: Less than 15 ft (LT), Greater than 15 ft (GT), Unknown (U)	Leak Evaluation[a]: Reported Leaks (RL), Reported Releases (RR), Suspected Leak (SL), Unknown (U)	Waste Stream Activity[b]: Low (L), Medium (M), High (H), Transuranic (TRU)*	Site Profile Number
13	200-W-99	Tank farm process piping	The site is a cement-encased, underground pipeline. The pipeline is marked with "Underground Radioactive Material – Pipeline" signs.	GT	U	H	15, 16
14	216-TY-201	Settling tank	The 216-T-26, 216-T-27, and 216-T-28 Cribs and the 216-TY-201 tank are enclosed in a common area with steel post-and-chain barricade. The area is posted as a URM area. The 216-TY-201 flush tank is located in the northeast corner of the area and has three risers protruding from a mound of earth. The 216-TY-201 tank is delineated with steel post-and-chain barricade and marked with IMUST signs	U	U	H	9, 10, 11, 12
15	240-S-151	Diversion box	This unit is constructed of reinforced concrete and is rectangular in shape. The 240-S-151 diversion box has been weather-covered.	GT	RR	H	15, 16
16	240-S-152	Diversion box	This unit is constructed of reinforced concrete and is rectangular in shape. The 240-S-152 diversion box has been weather-covered.	LT	U	H	13,14
17	240-S-302	Catch tank	This unit is a horizontal, cylindrical, steel tank. The 240-S-302 catch tank is buried underground to provide shielding from radiation. The tank is surrounded with post-and-chain barricade and marked with radiological and IMUST signs.	GT	U	H	11, 12
18	241-A-151	Diversion box	The site is a reinforced-concrete structure with cover blocks. Most of the structure is below grade. It is marked and radiologically posted.	GT	RL	H	16
19	241-A-302A	Catch tank	The unit is an underground, cylindrical vessel made of carbon steel. The tank is inside a pump pit, with a riser extending to the surface. It is surrounded with post-and-chain barricade and marked with radiological signs.	GT	RL	H	12
20	241-A-302B	Catch tank	The east slope of the 241-A Tank Farm has been sprayed with shotcrete. The shotcrete surrounds the area where the 241-A-302B catch tank is located. A riser and electrical box are visible. A staircase has been installed to provide access to the tank surface. The underground tank is positioned horizontally and is marked and radiologically posted.	GT	U	H	11, 12

Table F-1. 200-IS-1 Pipelines, Diversion Boxes, and Associated Waste Sites – Attributes and Site Profiles Summary. (13 sheets)

Count	Site Code	Site Type	WIDS Site Description	Burial Depth: Less than 15 ft (LT), Greater than 15 ft (GT), Unknown (U)	Leak Evaluation[a]: Reported Leaks (RL), Reported Releases (RR), Suspected Leak (SL), Unknown (U)	Waste Stream Activity[b]: Low (L), Medium (M), High (H), Transuranic (TRU)*	Site Profile Number
21	241-B-154	Diversion box	The site is a diversion box that interconnects diversion boxes 241-B-151 and 241-B-152 with the 221-B Building. The unit is a rectangular, reinforced-concrete structure. It was sprayed with gray weatherizing foam. A layer of shotcrete was later placed over the diversion box, extending beyond the structure to include the surrounding ground surface.	GT	RL	H	16
22	241-B-302B	Catch tank	This unit is an underground, horizontal carbon-steel tank. The catch tank and the 241-B-154 diversion box are surrounded with post-and-chain barricade. The surface of the area inside the chain has been covered with grave and sprayed with gray weatherizing material. The site is marked with radiological and IMUST signs.	GT	RL	H	12
23	241-BX-154	Diversion box	This diversion box is a reinforced-concrete structure.	U	U	H	15, 16
24	241-BX-155	Diversion box	This diversion box is a reinforced-concrete structure. It has been isolated and covered with waterproof foam sealant. The area around the diversion box has been surface stabilized with gravel and is posted with URM signs, except for the surface area above the 241-B-302C tank. This area does not have the additional layer of gravel and remains posted as a CA.	LT	U	H	13, 14
25	241-BX-302B	Catch tank	The buried tank is covered with gravel. It is surrounded with post-and-chain barricade. The tank is marked with radiological and IMUST signs.	GT	U	H	11, 12
26	241-BX-302C	Catch tank	This catch tank is a horizontal cylinder of direct-buried carbon steel. It is located inside a recently graveled URM area related to the 241-BX-155 diversion box surface stabilization. The tank was not covered with extra gravel and is separately posted as a CA. The tank is marked with radiological and IMUST signs.	U	U	H	11, 12
27	241-C-154	Diversion box	The diversion box has been covered with clean backfill material (ash) and is no longer visible. It is located within the larger Hot Semi-Works surface-stabilized area (200-E-41).	LT	U	H	9, 10

Table F-1. 200-IS-1 Pipelines, Diversion Boxes, and Associated Waste Sites – Attributes and Site Profiles Summary. (13 sheets)

Count	Site Code	Site Type	WIDS Site Description	Burial Depth: Less than 15 ft (LT), Greater than 15 ft (GT), Unknown (U)	Leak Evaluation[a]: Reported Leaks (RL), Reported Releases (RR), Suspected Leak (SL), Unknown (U)	Waste Stream Activity[b]: Low (L), Medium (M), High (H), Transuranic (TRU)[c]	Site Profile Number
28	241-ER-151	Diversion box	The diversion box is located inside a locked chain-link fence. The fence is posted with "Caution – Contact Radiological Control and Tank Farm Shift Office Prior to Entry" signs. The diversion box is surrounded with a metal safety barricade.	GT	R	H	13, 14
29	241-ER-152	Diversion box	Most of the reinforced-concrete diversion box structure is underground. The floor and lower portions of the walls are lined with stainless steel. Cover blocks with lifting hooks are visible from the surface. The 241-ER-152 diversion box is surrounded with radiation rope and CA signs.	LT	RR	H	13, 14
30	241-ER-311	Catch tank	The underground tank is located inside the 241-ER-151 locked chain-link fence. The fence is posted as a CA and URM and is labeled with IMUST signs. Within the fence, the 241-ER-311 catch tank is located the furthest south, nearest to the chain-link fence. The 241-ER-311A catch tank is located adjacent to the north side of the 241-ER-311 tank (in the middle of the three structures). The 241-ER-151 diversion box is north of the 241-ER-311A catch tank.	GT	RR	H	11, 12
31	241-ER-311A	Catch tank	The tank is located within a chain-link fence that is posted as a CA and URM area, and it is labeled with IMUST signs. The 241-ER-151 diversion box, 241-ER-311 catch tank, and 241-ER-311A catch tank are all located inside of this chain-link fence. The 241-ER-311 catch tank is located the furthest south, nearest to the chain-link fence. The 241-ER-311A catch tank is located adjacent to the north side of the 241-ER-311 tank (in the middle of the three structures). The 241-ER-151 diversion box is north of the 241-ER-311A catch tank.	GT	U	H	11,12
32	241-EW-151	Catch tank	The vent station is enclosed within a locked chain-link fence. It consists of an underground concrete structure containing a stainless-steel tank in a vault, with a jumper pit above the tank. The tank has two vent risers that extend above grade and a riser for the unit's leak detection system. At the bottom of the stairwell access, a floor drain connects to a nearby french drain. Several hazard and radiological warning signs are posted on the fence. There are also two areas located outside the fence, adjacent to the northeast side of the vent station, which are posted with URM signs.	LT	U	H	13, 14

Table F-1. 200-IS-1 Pipelines, Diversion Boxes, and Associated Waste Sites – Attributes and Site Profiles Summary. (13 sheets)

Count	Site Code	Site Type	WIDS Site Description	Burial Depth: Less than 15 ft (LT), Greater than 15 ft (GT), Unknown (U)	Leak Evaluation[a]: Reported Leaks (RL), Reported Releases (RR), Suspected Leak (SL), Unknown (U)	Waste Stream Activity[b]: Low (L), Medium (M), High (H), Transuranic (TRU)[c]	Site Profile Number
33	241-SX-302	Catch tank	The 241-SX-302 catch tank an underground, horizontal, cylindrical steel tank. Three yellow risers are visible on the surface. It is surrounded with post-and-chain barricade and marked with radiological and IMUST signs.	GT	U	H	11, 12
34	241-TX-152	Diversion box	The diversion box is a rectangular, reinforced-concrete structure. Most of the structure is below ground. A few inches of the structure extending above ground are covered with a gray weather coating. It is surrounded with light post-and-chain barricade and is posted with various radiological postings.	LT	RR	H	13, 14
35	241-TX-154	Diversion box	The diversion box is a rectangular, reinforced-concrete structure. Most of the structure is below ground. The diversion box is surrounded with post-and-chain barricade. It is labeled and radiologically posted. The adjacent area has been covered with shotcrete.	GT	RL	H	16
36	241-TX-155	Diversion box	The diversion box is a rectangular, reinforced-concrete structure. Most of the structure is below ground. A few inches of the structure extending above ground are covered with a gray weather coating. It is surrounded with light post-and-chain barricade and CA signs.	GT	RL, RR	H	15, 16
37	241-TX-302B	Catch tank	This unit is an underground, cylindrical tank made of steel. The ground surface around the tank has been covered with gravel. The tank is surrounded with light post-and-chain barricade and is posted with CA and IMUST signs.	GT	RR	H	11,12
38	241-TX-302BR	Catch tank	This unit is an underground, horizontal, cylindrical tank made of steel. The ground surface around the tank has been covered with gravel. The tank is surrounded with post-and-chain barricade and labeled with IMUST signs.	GT	RR	H	11,12
39	241-TX-302C	Catch tank	This unit is an underground horizontal, cylindrical tank made of carbon steel. The tank area has been sprayed with shotcrete to control surface contamination.	GT	RR	H	11, 12

Table F-1. 200-IS-1 Pipelines, Diversion Boxes, and Associated Waste Sites – Attributes and Site Profiles Summary. (13 sheets)

Count	Site Code	Site Type	WIDS Site Description	Burial Depth: Less than 15 ft (LT), Greater than 15 ft (GT), Unknown (U)	Leak Evaluation[a]: Reported Leaks (RL), Reported Releases (RR), Suspected Leak (SL), Unknown (U)	Waste Stream Activity[b]: Low (L), Medium (M), High (H), Transuranic (TRU)[c]	Site Profile Number
40	241-U-151	Diversion box	The diversion box is marked and radiologically posted. This unit is constructed of reinforced concrete with multiple encased liquid waste transfer lines. The diversion box structure is mostly below ground. It has three layers of cover blocks.	GT	RR	H	15, 16
41	241-U-152	Diversion box	The diversion box is marked and radiologically posted. The unit is constructed of reinforced concrete with multiple encased liquid waste transfer lines. The diversion box structure is mostly below ground. It has three layers of cover blocks.	GT	RR	H	14, 16
42	241-UX-154	Diversion box	The diversion box is marked and radiologically posted. The unit is mostly below grade and is constructed of reinforced concrete. Multiple encased liquid waste transfer lines enter the box through its southeast wall.	GT	U	H	14, 16
43	241-UX-302A	Catch tank	The catch tank is an underground tank. It is covered with gravel and is marked and radiologically posted.	LT	U	H	9, 10
44	241-WR VAULT	Receiving vault	The vault is a below-grade, reinforced-concrete structure. There are nine compartments arranged in two rows, with a 189,000-L (50,000-gal) tank in each compartment. A concrete wall separates the two rows of tanks. In addition to the tanks, the vault contains miscellaneous agitators, pumps, and valves. It is marked and posted with URM signs. An exhaust stack just north of the vault is included in this site (see sub-site description).	G	RR	H	15, 16
45	241-Z	Neutralization tank	Site consists of an above-ground, weather-protected area (metal building) containing controls and monitoring systems for the below-grade concrete vault containing four storage and treatment tanks. The operating capacity of the tank system is 65,000 L (17,000 gal). The site was activated on November 24, 1948. The RCRA treatment, storage, and disposal unit consists of the tanks (excluding D-6), internal piping, concrete vaults, ancillary equipment, and the soil directly below the tanks. Pipelines leading from buildings in 234-5Z to the 241-Z Facility are not considered part of this site.	G	RR	TRU	14, 16

Table F-1. 200-IS-1 Pipelines, Diversion Boxes, and Associated Waste Sites – Attributes and Site Profiles Summary. (13 sheets)

Count	Site Code	Site Type	WIDS Site Description	Burial Depth: Less than 15 ft (LT), Greater than 15 ft (GT), Unknown (U)	Leak Evaluation[a]: Reported Leaks (RL), Reported Releases (RR), Suspected Leak (SL), Unknown (U)	Waste Stream Activity[b]: Low (L), Medium (M), High (H), Transuranic (TRU)[a]	Site Profile Number
46	600-269	Tank farm process piping	The site is an underground pipeline. It is marked on the surface with "Underground Radioactive Material – Pipeline" signs. An associated diversion box, 6241-A, is located east of Beloit Avenue in 200 West Area. An associated vent station, 6241-V, is located between the 200 East and 200 West Areas, northwest of the 241-EW-151 vent station.	U	U	H	14, 16
47	HSVP	Valve pit	The site is a sealed, concrete-filled, vertically configured, stainless-steel cylinder that is buried beneath the ash barrier placed over the decommissioned 201-C Process Building (see site code 200-E-41). The surface-stabilized area is posted with URM signs. The valve pit is not separately marked or posted.	LT	U	H	9, 10, 11, 12
48	UPR-200-E-1	Unplanned release	The unplanned release is not separately marked or posted.	U	RL	H	10, 12
49	UPR-200-E-3	Unplanned release	The unplanned release is not separately marked or posted.	U	RL	H	10, 12
50	UPR-200-E-42	Unplanned release	A WIDS sign has been placed near the diversion box structure to document the unplanned release.	U	RR	H	14, 16
51	UPR-200-E-44	Unplanned release	The unplanned release site is not separately marked or posted. There is no visual evidence of the area that caved in.	U	RL	M	6, 8
52	UPR-200-E-45	Unplanned release	A large area on the northeast corner of 7th Street and Baltimore Avenue is surrounded with post-and-chain barricade and is marked as a URM area. The URM area surrounds the 241-B-154 diversion box, which has been covered with a coating of gray grout. The original unplanned release is not separately marked or posted.	U	RR	H	14, 16

Table F-1. 200-IS-1 Pipelines, Diversion Boxes, and Associated Waste Sites – Attributes and Site Profiles Summary. (13 sheets)

Count	Site Code	Site Type	WIDS Site Description	Burial Depth: Less than 15 ft (LT), Greater than 15 ft (GT), Unknown (U)	Leak Evaluation*: Reported Leaks (RL), Reported Releases (RR), Suspected Leak (SL), Unknown (U)	Waste Stream Activity*: Low (L), Medium (M), High (H), Transuranic (TRU)*	Site Profile Number
53	UPR-200-E-77	Unplanned release	A large graveled area on the northeast corner of 7th Street and Baltimore Avenue is surrounded with post-and-chain barricade and is marked as a URM area. The URM area surrounds the 241-B-154 diversion box, which has been covered with a coating of gray grout. The area appears to have been posted in stages. A large posted oval area (URM) extends north and east from the diversion box. Another posted area (URM) extends west to Baltimore Avenue and turns northward. In January 2000, a separate CA was posted around a power pole (adjacent to a manhole) within the larger URM area. In 2002, the posting around the power pole was removed and a "Fixed Contamination Area" sign was attached to the pole.	U	RR	H	14, 16
54	UPR-200-E-78	Unplanned release	The diversion box has been isolated and covered with gray grout. The area around the diversion box and the surface area above the 241-B-302C tank have been surface stabilized with gravel and posted with URM signs.	U	RR	H	14, 16
55	UPR-200-E-80	Unplanned release	The unplanned release site is not separately marked or posted.	U	RL	H	10, 12
56	UPR-200-E-84	Unplanned release	The 241-ER-151 diversion box and the 241-ER-311 catch tank are located inside a chain-link fence that is radiologically posted. A WIDS sign has been placed at the approximate location of the release.	U	RR	H	14, 16
57	UPR-200-E-85	Unplanned release	The site was stabilized in 1984 and posted with URM signs. The release site is not labeled. The R-13 utility pit was covered with a steel lid.	U	RL	H	10, 12
58	UPR-200-E-87	Unplanned release	Some areas on the south side of 224-B are posted with URM signs. The unplanned release site is not specifically marked.	U	RR	H	10, 12
59	UPR-200-E-96	Unplanned release	The site was described in 1980 as an area measuring approximately 1.0 ha (2.5 ac), located adjacent to the east and south sides of 202-A (PUREX). These areas are now covered with gravel and posted as URM areas.	U	RR	H	14, 16

Table F-1. 200-IS-1 Pipelines, Diversion Boxes, and Associated Waste Sites – Attributes and Site Profiles Summary. (13 sheets)

Count	Site Code	Site Type	WIDS Site Description	Burial Depth: Less than 15 ft (LT), Greater than 15 ft (GT), Unknown (U)	Leak Evaluation[a]: Reported Leaks (RL), Reported Releases (RR), Suspected Leak (SL), Unknown (U)	Waste Stream Activity[a]: Low (L), Medium (M), High (H), Transuranic (TRU)[a]	Site Profile Number
60	UPR-200-W-102	Unplanned release	The east and south sides of the 224-T Building are covered with gravel. The area along the east side of the 224-T Building is posted as a URM area.	U	RR	M/H	6, 8, 10, 12
61	UPR-200-W-113	Unplanned release	The original contaminated area was surface stabilized in 1990 and is surrounded with concrete marker posts and posted as a URM area. In 1998, 1999, and 2000, additional surface contamination was identified adjacent to the surface-stabilized area and on the north, south, east, and west sides of the diversion boxes. CAs have also been identified on the surface of underground transfer lines associated with the 241-TX-155 diversion box. The additional CAs, also considered a part of this site (UPR-200-W-113), are marked with posts, chain, and CA and SCA signs. One small CA located southeast of 241-T (located on a transfer line to the diversion box) was recently stabilized with gravel and is now posted with URM signs.	U	RR	H	14, 16
62	UPR-200-W-114	Unplanned release	This site is no longer marked or posted. For many years, the unplanned release site had been a large area posted with a light chains and SCA signs. The 216-S-8, 216-S-1, and 216-S-2 Cribs were located within the larger contamination zone. The surface contamination was scraped up and consolidated into other nearby waste sites. The cribs were individually surface stabilized and reposted with URM signs.	U	RR	H	10, 12, 14, 16
63	UPR-200-W-131	Unplanned release	The 241-TX-155 diversion box and 241-TX-302B catch tank are surrounded with post-and-chain barricade and CA signs. Clean gravel has been placed around the diversion box, and a sign has been added to the chain boundary to identify this as location UPR-200-W-131.	U	RR	H	14, 16

Table F-1. 200-IS-1 Pipelines, Diversion Boxes, and Associated Waste Sites – Attributes and Site Profiles Summary. (13 sheets)

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64	UPR-200-W-135	Unplanned release	Three major encased transfer lines are associated with the 241-TX-155 diversion box. Many areas of contamination have been identified on these transfer lines during 1999, 2000, and 2001. UPR-200-W-113 is located on a transfer line directly west of the 241-TX-155 diversion box and is surrounded with concrete marker posts and URM signs. An extension of UPR-200-W-113 is located northwest of the original area, surrounded with metal post-and-chain barricade, and posted with CA signs. A single metal post, labeled UPR-200-W-135, has been placed adjacent to the UPR-200-W-113 CA.	U	RL	H	14, 16
65	UPR-200-W-161	Unplanned release	The site is a large radiologically controlled area that is posted with URM signs. A WIDS number sign has been posted at this location.	LT	U	L	2
66	UPR-200-W-164	Unplanned release	The above-ground uranyl nitrate hexahydrate line has been removed. The "Radiation Area" signs that surrounded the pipeline were also removed. A portion of the site was interim stabilized in 1993. An area of contaminated soil found under the steam line, adjacent to the 216-S-9 Crib, was covered with clean soil and posted with URM signs.	LT	U	L	2
67	UPR-200-W-167	Unplanned release	The original release site, identified in 1985, was an area of soil contamination located adjacent to the east side of the 241-TY Tank Farm. After the contamination was scraped and removed in 1986, the site was no longer marked or posted. In 2000, three areas on the east and northeast sides of the 241-TY Tank Farm (within the original boundaries of this unplanned release) were reposted as CAs. Contaminated anthills and growing contaminated vegetation was found on top of a tank farm transfer line, located outside the eastern tank farm fence (also see WIDS site code 200-W-78). In November 2000, the CAs were covered with bio-barrier material and gravel, and these areas were reposted with URM signs. The underground radioactive pipeline is marked with posts and "Radioactive Pipeline" signs. The pipeline runs through the recently stabilized areas.	U	U	M/H	6, 8, 10, 12

Table F-1. 200-IS-1 Pipelines, Diversion Boxes, and Associated Waste Sites – Attributes and Site Profiles Summary. (13 sheets)

Count	Site Code	Site Type	WIDS Site Description	Burial Depth: Less than 15 ft (LT), Greater than 15 ft (GT), Unknown (U)	Leak Evaluation[a]: Reported Leaks (RL), Reported Releases (RR), Suspected Leak (SL), Unknown (U)	Waste Stream Activity[b]: Low (L), Medium (M), High (H), Transuranic (TRU)*	Site Profile Number
68	UPR-200-W-2	Unplanned release	The area around stairwell R-19 at the 221-T Facility is currently paved with asphalt. A long, narrow URM area is posted around the R-19 area.	U	RL	H	10, 12
69	UPR-200-W-28	Unplanned release	The documented contaminated area was found at the 241-TX-155 diversion box. There is a large, posted URM area west of the diversion box and several smaller radiologically posted areas in this vicinity (see UPR-200-W-113 and UPR-200-W-135). The diversion box has been isolated and weather-covered and is marked and posted with various radiological control signs. A WIDS sign has been placed at the approximate location of the release.	U	RR	H	14, 16
70	UPR-200-W-29	Unplanned release	The area is currently surrounded with steel posts, covered with gravel, and posted as a URM area.	U	RL	H	10, 12
71	UPR-200-W-32	Unplanned release	The unplanned release site is not currently marked or posted. The above-ground pipeline has been removed.	LT	U	L/M	2, 6
72	UPR-200-W-35	Unplanned release	Much of the area north of REDOX has been surface stabilized. The unplanned release site is not marked or posted.	LT	U	L/M	2, 6
73	UPR-200-W-38	Unplanned release	The area around the 241-TX-154 diversion box and the catch tank has been stabilized with sprayed concrete (shotcrete). The area is posted with URM signs. A WIDS sign has been placed at this location.	U	RL	H	10, 12, 14, 16
74	UPR-200-W-5	Unplanned release	In 2000 and 2001, multiple areas of soil and vegetation contamination were identified and all were posted. For consolidation purposes, all of the new CAs were recorded and mapped as UPR-200-W-113. A WIDS sign has been placed at the approximate location of the release.	U	RR	H	14, 16
75	UPR-200-W-6	Unplanned release	The ground around the 241-U-151 and 241-U-152 diversion boxes has been covered with gravel. The diversion boxes are marked and posted. A WIDS sign has been placed at the approximate location of the release.	U	RR	H	14, 16

Table F-1. 200-IS-1 Pipelines, Diversion Boxes, and Associated Waste Sites – Attributes and Site Profiles Summary. (13 sheets)

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76	UPR-200-W-64	Unplanned release	The corner of 23rd Street and Camden Avenue has been stabilized with clean gravel due to two waste line leak events. The stabilized area is surrounded with chains and posted with URM signs. The road shoulders are not posted. A WIDS sign has been placed at the approximate location of the release.	U	RR	H	10, 12
77	UPR-200-W-97	Unplanned release	The site is located at the corner of 23rd Street and Camden Avenue. It is marked and posted as a URM area. The release site was stabilized with clean soil, sand, ureabore herbicide, and crushed rock.	U	RL	H	10, 12
78	UPR-200-W-98	Unplanned release	The area around door R-19 is paved with asphalt and posted as a URM area. There is not a sign that specifically marks the area as an unplanned release site.	U	RL	H	10, 12
79	UPR-600-20	Unplanned release	The underground transfer line extends from U Plant in 200 West Area to the 241-ER-151 diversion box in 200 East Area. The site includes the contaminated soil and vegetation located on the surface of the cross-site transfer line, as well as the pipeline itself. The surface of the underground line has been stabilized and is currently posted with URM signs. There is also a large mound of soil, located south of the 241-EW-151 vent station, which is associated with the original transfer line surface stabilization activities. The soil mound is posted with URM signs.	LT	RR	H	13, 14

* Transuranic (TRU) = Transuranic radionuclides suspected to be present but may not meet the definition of transuranic waste (i.e., contains more than 100 nanocuries of alpha-emitting transuranic isotopes per gram of waste).

CA = contamination area
HCA = high contamination area
IMUST = Inactive Miscellaneous Underground Storage Tank
PUREX = Plutonium-Uranium Extraction (Plant/Facility)
RCRA = *Resource Conservation and Recovery Act of 1976*
REDOX = Reduction-Oxidation (Plant/Facility)
SCA = surface contamination area
URM = underground radioactive material
WIDS = Waste Information Data System

TABLE F-1 FOOTNOTES

a. Certain pipelines, diversion boxes, and associated waste sites possess characteristics that are regarded as possibly indicating leaks. For some lines and boxes, leaks are known from unplanned release (UPR) reports. In other cases, pipelines constructed of non-metallic materials and attached together by weaker means (e.g., glue, tar, banding, etc.) are thought to be more prone to leakage. The presence or absence of these characteristics was considered in the assignment of leak potential in the site profile attribute determinations.

   Estimates of the magnitude of historical releases at a few waste sites have been made. In some cases, releases have been identified because documentation exists in the form of radiological surveys to define UPR sites associated with buried pipelines and diversion boxes.

   Contaminant distribution models have been developed for many of the pipeline and diversion boxes in the 200 Areas and will be confirmed as part of the remedial response. Pipeline assessments and removal actions are proceeding in the 100 Areas and provide evidence of pipeline leak susceptibility and magnitude of releases. The results of previous characterization efforts and removal activities will be considered during further leak assessment evaluations performed as part of remedial alternatives analyses conducted for 200-IS-1 waste sites in the feasibility study.

b. In the development of pipeline site profiles, the radionuclide and chemical concentrations of liquids passing through pipelines were considered to be a key consideration. Although radiological contaminants are most important, chemical constituents become important for certain waste streams with toxic or characteristic constituents, and for pipelines running from raw chemical storage ("211" series) tank farms to the separations plants. The respective concentrations of radiological and chemical components are usually found to occur in proportion to one another for most waste streams. These streams, and their pipelines, have been classified as low, moderate, or high activity for this work plan.

   The pipeline activity classification was modified from information presented in *200 Areas Remedial Investigation/Feasibility Study Implementation Plan – Environmental Restoration Program* (DOE/RL-98-28) and *Waste Site Grouping for 200 Areas Soil Investigations* (DOE/RL-96-81). These documents recognized the general correlation between waste site type and waste stream. The general breakdown discussed in these two documents is based on where process liquids were used and wastes were generated in each specific processing facility. These definitions do not necessarily meet specific concentrations of contaminants stated in previous Hanford documents. For some pipelines, during operations, the liquids may not have been considered wastes, particularly where plutonium-rich and certain uranium-rich liquids were transferred within and between facilities (e.g., between the 221 and 224 Buildings in the bismuth phosphate process or between the Reduction-Oxidation [REDOX] Plant and the Uranium Trioxide [UO_3] Plant). In these cases, however, because the lines are inactive and are being evaluated for remediation, the pipelines will be grouped by their waste stream characteristics.

   The separations plants provide the most representative examples of waste generated and liquids discharged to the 200 Areas soil column. All of the plants generated low-, moderate-, and high-activity wastes. Support facilities such as evaporators, laboratories,

etc., typically generated low- and moderate-activity wastes in the course of transferring or processing high-activity wastes. Other support facilities such as laundries, shops, and decontamination stations usually generated only low-activity wastes.

Low-Activity Wastes

Low-activity wastes are generally defined by waste streams that were discharged to the surface at ponds or ditches. Cooling water, chemical sewer streams, and steam condensate streams define this category of wastes. Most 200 Area process facilities mixed and discharged all three streams to their respective pond systems. It is recognized that a few cribs at 202-S and 202-A Plants received steam condensate wastes. When operating, the Plutonium-Uranium Extraction (PUREX) and REDOX Plants generated large volumes of condensed steam that posed greater environmental problems in the event of a failure. For these streams, discharge to a crib was the preferred option.

Routinely, the streams were considered to be uncontaminated, or with slight concentrations of contaminants entering the stream through pin-hole leaks in vessel heating and cooling coils. Rare, but significant, process eruptions and coil failures are known to have occurred for both cooling water and steam condensate streams. Chemical wastes were generated when out-of-specification batches of chemicals were mixed in nonradioactive portions of the facilities, and then disposed.

Cooling water wastes were the largest, by volume, of any stream coming from a plant. Cooling water was circulated through pipe coils inside or outside of process vessels to reduce the temperature of the chemical solution. Evaporators also made extensive use of cooling water to condense water boiled off in the heating vessel. Cooling water was also used to cool process condensates in off-line condenser vessels. Because cooling water operated under higher pressures in the pipe coil than were present in the vessel, large volumes of waste would not get into the stream in the event of a coil failure. However, occasional coil failures occurred where large quantities of liquids were lost to the soil column, contaminating the ponds or ditches. Pipelines for this stream were typically larger-diameter vitrified clay pipe or corrugated metal pipe. Cooling water was usually run through a plant for long periods of time after plant shutdown and provided a mechanism to flush out wastes released in process vessels.

Steam was used to heat process solutions to a desired temperature to accelerate a desired reaction. Pipe coils within or jackets around the process vessel provided contact to heat the solutions. Spent steam was condensed off-line in a vessel; the ***steam condensate*** was then discharged via a ditch to ponds or cribs. Contaminants entered the waste stream through cracks or pin-hole leaks in the pipe, and through rare pipe coil failures. Steam was generated at the 284 Powerhouses and routed through surface pipes to individual plants for both emergency power generation and process vessel heating. The amount of steam condensate was significantly larger than most process condensate streams but did not approach the volumes produced by cooling water wastes.

Chemical sewer wastes resulted when unusable, but uncontaminated, out-of-spec chemical solutions were dumped into the plant's chemical sewer that collected wastes from chemical makeup areas of the plants. Usually a few low-volume, low-level radioactive wastes lines were injected into this stream as well, including floor drains and other non-process sources.

The chemical sewer usually carried a flow of raw water to dilute any off-spec solutions discharged to the plant sewer line. Thus, the discharge volume was greater than most process condensate sources.

Moderate-Activity Wastes

Moderate-activity wastes are most simply distinguished by the discharge to underground waste sites (i.e., cribs, trenches, and reverse or injection wells). This waste group is made up primarily of the process condensates or process wastes (200-PW-1 through 200-PW-6) and tank farm and scavenged tank farm wastes (200-TW-2 and 200-TW-1) discharged to the soil column (DOE/RL-96-81, DOE/RL-98-28). In addition, laboratory wastes and some of the cooling water/chemical sewer waste streams from the Z Plant complex were discharged with elevated concentrations of plutonium or uranium and fission products. In DOE/RL-96-81, the process condensates and wastes were grouped according to the quantity of plutonium, uranium, and/or fission product inventories discharged to the waste site. Chemical constituents also factored into at least two groups: plutonium-organic and organic-rich process condensates. In all cases, the wastes were discharged to the soil column at cribs, trenches, or injection wells. The grouping of sites was dependent both on the concentrations of contaminants and volumes of liquids discharged to the waste site.

For ***process condensates***, the liquids were essentially contaminated vapors cooled in off-line vessels and discharged to the ground. Large process condensate waste streams are known primarily at facilities with continuous operations, such as the REDOX Plant, PUREX Plant, uranium recovery plants, isotope separations, the evaporators, and tank ventilation systems. Smaller process condensate systems are related to ventilation stack drainage and smaller facilities or side processes.

Heated or boiling water-based liquids would give off vapor-phase volatiles, both as organic and inorganic chemicals and radionuclides. Alternately, tiny water particles would be entrained out of the vessel by a ventilation system, carrying quantities of the chemical process. As a result, quantities of the process chemistry were removed from the vessels and resulted in the buildup of significant contaminant quantities in the soil column waste sites.

Process wastes were generally wastes rich in unirradiated uranium. In the early phases of plant startup, training exercises and plant tests would use fuel rods to simulate the process chemistry. This waste was usually discharged to the soil column at waste sites where no permanent piping was installed. Hot startup wastes were also disposed to the soil column for brief periods of time at cribs; however, this is not well documented.

Laboratory wastes were generated by disposal of small-volume solutions of process chemistry and were subjected to laboratory analysis for process quality control of the plutonium and uranium recovery processes (URPs). Samples were taken from process streams with plutonium or uranium concentrations in the range of high-activity wastes. The samples were diluted during the analytical process and by disposal practices before discharge to the soil column.

Tank farm wastes (200-TW-2) and ***scavenged tank farm wastes*** (200-TW-1) represent more contaminated types of moderate-activity wastes. In the course of separation facility operations, particularly for the bismuth phosphate plants, the volume of high-activity

wastes generated exceeded then-available tank farm capacities. As a way of avoiding the need to build more tank farms, decisions were made to allow discharge of tank waste supernatants to the ground. The bismuth phosphate tank farms (B, BX, BY, C, T, TX, TY, and U) operated in three- or four-tank cascade systems. Each downstream tank was set at an elevation that was 1 ft lower than its upstream neighbor. Passing tank waste through a cascade allowed the waste to cool and settle out any precipitated material, carrying much of the radionuclide load to the tank bottom. The resulting supernatant liquid was regarded as being suitable for cribbing at that time in accordance with Atomic Energy Commission guidelines. The least contaminated of the high-activity bismuth phosphate streams, the second-cycle decontamination wastes, contained relatively small amounts of the fission product contamination that were originally present in the dissolved fuel rod solution, along with minor amounts of plutonium and uranium. Later, the first-cycle decontamination waste was discharged to the soil column at specific retention trenches following a tank farm holding period of approximately 7 to 10 years.

Scavenged tank farm wastes (200-TW-1) were generated as part of the URP at 221/224-U Plant. The URP process removed uranium from the bismuth phosphate metal wastes but returned more waste liquid to the tanks than was originally removed. To limit the amount of high-activity wastes returning to the tank farms, the cesium-137 isotope was chemically stripped out of the solution by the addition of ferrocyanide, and the resulting waste stream was discharged to the soil column in specific retention trenches and cribs. Small amounts of strontium-90 were often also removed by the addition of calcium carbonate.

Waste liquids were directed to the various disposal sites in pipelines designed to accommodate the volume and chemical nature of the waste stream. The pipelines were most commonly made of stainless steel, but acidic wastes were conveyed in acid-resistant vitrified clay pipes. Pipe diameters were sized for the volume of flow to the waste site. Drainage from the generating facility to the waste site was generally by gravity flow.

High-Activity Wastes

All separations processes started by dissolving irradiated fuel rods in an acidic or caustic solution and subjecting the rods to a number of refining steps. In these processes, plutonium and/or uranium were the constituent(s) targeted for recovery, either in continuous or step-wise batch processes. All other contaminants, including chemicals and fission products, were considered to be waste and were removed from the uranium and plutonium streams. At each uranium and plutonium concentration step, the resulting waste streams were discharged to the tank farms to be held for long-term storage. At some point, the wastes were targeted for reprocessing to recover uranium or fission products, or were treated at evaporators for volume reduction. For the bismuth phosphate, REDOX, and PUREX processes, at least three streams of high-activity wastes were generated and segregated in selected tank farms or tank cascades. The other processes (e.g., uranium recovery, isotope separations, and evaporation) typically treated and/or concentrated the wastes, thereby altering its composition, but did not generate a new, high-activity waste stream. Each process changed the nature of the high-activity waste streams to where there were numerous individual high-activity waste streams tracked through the separations and treatment plants.

Wastes generated by the bismuth phosphate process in the 221 Buildings included metal, first-cycle decontamination, and second-cycle decontamination waste streams. Each contained decreasing, but high, concentrations of uranium, fission products, and process chemicals. Each stream was routed to a specific three- or four-tank cascade within each tank farm. Each cascade was constructed to allow cooling and precipitation of solids containing both chemicals and radionuclides and to allow the liquid supernatant to overflow into the next tank for further cooling and settling.

High-activity wastes generated at the 202-S REDOX and 202-A PUREX Plants were similarly segregated for different cascades and storage in the facility's respective tank farms. These waste streams again consisted of decreasing volumes of fission products. Tank farm design and operations changed as separation technologies improved and wastes began containing enough fission products to become self-boiling. This was recognized as a mechanism to control the volume of waste stored in the tank farms. Some of the waste streams at these plants also resulted from the regeneration of particular chemical constituents, such as hexone at the S Plant and nitric acid regeneration at the 202-A PUREX Plant.

The uranium recovery program at 221/224-U Plant (1952 through 1958) and the isotope recovery program at 221-B Plant (1963 through 1986) did not generate, but rather processed, previously generated high-activity wastes and required construction of new pipelines, diversion boxes, and vaults, both within and outside of the tank farm facilities. These facilities retrieved wastes from the tanks, transported the wastes to the separations plants for processing, and returned the wastes to the same or other tanks farms. Similarly, evaporators (e.g., 242-A, 242-B, 242-S, and 242-T) received process wastes from the tank farms, boiled off large quantities of water, and returned the concentrated waste back to tank farms. By the ongoing operations of the recovery processes, wastes from across the 200 Areas were blended into streams with generally similar chemical and radiological constituents.

The pipelines carrying these waste streams were typically welded carbon-steel or stainless-steel pipe and were either directly buried in the soil column or were placed inside covered concrete troughs or encasements. Most lines were 76 mm (3 in.) in diameter and were operated under pressure to move the high-activity liquids and slurries between facilities and tank farms or within tank farms. Encasements appear to have been used starting in 1950 following several UPRs from pipelines around separations facilities. Encasements were large concrete troughs that were designed to carry between one and 12 pipelines. The individual lines, whether directly buried or within encasements, carried a specific number for identification, to assist in routing the wastes.

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

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APPENDIX G

SUMMARY OF ADDITIONAL CHARACTERIZATION DATA FOR PIPELINES, DIVERSION BOXES, AND ASSOCIATED WASTE SITES

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Table G-1. Summary of Additional Characterization Data for Pipelines, Diversion Boxes, and Associated Waste Sites. (7 sheets)

SP #	Do Data Exist (Y/N)	Source Reference	Key Pipeline Attributes				Available Type of Data of Sufficient Quality and Quantity to Support RI/FS Process			
			Material Type	Depth (bgs)	Leaks/ Plugs	Waste Stream Activity	Camera Surveys	Soil/Veg. Samples	Dwg.	Pipe Samples
5	Y	*Limited Field Investigation for the 200-UP-2 Operable Unit* (DOE/RL-95-13, Rev. 0) and *Surface and Near-Surface Field Investigation Data Summary Report for the 200-UP-2 Operable Unit* (BHI-00033, Rev. 0) Provides summary of existing data for the 216-U-1&2 waste sites and associated piping.	3.5-in. SS	7 ft	N	M	Y	Y	Y	Y[1]
6	Y	*200-PW-2 Uranium-Rich Process Waste Group Operable Unit RI/FS Work Plan and RCRA TSD Unit Sampling Plan* (DOE/RL-2000-60, Rev. 1) and *Limited Field Investigation for the 200-UP-2 Operable Unit* (DOE/RL-95-13, Rev. 0) Provides summary of existing data for the 216-U-8 waste site and associated piping.	6-in. VCP, partial encased	15 ft	Y	M	Y	Y	Y	N
6	Y	*200-PW-2 Uranium-Rich Process Waste Group Operable Unit RI/FS Work Plan and RCRA TSD Unit Sampling Plan* (DOE/RL-2000-60, Rev. 1) Provides summary of existing data for the 216-U-12 waste site and associated piping.	6-in. VCP	10 ft	Y	M	Y	Y	Y	N

[1] Liquid from within the pipe was collected and analyzed. Results can be found in DOE/RL-95-13, Rev. 0.

Table G-1. Summary of Additional Characterization Data for Pipelines, Diversion Boxes, and Associated Waste Sites. (7 sheets)

SP #	Do Data Exist (Y/N)	Source Reference	Key Pipeline Attributes				Available Type of Data of Sufficient Quality and Quantity to Support RI/FS Process			
			Material Type	Depth (bgs)	Leaks/ Plugs	Waste Stream Activity	Camera Surveys	Soil/Veg. Samples	Dwg.	Pipe Samples
8	Y	*200-PW-2 Uranium-Rich Process Waste Group Operable Unit RI/FS Work Plan and RCRA TSD Unit Sampling Plan* (DOE/RL-2000-60, Rev. 1) and *PUREX Plant Process Condensate Stream-Specific Report* (WHC-EP-0342, Addendum 12) Provides summary of existing data for the 216-A-10 waste site and associated piping.	8-in. VCP, 8-in. SS in 1962	30 ft	Y	M	N	Y	Y	Y[2]
8	Y	*200-PW-2 Uranium-Rich Process Waste Group Operable Unit RI/FS Work Plan and RCRA TSD Unit Sampling Plan* (DOE/RL-2000-60, Rev. 1) Provides summary of existing data for the 216-B-12 waste site and associated piping.	6-in. VCP	16 ft	Plugs	M	N	Y	Y	N
7	Y	*200-PW-2 Uranium-Rich Process Waste Group Operable Unit RI/FS Work Plan and RCRA TSD Unit Sampling Plan* (DOE/RL-2000-60, Rev. 1) and *PUREX Plant Ammonia Scrubber Condensate Stream-Specific Report* (WHC-EP-0342, Addendum 14) Provides summary of existing data for the 216-A-36B waste site and associated piping.	6-in. carbon steel	23 ft	N	M	N	Y	Y	Y[3]
6	Y	*200-PW-2 Uranium-Rich Process Waste Group Operable Unit RI/FS Work Plan and RCRA TSD Unit Sampling Plan* (DOE/RL-2000-60, Rev. 1) Provides summary of existing data for the 216-A-37-1 waste site and associated piping.	10-in. galvanized steel	7 ft	N	M	N	Y	Y	N

[2] Waste stream effluent samples before discharge to the 216-A-10 Crib can be found in WHC-EP-0342, Addendum 12.
[3] Waste stream effluent samples before discharge to the 216-A-36B Crib can be found in WHC-EP-0342, Addendum 14.

Table G-1. Summary of Additional Characterization Data for Pipelines, Diversion Boxes, and Associated Waste Sites. (7 sheets)

SP #	Do Data Exist (Y/N)	Source Reference	Key Pipeline Attributes				Available Type of Data of Sufficient Quality and Quantity to Support RI/FS Process			
			Material Type	Depth (bgs)	Leaks/ Plugs	Waste Stream Activity	Camera Surveys	Soil/Veg. Samples	Dwg.	Pipe Samples
6	Y	*UO_3 Plant Process Condensate Stream-Specific Report* (WHC-EP-0342, Addendum 19) Provides summary of existing data for the 216-U-17 waste site and associated piping.	4-in. perforated reinforced fiberglass pipe	10 ft	S	M	N	N	Y	Y[4]
16	Y	*Final Feasibility Study for the Canyon Disposition Initiative (221-U Facility)*, (DOE/RI-2001-11, Rev. 0) and *Uranium Recovery Technical Recovery Manual* (HW-19140) Provides summary of existing data for a cell drainage tile line to cell 10 in 221-U.	24-in. VCP encased (within building)	15 ft to 45 ft	S	H	Y	N	Y	Y[5]
13, 14	Y	*Cross-Site Transfer System Disposition Study* (RPP-20605) Provides summary of existing data for the cross-site transfer line.	Six 3-in. SS lines, encased in concrete	5 ft to 15 ft	Y/4 of 6 also plugged	H	N	Y	Y	Y
13, 14	Y	*Ancillary Equipment Disposition Study* (RPP-20604) Provides summary of existing data for WMA C, including the 200-E-111 pipeline.	Three 3-in. SS lines	8 ft to 12 ft	Y	H	N	Y	Y	N
5	Y	*Ancillary Equipment Disposition Study* (RPP-20604) Provides summary of existing data for WMA C, including the 200-E-114 pipeline.	Two 4-in. steel lines	7 ft to 10 ft	Y	H	N	Y	Y	N

[4] Waste stream effluent samples before discharge to the 216-U-17 Crib can be found in WHC-EP-0342, Addendum 19.

[5] Gamma detection equipment was deployed into the drain line under the 221-U Facility. Sludge collected from the drain line on the crawler was also analyzed. The results can be found in DOE/RL-2001-11, Rev. 0.

Table G-1. Summary of Additional Characterization Data for Pipelines, Diversion Boxes, and Associated Waste Sites. (7 sheets)

SP #	Do Data Exist (Y/N)	Source Reference	Key Pipeline Attributes				Available Type of Data of Sufficient Quality and Quantity to Support RI/FS Process			
			Material Type	Depth (bgs)	Leaks/ Plugs	Waste Stream Activity	Camera Surveys	Soil/Veg. Samples	Dwg.	Pipe Samples
10	Y	*Ancillary Equipment Disposition Study* (RPP-20604) Provides summary of existing data for WMA C, including the 200-E-116 pipeline.	Two 3-in. SS lines	8 ft to 12 ft	Y	H	N	Y	Y	N
15, 16	TBC	Field activity completion reports for WMA C geophysical logging will be prepared after 20 direct pushes are completed in FY05. Will provides geophysical data and the potential for soil samples near the 241-C-151, -152, and -153 diversion boxes.	Each are concrete	241-C-151 and -152 are 15 ft and 241-C-153 is 30 ft	Y	H	N	P	Y	TBC
15, 16	TBC	Field activity completion reports for WMA B-BX-BY geophysical logging will be prepared after 12 direct pushes are completed in FY05. Will provides geophysical data and the potential for soil samples near the 241-B-151, -152, and -153 diversion boxes.	Each are concrete	241-B-151 and -152 are 15 ft and 241-B-153 is 30 ft	S	H	N	P	Y	TBC
5	Y	*Final Report for the Remote CCTV Survey of Abandoned Process Effluent Drain Lines 840 and 840D in Support of the 200 West Area Carbon Tetrachloride ERA* (WHC-SD-NR-ER-103) Provides summary of existing data for the lines out to the 216-Z-9 Crib.	Each are 1.5-in. Schedule 40 SS	6 ft to 10 ft	N	M	Y	N	Y	Y

Table G-1. Summary of Additional Characterization Data for Pipelines, Diversion Boxes, and Associated Waste Sites. (7 sheets)

SP #	Do Data Exist (Y/N)	Source Reference	Key Pipeline Attributes				Available Type of Data of Sufficient Quality and Quantity to Support RI/FS Process			
			Material Type	Depth (bgs)	Leaks/ Plugs	Waste Stream Activity	Camera Surveys	Soil/Veg. Samples	Dwg.	Pipe Samples
10	Y	*B Plant Ion Exchange Feed Line Leak* (ARH-1945) Provides summary of existing data for the V-122 line that leaked near the 241-C-152 diversion box.	3-in. SS to 3-in. carbon steel	11 ft	Y	H	N	Y	Y	N
2	Y	*U Pond/Z Ditches Cooling Water Group Operable Unit RI/FS Work Plan, Including the 20-CW-5, 200-CW-2, 200-CW-4, and 200-SC-1 Operable Units* (DOE/RL-99-66, Rev. 1) Provides summary of existing data for the 200-W-84, U Plant process sewer emptying into the 216-U-14 Ditch that was a representative site and characterized.	18-in. VCP	4 ft	Y	L	N	Y	Y	Y[6]
8	Y	*U Pond/Z Ditches Cooling Water Group Operable Unit RI/FS Work Plan, Including the 20-CW-5, 200-CW-2, 200-CW-4, and 200-SC-1 Operable Units* (DOE/RL-99-66, Rev. 1) Provides summary of existing data for the 200-W-79, T Plant steam condensate line that empties into the 216-T-36 Crib.	4-in. VCP	15 ft	Y	M	N	Y	Y	N
2	Y	*Feasibility Study for the 200-CW-1 and the 200-CW-3 Operable Units and the 200 North Area Waste Sites* (DOE/RL-2002-69, Draft A) Provides summary of existing data for 200-E-112 cooling water line.	2904-E-1 is 24-in. and 2904-E-2 is 15-in. VCP	6 ft to 10 ft	S and Y	L	N	Y	Y	N

[6] Samples are taken from the 216-U-14 Ditch in which this pipeline empties into. Characterization of the 216-U-14 Ditch was part of the remedial investigation for the 200-CW-5 U Pond/Z Ditches Cooling Water Group, the 200-CW-2 S Pond and Ditches Cooling Water Group, the 200-CW-4 T Pond Cooling Water Group, and the 200-SC-1 Steam Condensate Group Operable Units (DOE/RL-2003-11, Rev. 0).

Table G-1. Summary of Additional Characterization Data for Pipelines, Diversion Boxes, and Associated Waste Sites. (7 sheets)

SP #	Do Data Exist (Y/N)	Source Reference	Key Pipeline Attributes				Available Type of Data of Sufficient Quality and Quantity to Support RI/FS Process			
			Material Type	Depth (bgs)	Leaks/ Plugs	Waste Stream Activity	Camera Surveys	Soil/Veg. Samples	Dwg.	Pipe Samples
2	Y	*Feasibility Study for the 200-CW-1 and the 200-CW-3 Operable Units and the 200 North Area Waste Sites* (DOE/RL-2002-69, Draft A) Provides summary of existing data for the 200-E-126 cooling water line.	Ranges from 24-in., 30-in., and 36-in. corrugated metal	6 ft to 10 ft	S	L	N	Y	Y	N
6	Y	*Radioactive Liquid Waste Disposal Facilities 200 West Area* (ARH-2155) and *Existing Data On the 216-Z Liquid Waste Sites* (RHO-LD-114) Provides summary of existing data for the various pipelines associated with the Z Ditches cooling water/chemical sewer system.	18-in. VCP	2 ft	S	M	N	Y	Y	Y[7]
6	Y	*Radioactive Liquid Waste Disposal Facilities 200 West Area* (ARH-2155) and *Existing Data On the 216-Z Liquid Waste Sites* (RHO-LD-114) Provides summary of existing data for the various pipelines associated with the Z Ditches cooling water/chemical sewer system.	15-in. VCP	2 ft	S	M	N	Y	Y	Y[8]

[7] The line ran from the 231-Z Building to the head end of the 216-Z-11 Ditch. The 216-Z-11 Ditch was characterized as part of the remedial investigation for the 200-CW-5 U Pond/Z Ditches Cooling Water Group, the 200-CW-2 S Pond and Ditches Cooling Water Group, the 200-CW-4 T Pond Cooling Water Group, and the 200-SC-1 Steam Condensate Group Operable Units (DOE/RL-2003-11, Rev. 0).

[8] The line ran from the 234-5 Z Building to the head end of the 216-Z-11 Ditch. The 216-Z-11 Ditch was characterized as part of the remedial investigation for the 200-CW-5 U Pond/Z Ditches Cooling Water Group, the 200-CW-2 S Pond and Ditches Cooling Water Group, the 200-CW-4 T Pond Cooling Water Group, and the 200-SC-1 Steam Condensate Group Operable Units (DOE/RL-2003-11, Rev. 0).

Table G-1. Summary of Additional Characterization Data for Pipelines, Diversion Boxes, and Associated Waste Sites. (7 sheets)

SP #	Do Data Exist (Y/N)	Source Reference	Key Pipeline Attributes				Available Type of Data of Sufficient Quality and Quantity to Support RI/FS Process			
			Material Type	Depth (bgs)	Leaks/ Plugs	Waste Stream Activity	Camera Surveys	Soil/Veg. Samples	Dwg.	Pipe Samples
8	Y	*216-Z-12 Transuranic Crib Characterization: Operational History and Distribution of Plutonium and Americium* (RHO-ST-44) and *Report on Plutonium Mining Activities at 216-Z-9 Enclosed Trench* (RHO-ST-21) Provides summary of existing data for the pipelines, 200-W-59 diversion box, and french drain associated with the 241-Z-361 to 216-Z-12 Crib disposal system.	Concrete box 6-in. SS Schedule 10 pipe 4-in. VCP pipe	17 ft	S	M	N	Y	Y[9]	N
8	Y	*216-Z-12 Transuranic Crib Characterization: Operational History and Distribution of Plutonium and Americium* (RHO-ST-44) and *Report on Plutonium Mining Activities at 216-Z-9 Enclosed Trench* (RHO-ST-21) Provides summary of existing data for the pipeline and associated with the 216-Z-12 Crib system.	12-in. VCP (unsealed)	17 ft	Y	M	N	Y	Y[9]	N

bgs = below ground surface
FY = fiscal year
H = high-activity waste stream
L = low-activity waste stream
M = moderate-activity waste stream
N = no
P = potential exists
RI/FS = remedial investigation/feasibility study
S = suspect
SP = site profile
SS = stainless steel
TBC = to be completed
VCP = vitrified clay pipe
WMA = waste management area
Y = yes

[9] Drawings reviewed as part of the representative site analysis for 200-W-59, presented in Section 2.2.3.4 of DOE/RL-2002-14, Rev. 0, and include the following drawings: H-2-20986, H-2-44511 sheet 87, H-2-20987, and H-2-20988.

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APPENDIX H

200 AREAS CONTAMINANTS OF POTENTIAL CONCERN LIST

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Table H-1. 200 Area Contaminants of Potential Concern List – Radionuclides.
(2 sheets)

Radionuclides		
Actinium-225	Ensteinium-254	Plutonium-242
Actinium-227	Europium-152	Polonium-210
Aluminum-28	Europium-154	Polonium-211
Americium-241	Europium-155	Polonium-212
Americium-242	Francium-221	Polonium-213
Americium-242m	Francium-223	Polonium-214
Americium-243	Gadolinium-152	Polonium-215
Antimony-122	Gadolinium-153	Polonium-216
Antimony-123	Germanium-68	Polonium-218
Antimony-124	Gold-195	Potassium-40
Antimony-125	Hydrogen-3 (tritium)	Praseodymium-143
Antimony-126	Iodine-123	Praseodymium-144
Antimony-126m	Iodine-125	Promethium-143
Barium-133	Iodine-129	Promethium-147
Barium-135m	Iodine-131	Protactinium-231
Barium-137	Iron-55	Protactinium-233
Barium-137m	Iron-59	Protactinium-234
Barium-140	Krypton-85	Radium-223
Beryllium-10	Lanthanum-140	Radium-224
Bismuth-210	Lead-209	Radium-226
Bismuth-213	Lead-210	Radium-228
Bismuth-214	Lead-211	Radon-219
Cadmium-109	Lead-212	Radon-220
Cadmium-113m	Lead-214	Radon-222
Carbon-14	Manganese-54	Rhenium-187
Cerium-141	Molybdenum-93	Rhodium-106
Cerium-144	Neodymium-147	Ruthenium-103
Cesium-134	Neptunium-237	Ruthenium-106
Cesium-135	Neptunium-239	Samarium-147
Cesium-137	Nickel-59	Samarium-149
Cesium-141	Nickel-63	Samarium-151
Cesium-144	Niobium-93m	Selenium-75
Chlorine-36	Niobium-94	Selenium-79
Chromium-51	Niobium-95	Silver-108
Cobalt-57	Niobium-96	Silver-110m
Cobalt-58	Niobium-98	Sodium-22
Cobalt-60	Palladium-107	Strontium-85
Curium-242	Phosphorus-32	Strontium-89
Curium-243	Plutonium-238	Strontium-90
Curium-244	Plutonium-239/240	Sulfer-35
Curium-245	Plutonium-241	Tantalum-182

Table H-1. 200 Area Contaminants of Potential Concern List – Radionuclides.
(2 sheets)

Technetium-99	Thorium-230	Uranium-234
Tellurium-121	Thorium-231	Uranium-235
Tellurium-125m	Thorium-232	Uranium-236
Tellurium-127	Thorium-233	Uranium-237
Tellurium-129	Thorium-234	Uranium-238
Tellurium-129m	Thulium-170	Vanadium-49
Thallium-204	Tin-113	Yttrium-88
Thallium-207	Tin-123	Yttrium-90
Thallium-208	Tin-123m	Yttrium-91
Thallium-209	Tin-125	Zinc-65
Thorium-227	Tin-126	Zirconium-93
Thorium-228	Uranium-232	Zirconium-95
Thorium-229	Uranium-233	

Table H-2. 200 Area Contaminants of Potential Concern List – Inorganics.
(2 sheets)

Inorganics		
Aluminum	Ceric iodate	Hydroiodic acid
Aluminum nitrate (mono basic)	Ceric nitrate	Hydroxide
Aluminum nitrate (nonahydrate)	Ceric sulfate	Indium
Aluminum sulfate	Cesium	Iodine
Ammonia/ammonium	Cesium chloride	Iron
Ammonium chloride	Chloride	Kleen-O-Bowl
Ammonium fluoride	Chloroplatinic acid	Lanthanum
Ammonium hydroxide	Chromium	Lanthanum fluoride
Ammonium nitrate	Chromium (VI)	Lanthanum hydroxide
Ammonium silicofluoride	Chromium nitrate	Lanthanum nitrate
Ammonium sulfate	Chromous sulfate	Lanthanum-neodynium nitrate
Ammonium sulfite	Clayton Kerful cleaner	Lead
Antimony	Clorox	Lead nitrate
Arsenic	Cobalt	Lithium
Barium	Cobalt sulfate	Magnesium
Barium nitrate	Copper	Magnesium carbonate
Beryllium	Cyanide	Magnesium nitrate
Bismuth	Dichromate	Magnesium oxide
Boron	Ferric ammonium sulfate	Magnesium silicate (mistron)
Borate(s)	Ferric nitrate	Manganese
Boric acid	Ferric sulfate	Mercury (inorganic)
Borox (boric acid)	Ferrous ammonium sulfate	Mercuric nitrate
Bromine	Ferrous sulfamate	Mercuric thiocyanate
Cadmium	Ferrous sulfate	Molybdenum
Cadmium nitrate	Fluorine (as fluoride)	Neodynium
Calcium	Gallium	Nickel
Calcium carbonate	Gallium oxide	Nickel nitrate
Calcium chloride	Germanium	Nickel sulfate
Calcium Nitrate	Gold	Nitrate/nitrite
Carbon	Hafnium	Nitric acid
Carbon dioxide	Hydrobromic acid	Nitrogen
Carbon disulfide	Hydrochloric acid	Oakite LSD
Carbonate (axb)	Hydrofluoric acid	Osmium
Cerium	Hydrogen	Oxides
Ceric ammonium nitrate	Hydrogen fluoride	Oxygen
Ceric fluoride	Hydrogen peroxide	Ozone

Table H-2. 200 Area Contaminants of Potential Concern List – Inorganics.
(2 sheets)

Perchlorate	Selenium	Strontium nitrate
Periodic acid	Silicon	Sulfamic acid
Permanganate	Silver	Sulfate/sulfite
Phosphorus	Silver nitrate	Sulfonate
Phosphate	Silver oxide	Sulfuric acid
Phosphoric acid	Sodium	Tantalum
Phosphorous pentoxide	Sodium acetate	Tellurium
Phosphotungstic acid	Sodium bismuthate	Tin
Platinum	Sodium bisulfate	Titanium
Plutonium	Sodium bromate	Titanium chloride
Potassium	Sodium carbonate	Tungsten
Potassium acetate	Sodium dichromate	Turco 4306 B, C, and D
Potassium bicarbonate	Sodium ferrocyanide	Turco 4502D
Potassium carbonate	Sodium fluoride	Turco 4512 A
Potassium dichromate	Sodium hydroxide	Uranium (chemical toxicity)
Potassium ferrocyanide	Sodium nitrate	Vanadium
Potassium fluoride	Sodium nitrite	Yttrium
Potassium hydroxide	Sodium oxalate	Zeolite AW-500 (IX resin)
Potassium iodate	Sodium persulfate	Zinc
Potassium oxalate	Sodium phosphate	Zinc amalgam
Potassium permanganate	Sodium sulfate	Zirconium
Potassium persulfate	Sodium thiosulfate	Zirconyl nitrate
Rhodium	Spic-n-Span	Zirconyl phosphate
Ruthenium	Strontium	
Sani-Flush	Strontium fluoride	

IX = ion exchange

Table H-3. 200 Area Contaminants of Potential Concern List – Organics. (3 sheets)

Organics		
1,1-dichloroethane (DCA)	Acenaphthene	Chlorobenzene
1,1-dichloroethene	Acenaphthylene	Chlorodifluoromethane (Freon 22)
1,1-dimethylhydrazine	Acetic acid	Chloroethane
1,1,1-trichloroethane (TCA)	Acetic acid ethyl ester	Chloroform
1,1,2-trichloroethane	Acetic acid n-butyl-ester	Chloromethane
1,1,2,2-tetrachloroethane	Acetone	Chrysene
1,2-dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	Acetonitrile	Cis-1,2-dichloroethylene
1,2-dichlorobenzene	Acetophenone	Cis-1,3-dichloropropene
1,2-dichloroethane (DCA)	Acrolein	Citric acid
1,2,2-trichloro-1,1,2-trifluoroethane	Acrylonitrile	Cyclohexane
1,2,4-trichlorobenzene	Aldrin	Cyclohexanone
1,3-butadiene	Alizarin yellow	Cycleohexene
1,3-dichlorobenzene	alpha-BHC	Cyclopentane
1,4-dinitrobenzene	Ammonium oxalate	DDT/DDD/DDE (total)
1,4-dioxane	Ammonium perfluorooctanoate	Decane
1-chloroethene (vinyl chloride)	AMSCO	Di-(2-ethylhexyl) phosphoric acid
1-methylpropyl alcohol (2-butanol)	Anthracene	Diacetone alcohol
2,4-dinitrophenol	Anti-Foam 60 (GE)	Dibenz[a,h]anthracene
2,4-dinitrotoluene	Arsenzao III	Dibenzofuran
2,4,5-trichlorophenol	Benzene	Dibutyl butyl phosphonate (DBBP)
2,6-bis(tert-butyl)-4-methylphenol	Benzene hexachloride	Dibutyl phosphate (DBP)
2-butanone (methyl ethyl ketone/MEK)	Benzo(a)anthracene	Dichlorodifluoromethane
2-butenaldehyde (2-butenal)	Benzo(a)pyrene	Dichlorofluoromethane (Freon 21)
2-heptanone	Benzo(b)fluoranthene	Dichloromethane (methylene chloride)
2-hexanone	Benzo(ghi)perylene	Dieldrin
2-methyl-2-propanol	Benzo(k)fluoranthene	Diethylphthalate
2-methyl-2-propenenitrile	Benzyl alcohol	Di-n-butylphthalate
2-methylphenol (o-cresol)	beta-BHC [Lindane]	Diversy Chemical 159
2-pentanone	Biphenyl	Dodecane
2-propenoic acid	Bromocresol purple	Dow Anti-Foam B
2-sec-butyl-4,6-dinitrophenol (dinoseb)	Bromomethane	Dowex 21 K/Amberlite XE-270 (IX resin)
3-chloropropene	Bromonaphthalene	Duolite ARC-359 (IX resin)
3-heptanone	Butane	Endrin
3-methyl-2-butanone	Butanol	Ethanol
3-pentanone	Butylated hydroxy toluene	Ethyl benzene
4-heptanone	Carbazole	Ethyl ether
4-methylphenol (p-cresol)	Carbon tetrachloride	Ethylene dibromide
5-methyl-2-hexanone	Chlordane	Ethylene glycol

Table H-3. 200 Area Contaminants of Potential Concern List – Organics. (3 sheets)

Ethylene-diamine tetraacetic acid (EDTA)	Monobutyl phosphate (MBP)	Pyridine
Fluoranthene	m-xylene	Saf-Tee Solvent F.O. 128
Formaldehyde	Naphthalene	s-diphenyl carbazide
Formic acid	Napthylamine	Shell E-2342
gamma-BHC (Lindane)	n-butyl benzene	Shell spray base
Glycerol	n-heptane	Sodium gluconate
Greases	n-hexane	Sodium tartrate
Heptachlor	Nitrilotriacetic acid (NTA)	Soltrol-170
Hexachlorobenzene	Nitrobenzene	Spartan DC 13
Hexachlorobutadiene	n,n-diphenylamine	Sugar
Hexachloroethane	n-nitroso-n,n-dimethylamine	Sulfonic acid (chloro)
Hexachloronaphthalene	n-nonane	Super Gel Hyflo
Hexafluoroacetone	n-octane	Tartaric acid
Hexanal	Normal paraffin hydrocarbons	Tetrabromoethane
Hydrazine	n-pentane	Tetrachloroethylene (PCE)
Hydroxyacetic acid	n-propionaldehyde	Tetrachloronaphthalene
Hydroxylamine hydrochloride	n-propyl alcohol (1-propanol)	Tetradecane
Hydroxylamine nitrate (HN)	Oakite clear guard	Tetrahydrofuran
Hydroxyquinoline	Oakite rust stripper	Tetraphenyl boron
Hyflo-Super-Cel	Oakite Swiff	Thenoyltrifluoroacetone
Immunol 1468-2	Octachloronaphthalene	Thymolphthalein
Indeno[1,2,3-cd]pyrene	o-phenanthroline	Tide
Ionac A-580/Permutit [SKA] (IX resin)	Orvus K	Toluene
Isodrin	Oxalic acid	Total organic carbon
Isopropyl alcohol	Oxirane (ethylene oxide)	Total petroleum hydrocarbons (TPH)
Jasco paint stripper	o-xylene	Toxaphene
Kelite 25E	Pace-S-Teen	Trans-1,2-dichloroethene
Keraff	Pentachloronaphthalene	Trans-1,3-dichloropropene
Kerosene	Pentachlorophenol	Tributyl phosphate (TBP)
Lard oil	Pentasodium diethylene triamine penta acetate (DTPA)	Trichloroethylene (TCE)
Mandelic acid	Penvert 192	Trichlorofluoromethane
Methanol	Peroklean	Triethylamine
Methyl isobutyl ketone (MIBK/hexone)	Phenanthrene	Tri-iso-octylamine
Methyl isocyanate	Phenol	Tri-n-dodecylamine
Methyl lactic acid	Phosphotungstic acid (PTA)	Tri-n-octylamine
Methylcyclohexane	Picric acid	Tris (hydroxymethyl) amino methane
Methylhydrazine	p-nitrochlorobenzene	Trisodium hydroxyethyl ethylene-diamine triaceatate (HEDTA)
Mineral oil	Polychlorinated biphenyls (PCBs)	Trisodium nitrilo triacetate (NTA)
Miscellaneous commercial products	Propionitrile	Turco (Fabricfilm)
Molybdate - citrate reagent	p-xylene	Turco 2822
Mono-2-ethylhexyl phosphoric acid	Pyrene	Turco 2844

Table H-3. 200 Area Contaminants of Potential Concern List – Organics. (3 sheets)

Turco 4358-4A	Turco alkaline (rust remover)	West Lode degreaser
Turco 4501 A	Turco Diesel Zit 2	Wyandotte 1112
Turco 4518	Turco EPO Strip	Wyandotte Kelvar
Turco 4521	Turco EPO Strip NP	Wyandotte MF
Turco 4605-8	Turco Plaudit	Wyandotte P1075
Turco 4669	Turco T-5561	Xylene
Turco 4715	Turco T-5589	
Turco 4738 (thin)	Urea	

IX = ion exchange

Table H-4. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Radionuclides. (6 sheets)

Radionuclides	Reason for Exclusion	References
Actinium-225	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 10 d)	Parrington 1996
Actinium-227	Progeny radionuclide that builds insignificant activities within 50 years and can be estimated from uranium-235 parent.	
Aluminum-28	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 12.75 d)	Parrington 1996
Americium-242	Constituent with atomic mass number greater than or equal to 242 that represents < 1% of the actinide activity.	Based on ORIGEN2 modeling of Hanford reactor production
Americium-242m	Constituent with atomic mass number greater than or equal to 242 that represents < 1% of the actinide activity.	Based on ORIGEN2 modeling of Hanford reactor production
Americium-243	Constituent with atomic mass number greater than or equal to 242 that represents < 1% of the actinide activity.	Based on ORIGEN2 modeling of Hanford reactor production
Antimony-122	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 2.72 d)	Parrington 1996
Antimony-123	Naturally occurring isotope.	Parrington 1996
Antimony-124	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 60.2 d)	Parrington 1996
Antimony-126	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 12.4 d)	Parrington 1996
Antimony-126m	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 11 s)	Parrington 1996
Barium-133	Is a Ba-132 neutron activation product. However, Ba-132 is present at 0.101% of the natural barium isotopes. Ba-133 can also be produced from proton bombardment of Cs-133. However, bombardment was not performed at Hanford. ORIGEN2 modeling of high burn-up N Reactor fuels (highest yields) shows no yield for this isotope.	Based on ORIGEN2 modeling of Hanford reactor production
Barium-135m	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 1.2 d)	Parrington 1996
Barium-137	Naturally occurring isotope.	Parrington 1996
Barium-137m	Short-lived daughter of cesium-137 (which is a final COPEC).	Parrington 1996
Barium-140	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 12.75 d)	Parrington 1996
Beryllium-10	It is the product of neutron activation of Be-9. The only presence would be from the beryllium braze used to close the ends of zircaloy clad fuel. ORIGEN2 modeling of high burn-up N Reactor fuels (highest yields) shows production at approximately 1 μCi/metric ton of uranium fuel. This calculates to approximately 1 pCi of Be-10 per gram of fuel. Chemical processing of the fuel would dilute this concentration further.	Based on ORIGEN2 modeling of Hanford reactor production
Bismuth-210	Progeny radionuclide that builds insignificant activities within 50 years and can be estimated from uranium-238 parent.	RADDECAY Version 3, Parrington 1996
Bismuth-213	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 45.6 m)	Parrington 1996

Table H-4. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Radionuclides. (6 sheets)

Radionuclides	Reason for Exclusion	References
Bismuth-214	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 19.9 m)	Parrington 1996
Cadmium-109	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 462 d)	Parrington 1996
Cadmium-113m	Less than 1% of cesium-137 activity. Insignificant contribution to dose.	Based on ORIGEN2 modeling of Hanford reactor production
Cerium-141	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 32.5 d)	Parrington 1996
Cerium-144	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 284.6 d)	Parrington 1996
Cesium-135	Constituent generated at less than 5E-5 times cesium-137 activity.	Parrington 1996
Cesium-141	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 24.9 s)	Parrington 1996
Cesium-144	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 1.01 s)	Parrington 1996
Chlorine-36	ORIGEN2 modeling of high burn-up N Reactor fuels (highest yields) shows no yield for this isotope.	Based on ORIGEN2 modeling of Hanford reactor production
Chromium-51	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 27.7 d)	Parrington 1996
Cobalt-57	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 271.8 d)	Parrington 1996
Cobalt-58	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 70.88 d)	Parrington 1996
Curium-242	Constituent with atomic mass number greater than or equal to 242 that represents < 1% of the actinide activity.	Based on ORIGEN2 modeling of Hanford reactor production
Curium-243	Constituent with atomic mass number greater than or equal to 242 that represents < 1% of the actinide activity.	Based on ORIGEN2 modeling of Hanford reactor production
Curium-244	Constituent with atomic mass number greater than or equal to 242 that represents less than 1% of the actinide activity. May be reported via americium isotopic analysis.	Based on ORIGEN2 modeling of Hanford reactor production
Curium-245	Constituent with atomic mass number greater than or equal to 242 that represents < 1% of the actinide activity.	Based on ORIGEN2 modeling of Hanford reactor production
Ensteinium-254	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 276 d)	Parrington 1996
Francium-221	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 4.8 m)	Parrington 1996
Francium-223	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 21.8 m)	Parrington 1996
Gadolinium-152	Naturally occurring isotope.	Parrington 1996
Gadolinium-153	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 241.6 d)	Parrington 1996
Germanium-68	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 270.8 d)	Parrington 1996
Gold-195	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 186.12 d)	Parrington 1996

Table H-4. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Radionuclides. (6 sheets)

Radionuclides	Reason for Exclusion	References
Iodine-123	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 13.2 h)	Parrington 1996
Iodine-125	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 59.4 d)	Parrington 1996
Iodine-131	Volatile gas emission; short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 8 d)	Parrington 1996, Rickard and McShane 1984
Iron-55	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 2.73 y)	Parrington 1996
Iron-59	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 44.51 d)	Parrington 1996
Krypton-85	Gas.	
Lanthanum-140	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 1.678 d)	Parrington 1996
Lead-209	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 3.25 h)	Parrington 1996
Lead-210	Progeny radionuclide that builds insignificant activities within 50 years and can be estimated from uranium-238 parent.	RADDECAY Version 3, Parrington 1996
Lead-211	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 36.1 m)	Parrington 1996
Lead-212	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 10.64 h)	Parrington 1996
Lead-214	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 27 m)	Parrington 1996
Manganese-54	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 312.1 d)	Parrington 1996
Molybdenum-93	The product of neutron activation of Mo-92, but Mo-92 is present at 14.84% of the natural molybdenum isotopes and has a low neutron cross section. ORIGEN2 modeling of high burn-up N Reactor fuels (highest yields) shows yields of less than 50 pCi/g and processing should have diluted this isotope further.	Based on ORIGEN2 modeling of Hanford Site reactor production
Neodymium-147	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 10.98 d)	Parrington 1996
Neptunium-239	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 2.355 d)	Parrington 1996
Nickel-59	Activity will be <5% of Ni-63 activity and may be estimated from that isotope.	Based on ORIGEN2 modeling of Hanford Site reactor production
Niobium-93m	Constituent generated at less than 5E-5 times cesium-137 activity.	Based on ORIGEN2 modeling of Hanford Site reactor production
Niobium-94	ORIGEN2 modeling of high burn-up N Reactor fuels (highest yields) shows yields less than 10 pCi/g and chemical processing should have diluted this isotope further.	Based on ORIGEN2 modeling of Hanford Site reactor production
Niobium-95	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 34.97 d)	Parrington 1996
Niobium-96	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 23.4 h)	Parrington 1996
Niobium-98	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 51 m)	Parrington 1996

Table H-4. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Radionuclides. (6 sheets)

Radionuclides	Reason for Exclusion	References
Palladium-107	Constituent generated at less than 5E-5 times cesium-137 activity.	Based on ORIGEN2 modeling of Hanford Site reactor production
Phosphorus-32	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 14.28 d)	Parrington 1996
Plutonium-241	Not detected by normal plutonium analysis; can infer from americium/plutonium results.	Parrington 1996
Plutonium-242	Constituent with atomic mass number greater than or equal to 242 that represents < 1% of the actinide activity.	Based on ORIGEN2 modeling of Hanford Site reactor production
Polonium-210	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 138.38 d)	Parrington 1996
Polonium-211	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 25.2 s)	Parrington 1996
Polonium-212	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 45 s)	Parrington 1996
Polonium-213	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 4 μs)	Parrington 1996
Polonium-214	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 163.7 μs)	Parrington 1996
Polonium-215	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 1.87 μs)	Parrington 1996
Polonium-216	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 0.145 μs)	Parrington 1996
Polonium-218	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 3.1 m)	Parrington 1996
Potassium-40	Naturally occurring isotope.	Parrington 1996
Praseodymium-143	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 13.57 d)	Parrington 1996
Praseodymium-144	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 17.28 m)	Parrington 1996
Promethium-143	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 265 d)	Parrington 1996
Promethium-147	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 13.4 m)	Parrington 1996
Protactinium-231	Progeny radionuclide that builds insignificant activities within 50 years and can be estimated from uranium-235 parent.	
Protactinium-233	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 27 d)	Parrington 1996
Protactinium-234	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 6.69 h)	Parrington 1996
Radium-223	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 11.44 d)	Parrington 1996
Radium-224	Thorium-232 decay daughter value can be calculated from thorium-232/radium-228 if present.	Parrington 1996, RADDECAY Version 3
Radon-219	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 3.96 s)	Parrington 1996
Radon-220	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 55.6 s)	Parrington 1996
Radon-222	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 3.82 d)	Parrington 1996

Table H-4. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Radionuclides. (6 sheets)

Radionuclides	Reason for Exclusion	References
Rhenium-187	Naturally occurring isotope.	Parrington 1996
Rhodium-106	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 2.18 h)	Parrington 1996
Ruthenium-103	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 39.27 d)	Parrington 1996
Ruthenium-106	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 1.02 y)	Parrington 1996
Samarium-147	Naturally occurring isotope.	Parrington 1996
Samarium-149	Stable.	Parrington 1996
Samarium-151	Less than 1% of cesium-137 activity. Insignificant contribution to dose.	Based on ORIGEN2 modeling of Hanford reactor production
Selenium-75	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 119.78 d)	Parrington 1996
Selenium-79	Constituent generated at less than 5E-5 times cesium-137 activity.	Based on ORIGEN2 modeling of Hanford reactor production
Silver-108	Less than 10% of Ag-108m decays through Ag-108. ORIGEN2 shows yields less than 2 pCi/g for high burn-up N Reactor fuels and chemical processing should have diluted this isotope further.	Based on ORIGEN2 modeling of Hanford reactor production
Silver-110m	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 249.8 d)	Parrington 1996
Sodium-22	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 2.60 y)	Parrington 1996
Strontium-85	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 64.84 d)	Parrington 1996
Strontium-89	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 50.52 d)	Parrington 1996
Sulfer-35	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 87.2 d)	Parrington 1996
Tantalum-182	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 114.43 d)	Parrington 1996
Tellurium-121	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 154 d)	Parrington 1996
Tellurium-125m	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 58 d)	Parrington 1996
Tellurium-127	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 109 d)	Parrington 1996
Tellurium-129	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 33.6 d)	Parrington 1996
Tellurium-129m	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 1.16 h)	Parrington 1996
Thallium-204	ORIGEN2 shows no yield for this isotope.	Based on ORIGEN2 modeling of Hanford reactor production
Thallium-207	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 4.77 m)	Parrington 1996
Thallium-208	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 3.05 m)	Parrington 1996

Table H-4. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Radionuclides. (6 sheets)

Radionuclides	Reason for Exclusion	References
Thallium-209	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 2.16 m)	Parrington 1996
Thorium-227	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 18.72 d)	Parrington 1996
Thorium-228	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 1.91 y)	Parrington 1996
Thorium-229	Progeny radionuclide that builds insignificant activities within 50 years and can be estimated from uranium-233 parent.	RADDECAY Version 3, Parrington 1996
Thorium-230	Progeny radionuclide that builds insignificant activities within 50 years and can be estimated from uranium-238 parent.	RADDECAY Version 3, Parrington 1996
Thorium-231	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 1.06 d)	Parrington 1996
Thorium-233	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 22.3 m)	Parrington 1996
Thorium-234	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 24.1 d)	Parrington 1996
Thulium-170	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 128.6 d)	Parrington 1996
Tin-113	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 115.1 d)	Parrington 1996
Tin-123	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 129.2 d)	Parrington 1996
Tin-123m	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 40.1 m)	Parrington 1996
Tin-125	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 9.63 d)	Parrington 1996
Tin-126	Constituent generated at less than 5E-5 times cesium-137 activity (gamma energy analysis will be reported if detected).	Based on ORIGEN2 modeling of Hanford reactor production
Uranium-232	<2 times E-03 times uranium-238 activity.	Based on ORIGEN2 modeling of Hanford reactor production
Uranium-237	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 6.75 d)	Parrington 1996
Vanadium-49	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 337 d)	Parrington 1996
Yttrium-88	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 106.65 d)	Parrington 1996
Yttrium-90	Short-lived daughter of strontium-90 (which is a final COPEC).	Parrington 1996
Yttrium-91	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 58.5 d)	Parrington 1996
Zinc-65	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 243.8 d)	Parrington 1996
Zirconium-93	Constituent generated at less than 5E-5 times cesium-137 activity.	Based on ORIGEN2 modeling of Hanford reactor production
Zirconium-95	Short-lived radionuclide (half-life <3 years). ($t_{1/2}$= 64.02 d)	Parrington 1996

Table H-5. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Inorganics. (7 sheets)

Inorganics	Reason for Exclusion
Aluminum nitrate (mono basic)	Contains aluminum and nitrate, which have been previously identified as COCs.
Aluminum nitrate nonahydrate	
Aluminum sulfate	Contains aluminum and sulfate, which have been previously identified as COCs.
Ammonium chloride	Contains aluminum and chloride, which have been previously identified as COCs.
Ammonium fluoride	Contains aluminum and fluoride, which have been previously identified as COCs.
Ammonium hydroxide	Contains ammonium, which has been previously identified as a COC, and hydroxide, which has been previously excluded.
Ammonium nitrate	Contains ammonium and nitrate, which have been previously identified as COCs.
Ammonium silicofluoride	Contains ammonium and fluoride, which have been previously identified as COCs, and silicon, which has been previously excluded.
Ammonium sulfate	Contains ammonium and sulfate, which have been previously identified as COCs.
Ammonium sulfite	Contains ammonium and sulfite, which have been previously identified as COCs.
Barium nitrate	Contains barium and nitrate, which have been previously identified as COCs.
Bismuth	Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2.
Boron	This substance was not used routinely or significantly during Hanford 200 Areas operations.
Borate(s)	Material used in very low or trace quantities at Hanford.
Boric acid	Contains boron, which has been previously excluded; acid determined by pH.
Borox (boric acid)	Product name for boric acid, which has been previously excluded.
Bromine	This substance was not used routinely or significantly during Hanford 200 Areas operations.
Cadmium nitrate	Contains cadmium and nitrate, which has been previously identified as COCs.
Calcium	Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2.
Calcium carbonate	Contains calcium, which has been previously excluded; contains carbonate, which degrades to carbon dioxide, which has been previously excluded.
Calcium chloride	Contains calcium, which has been previously excluded, and chloride, which has been previously identified as a COC.
Calcium nitrate	Contains calcium, which has been previously excluded, and nitrate, which has been previously identified as a COC.
Carbon	Inorganic carbon used at the Hanford site is only found as a gas. Total organic carbon will be measured.
Carbon dioxide	Gas.

Table H-5. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Inorganics. (7 sheets)

Inorganics	Reason for Exclusion
Carbon disulfide	Gas.
Carbonate (axb)	This inorganic substance is unlikely to be present in toxic concentrations. Screened for potential effect on pH.
Cerium	Material used in low or trace quantities at Hanford. No cleanup levels established in the MTCA 3.1 tables (94-145).
Ceric ammonium nitrate	Contains cerium, which has been previously excluded, and ammonium and nitrate, which has been previously identified as a COC.
Ceric fluoride	Contains cerium, which has been previously excluded, and fluoride, which has been previously identified as a COC.
Ceric iodate	Contains cerium, which has been previously excluded, and iodine, which has been previously identified as a COC.
Ceric nitrate	Contains cerium, which has been previously excluded, and nitrate, which has been previously identified as a COC.
Ceric sulfate	Contains cerium, which has been previously excluded, and sulfate, which has been previously identified as a COC.
Cesium	Material used in low or trace quantities at Hanford. No cleanup levels established in the MTCA 3.1 tables (94-145).
Cesium chloride	Contains cesium, which has been previously excluded, and chloride, which has been previously identified as a COC.
Chloroplatinic acid	Contains platinum, which has been previously excluded; chlorine detected by anion analysis.
Chromium nitrate	Contains chromium and nitrate, which have been previously identified as COCs.
Chromous sulfate	Contains chromium and sulfate, which have been previously identified as COCs.
Clayton Kerful cleaner	Product name for sodium hydroxide, which has been previously excluded; pH will be assessed separately.
Clorox	Commercial product, sodium hypochlorite; sodium has been previously excluded and chloride which has been previously identified as a COC.
Cobalt sulfate	Contains cobalt, which is excluded, and sulfate, which has been previously identified as a COC.
Dichromate	Contains chromium, which has been previously identified as a COC.
Ferric ammonium sulfate	Contains iron, which has been previously excluded, and ammonium and sulfate, which have been previously identified as COCs.
Ferric nitrate	Contains iron, which has been previously excluded, and nitrate, which has been previously identified as a COC.
Ferric sulfate	Contains iron, which has been previously excluded, and sulfate, which has been previously identified as a COC.
Ferrous ammonium sulfate	Contains iron, which has been previously excluded, and ammonium and sulfate, which have been previously identified as COCs.
Ferrous sulfamate	Contains iron, which has been previously excluded, and sulfamate, which degrades to sulfate and ammonium, which have been previously identified as COCs.
Ferrous sulfate	Contains iron, which has been previously excluded, and sulfate, which has been previously identified as a COC.
Gallium	Material used in low or trace quantities at Hanford. Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2.
Gallium oxide	Contains gallium, which has been excluded.

Table H-5. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Inorganics. (7 sheets)

Inorganics	Reason for Exclusion
Germanium	Material used in low or trace quantities at Hanford. No cleanup levels established in the MTCA 3.1 table (94-145).
Gold	Material used in low or trace quantities at Hanford. Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2.
Hafnium	This inorganic substance is unlikely to be present in toxic or high concentrations owing to minimal use in Hanford 200 Areas processes.
Hydrobromic acid	Contains bromine, which has been previously identified as a COC; acid determined by pH.
Hydrochloric acid	Contains chlorine, which has been previously identified as a COC; acid determined by pH.
Hydrofluoric acid	Contains fluorine, which has been previously identified as a COC; acid determined by pH.
Hydrogen	Gas.
Hydrogen fluoride	Contains fluorine, which has been previously identified as a COC; acid determined by pH.
Hydrogen peroxide	Degrades to water.
Hydroiodic acid	Contains iodine, which has been previously identified as a COC; acid determined by pH.
Hydroxide	Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2.
Indium	Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2.
Iron	Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2.
Kleen-O-Bowl	Product name for ammonium chloride and hydrochloric acid, which have been previously identified as COCs.
Lanthanum	Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2.
Lanthanum fluoride	Contains lanthanum, which has been previously excluded, and fluoride, which has been previously identified as a COC.
Lanthanum hydroxide	Contains lanthanum and hydroxide, which have been previously excluded.
Lanthanum nitrate	Contains lanthanum, which has been previously excluded, and nitrate, which has been previously identified as a COC.
Lanthanum-neodynium nitrate	Contains lanthanum and neodynium, which have been previously excluded, and nitrate, which has been previously identified as a COC.
Lead nitrate	Contains lead and nitrate, which have been previously identified as COCs.
Magnesium	Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2; analysis.
Magnesium carbonate	Contains magnesium and carbonate, which have been previously excluded.
Magnesium nitrate	Contains magnesium, which has been previously excluded, and nitrate, which has been previously identified as a COC.
Magnesium oxide	Contains magnesium and oxide, which has been previously excluded.
Magnesium silicate (mistron)	Contains magnesium and silicon, which have been previously excluded.

Table H-5. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Inorganics. (7 sheets)

Inorganics	Reason for Exclusion
Mercury (organic)	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
Mercuric nitrate	Contains mercury and nitrate, which have been previously identified as a COC.
Mercuric thiocyanate	Contains mercury, sulfur, and cyanide, which have been previously identified as a COC.
Neodynium	Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2; analysis.
Nickel nitrate	Contains nickel and nitrate, which have been previously identified as COCs.
Nickel sulfate	Contains nickel and sulfate, which have been previously identified as COCs.
Nitric acid	Contains nitrate, which is included as a COC; acid assessment through pH analysis.
Nitrogen	Gas.
Oakite LSD	Product name for sodium hydroxide, which have been previously excluded.
Osmium	Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2.
Oxides	Anion form, which typically has minimal effect on potential toxicity of total compounds. Reactive oxides will have degraded to hydroxide (excluded) or oxygen a gas (also excluded).
Oxygen	Gas.
Ozone	Gas.
Perchlorate	Has degraded to chlorine, which is a previously identified COC, and oxygen, which has previously been excluded.
Periodic acid	Contains iodine, which has been previously identified as a COC; acids assessed through pH analysis.
Permanganate	Contains potassium and oxygen, which have been previously excluded, and manganese, which has been previously identified as a COC.
Phosphorus	Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2.
Phosphoric acid	Contains phosphate, which has been previously identified as a COC; acid assessment through pH analysis.
Phosphorous pentoxide	Contains phosphorous, which has been previously identified as a COC, and oxide, which has been previously excluded.
Phosphotungstic acid	Contains phosphate which is a final COC and tungsten, which has been previously excluded.
Platinum	Material used in low or trace quantities at Hanford, typically as metallic components. No cleanup levels established in the MTCA 3.1 tables (94-145).
Plutonium	Will be identified via radionuclide analysis.
Potassium	Material used in low quantities at Hanford. No cleanup levels established in the MTCA 3.1 tables (94-145); analysis.
Potassium acetate	Contains potassium and acetate, which have been previously excluded.
Potassium bicarbonate	Contains potassium and carbonate, which have been previously excluded.
Potassium carbonate	Contains potassium and carbonate, which have been previously excluded.

Table H-5. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Inorganics. (7 sheets)

Inorganics	Reason for Exclusion
Potassium dichromate	Contains potassium, which has been previously excluded, and dichromate, which has been previously identified as a final COC.
Potassium ferrocyanide	Contains potassium and iron, which have been previously excluded, and cyanide, which has been previously identified as a final COC.
Potassium fluoride	Contains potassium, which has been previously excluded, and fluoride, which has been previously identified as a final COC.
Potassium hydroxide	Contains potassium and hydroxide, which have been previously excluded.
Potassium iodate	Contains potassium, which has been previously excluded, and iodine, which has been previously identified as a final COC.
Potassium oxalate	Contains potassium and oxalate, which have been previously excluded.
Potassium permanganate	Contains potassium and oxygen, which have been previously excluded, and manganese, which has been previously identified as a final COC.
Potassium persulfate	Contains potassium, which has been previously excluded, and sulfate, which has been previously identified as a final COC.
Rhodium	This inorganic substance is unlikely to be present in toxic or high concentrations owing to minimal use in Hanford 200 Areas processes.
Ruthenium	Material used in low or trace quantities at Hanford. No cleanup levels established in the MTCA 3.1 tables (94-145).
Sani-Flush	Commercial chemical. Generates sulfuric acid (sulfate) on contact with water. Sulfate has been previously identified as a COC.
Silicon	No cleanup levels established in the MTCA 3.1 tables (94-145). No known discharge of respirable silica (potentially hazardous form) to the included sites.
Silver nitrate	Contains silver and nitrate, which have been previously identified as COCs.
Silver oxide	Contains silver, which has been previously identified as a COC, and oxide, which has been previously excluded.
Sodium	Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2. Routine analyte reported by ICP analysis.
Sodium acetate	Contains sodium and acetate, which have been previously excluded.
Sodium bismuthate	Contains sodium, bismuth, and oxygen, which have been previously excluded.
Sodium bisulfate	Contains sodium, which has been previously excluded, and sulfate, which has been previously identified as a COC.
Sodium bromate	Contains sodium, boron, and oxygen, which have been previously excluded.
Sodium carbonate	Contains sodium and carbonate, which have been previously excluded.
Sodium dichromate	Contains sodium, which has been previously excluded, and chromium, which has been previously identified as a COC.
Sodium ferrocyanide	Contains sodium and iron, which have been previously excluded, and cyanide, which has been previously identified as a COC.
Sodium fluoride	Contains sodium, which has been previously excluded, and fluoride, which has been previously identified as a COC.
Sodium hydroxide	Contains sodium and hydroxide, which have been previously excluded.
Sodium nitrate	Contains sodium, which has been previously excluded, and nitrate, which has been previously identified as a COC.

Table H-5. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Inorganics. (7 sheets)

Inorganics	Reason for Exclusion
Sodium nitrite	Contains sodium ,which has been previously excluded, and nitrite, which has been previously identified as a COC.
Sodium oxalate	Contains sodium and oxalate, which have been previously excluded.
Sodium persulfate	Contains sodium, which has been previously excluded; contains persulfate, which degrades to sulfate and has been previously identified as a COC.
Sodium phosphate	Contains sodium, which has been previously excluded, and phosphate, which has been previously identified as a COC.
Sodium sulfate	Contains sodium, which has been previously excluded, and sulfate, which has been previously identified as a COC.
Sodium thiosulfate	Contains sodium, which has been previously excluded; contains thiosulfate, which degrades to sulfate and has been previously identified as a COC.
Spic-n-Span	Commercial product, cleaning agent, no standard analytical method in place for its analysis. Contains ammonia, which has been previously identified as a COC.
Strontium fluoride	Contains strontium and fluoride, which have been previously identified as COCs.
Strontium nitrate	Contains strontium and nitrate, which have been previously identified as COCs.
Sulfamates	Degrades to sulfate, which has been previously identified as a COC.
Sulfamic acid	Degrades to sulfate and ammonia, which have been previously identified as COCs.
Sulfonate	Degrades to sulfate, which has been previously identified as a COC.
Sulfuric acid	Chemical has degraded to sulfate, which has been previously identified as a COC.
Tantalum	Material used in low or trace quantities at Hanford, typically as metallic components. Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2.
Technetium	Only radioactive technetium was disposed from in Hanford 200 Areas Operations. Chemical technetium was never introduced. Will be identified via radionuclide analysis.
Tellurium	Material used in low or trace quantities at Hanford, typically as metallic components. Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2.
Titanium	Material used in low or trace quantities at Hanford, typically as metallic components. Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2.
Titanium chloride	Chemical contains titanium, which has been previously excluded, and chlorine, which has been previously identified as a COC.
Tungsten	Material used in low or trace quantities at Hanford, typically as metallic components. Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2.
Turco 4306 B, C, and D	Product name for sodium sulfate compounds. Sodium has been previously excluded and sulfate has been previously identified as a COC.
Turco 4502D	Product name for potassium hydroxide, dichromate, and permanganate compounds. Potassium and hydroxide have been previously excluded, and chromium and manganese have previously been identified as COCs.

Table H-5. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Inorganics. (7 sheets)

Inorganics	Reason for Exclusion
Turco 4512 A	Product name for phosphoric compounds, which have already been identified as COCs.
Yttrium	This inorganic substance is unlikely to be present in toxic or high concentrations owing to minimal use in Hanford 200 Areas processes.
Zeolite AW-500 (IX resin)	Commercial product that contains aluminum, silicon, and hydroxide, which have previously been excluded.
Zinc amalgam	Contains zinc, which has been previously excluded, and mercury, which has been previously identified as a COC.
Zirconium	Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2.
Zirconyl nitrate	Chemical contains zirconium, which has been previously excluded, and nitrate, which has been previously identified as a COC.
Zirconyl phosphate	Contains zirconium, which has been previously excluded, and phosphate, which has been previously identified as a COC.

CFR = *Code of Federal Regulations*
COC = contaminant of concern
ICP = inductively coupled plasma
IX = ion exchange
MTCA = *Model Toxics Control Act*
WAC = *Washington Administrative Code*

Table H-6. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Organics. (18 sheets)

Organics	Reason for Exclusion
1,1-dimethylhydrazine	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. Reactive material with minimal lifetime in Hanford environment. No direct standard analytical technique available.
1,2-dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	Gas above 48°C.
1,2-dichloropropane	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
1,2,2-trichloro-1,1,2-trifluoroethane	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
1,2,3,4-tetrachlorobenzene	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
1,2,3-trichlorobenzene	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
1,2,4-trichlorobenzene	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
1,3-butadiene	Gas.
1,4-dichlorobenzene	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
1,4-dinitrobenzene	No identified use in 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
1,4-dioxane	No identified use in 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
1-chloroethene (vinyl chloride)	Gas.
1-methylpropyl alcohol (2-butanol)	Butanol has been previously identified as a COC.
2,3,4,5-tetrachlorophenol	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).

Table H-6. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Organics. (18 sheets)

Organics	Reason for Exclusion
2,3,5,6-tetrachloroaniline	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
2,4-dichloroaniline	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
2,4-dinitrophenol	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
2,4,5-trichloroaniline	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
2,4,5-trichlorophenol	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
2,4,6-trichlorophenol	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
2,6-bis(tert-butyl)-4-methylphenol	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
2-butenaldehyde (2-butenal)	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
2-heptanone	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
2-methyl-2-propanol	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
2-methyl-2-propenenitrile	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.

Table H-6. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Organics. (18 sheets)

Organics	Reason for Exclusion
2-pentanone	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
2-propenoic acid	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
2-sec-butyl-4,6-dinitrophenol (dinoseb)	Pesticide (8081). Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
3,4-dichloroaniline	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493 (2)(a)(i).
3,4-dichlorophenol	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493 (2)(a)(i).
3-chloroaniline	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493 (2)(a)(i).
3-chlorophenol	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493 (2)(a)(i).
3-chloropropene	Gas above 45°C.
3-heptanone	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
3-methyl-2-butanone	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
3-pentanone	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.

Table H-6. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Organics. (18 sheets)

Organics	Reason for Exclusion
4-heptanone	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
4-nitrophenol	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
5-methyl-2-hexanone	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
Acenaphthene	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
Acenaphthylene	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Acetic acid	Available as food-grade chemical (e.g., vinegar). Potential pH effects will be determined. Has dissolved into a complexing agent that could have affected the mobility of certain COCs. Unexpected mobility of COCs will indicate the presence of complexing agents. Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2. No direct standard analytical technique available.
Acetic acid ethyl ester	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
Acetic acid n-butyl-ester	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
Acetone	Very soluble in water; likely to have migrated or vaporized if exposed; reasonably biodegradable. Not likely to be present in toxic and/or flammable concentrations.
Acetonitrile	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Acetophenone	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.

Table H-6. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Organics. (18 sheets)

Organics	Reason for Exclusion
Acrolein	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams except in incidental quantities.
Acrylonitrile	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Aldrin	Pesticide (8081). Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Alizarin yellow	Laboratory indicator. Typically used in drop quantities as <1% solutions. No analytical technology or toxicity issues identified.
Alpha-BHC	Pesticide (8081). Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Ammonium oxalate	Contains ammonium, which has been previously identified as a COC, and oxalate, which has been previously excluded.
Ammonium perfluorooctanoate	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. No direct standard analytical technique available.
AMSCO	Commercial product containing NPH, which has been previously identified as a COC.
Anthracene	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Anti-Foam 60 (GE)	Commercial product; no standard analytical method in place for its analysis.
Arsenzao III	Commercial product; no standard analytical method in place for its analysis.
Benzene hexachloride (including Lindane)	Pesticide (8081). Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Benzo(ghi)perylene	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Benzyl alcohol	Available as food-grade material. Minimal use of this compound at Hanford Site. MTCA Method B limit is 24,000 mg/kg. Semi-volatile analysis could report presence as TIC.
Beta-BHC [Lindane]	Pesticide (8081). Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.

Table H-6. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Organics. (18 sheets)

Organics	Reason for Exclusion
Biphenyl	If present, will be identified in polychlorinated biphenyl, which has been previously identified as a COC.
Bromocresol purple	Laboratory indicator. Typically used in drop quantities as <1% solutions. No analytical technology or toxicity issues identified.
Bromomethane	Gas.
Bromonaphthalene	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Butane	Gas.
Butylated hydroxy toluene	Not found during remedial investigation efforts of 200-CW-1, where it was listed as a COC (DOE/RL-2000-35).
Carbazole	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Chlordane	Pesticide (8081). Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Chlorinated dibenzofurans (total)	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
Chloroacetamide	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
Chlorodifluoromethane (Freon 22)	Gas.
Chloroethane	Gas.
Chloromethane	Gas.
Cis-1,3-dichloropropene	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Citric acid	Available as food-grade material. Potential pH effects will be determined. Has dissolved to a complexing agent that could have affected the mobility of certain COCs. Unexpected mobility of COCs will indicate the presence of complexents. Material used in low or trace quantities at the Hanford Site. Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2. No direct standard analytical technique available.
Cyclohexane	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.

Table H-6. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Organics. (18 sheets)

Organics	Reason for Exclusion
Cyclohexanone	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
Cyclohexene	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
Cyclopentane	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
DDT/DDD/DDE (total)	Pesticide (8081). Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Decane	Contains NPH, which has been previously identified as a COC.
Di-(2-ethylhexyl) phosphoric acid	Has dissolved to a complexing agent that could have affected the mobility of certain COCs. Unexpected mobility of COCs will indicate the presence of complexents. Degradation products include phosphate (final COC). Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2. No direct standard analytical technique available.
Diacetone alcohol	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Dibenzofuran	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Dibutyl butyl phosphonate (DBBP)	DBBP was widely used as a solvent during the PRF americium recovery operations. Will degrade to phosphate and butanol (final COCs). Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2. No direct standard analytical procedure available.
Dibutyl phosphate (DBP)	This compound is a degradation product of TBP and is unlikely to be present in toxic or high concentrations. Will degrade to phosphate and butanol (final COCs). Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2. No direct standard analytical technique available.
Dichlorodifluoromethane	Gas.

Table H-6. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Organics. (18 sheets)

Organics	Reason for Exclusion
Dichlorofluoromethane (Freon 21)	Gas.
Dieldrin	Pesticide (8081). Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Diethylphthalate	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Dimethylphthalate	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
Di-n-butyl phthalate	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Dioxins	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
Diversy Chemical 159	Commercial product; no standard analytical method in place for its analysis.
Dodecane	Contains NPH, which has been previously identified as a COC.
Dow Anti-Foam B	Commercial product that contains silicon, which has been previously excluded.
Dowex 21 K/Amberlite XE-270 (IX resin)	Commercial product in which no standard analytical method in place for its analysis.
Duolite ARC-359 (IX resin)	Commercial product that contains sulfate and phenol, which have been previously identified as COCs. No standard analytical method in place for its analysis.
Endrin	Pesticide (8081). Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Ethanol	Material used in low quantities at Hanford. No cleanup levels established in the MTCA 3.1 tables (94-145). Available as food-grade material; not likely to be present in flammable concentrations.
Ethyl ether	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. Compound could be measured as VOA TIC.
Ethylene dibromide	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.

Table H-6. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Organics. (18 sheets)

Organics	Reason for Exclusion
Ethylene glycol	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Ethylene-diamine tetra acetic acid (EDTA)	Available as food-grade material. Has dissolved to a complexing agent that could have affected the mobility of certain COCs. Unexpected mobility of COCs will indicate the presence of complexents. No direct standard analytical technique available.
Fluoranthene	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Fluorene	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
Formaldehyde	Very soluble in water; likely to have migrated or vaporized if exposed; reasonably biodegradable. Available as food-grade material; not likely to be present in toxic and/or flammable concentrations.
Formic acid	Has dissolved to a complexing agent that could have affected the mobility of certain COCs. Unexpected mobility of COCs will indicate the presence of complexents. Used in minimal quantities at Hanford. Based on evaluation of the sources identified in Table 1-4 CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. No direct standard analytical technique available.
Furans	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Gamma-BHC (Lindane)	Pesticide (8081). Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Glycerol	Available as food-grade material. Material used in low or trace quantities at Hanford Site. Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2.
Greases	Can be measured at normal paraffin hydrocarbons, which have been previously identified as a COC or can be measured as a semi-volatile TIC.
Heptachlor/heptachlor epoxide (total)	Pesticide (8081). Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Hexachlorobenzene	Pesticide (8081). Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Hexachlorobutadiene	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.

Table H-6. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Organics. (18 sheets)

Organics	Reason for Exclusion
Hexachloroethane	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Hexachlorocyclopentadiene	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
Hexachloronaphthalene	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
Hexafluoroacetone	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
Hexanal	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Hydrazine	Extremely reactive, soluble, and very likely to have degraded and not be present within waste stream.
Hydroxyacetic acid	Available as food-grade material. Has dissolved to a complexing agent that could have affected the mobility of certain COCs. Unexpected mobility of COCs will indicate the presence of complexents. Material used in low or trace quantities at Hanford Site . No cleanup levels established in the MTCA 3.1 tables (94-145). No direct standard analytical technique available.
Hydroxylamine hydrochloride	Hydroxylamine was used during the PRF processes. Extremely reactive; very likely to have degraded to water, nitrogen, and ammonium hydroxide and not be present within waste stream. No direct standard analytical technique available. Chloride has been previously identified as a COC.
Hydroxylamine nitrate (HN)	Hydroxylamine was used during the PRF processes. Extremely reactive; very likely to have degraded to water, nitrogen, and ammonium hydroxide and not be present within waste stream. No direct standard analytical technique available. Nitrate has been previously identified as a COC.
Hydroxyquinoline	Has dissolved to a complexing agent that could have affected the mobility of certain COCs. Unexpected mobility of COCs will indicate the presence of complexents. Material used in low or trace quantities at Hanford Site. No cleanup levels established in the MTCA 3.1 tables (94-145). No direct standard analytical technique available.
Hyflo-Super-Cel	Commercial product; solid; no standard analytical method in place for its analysis.
Immunol 1468-2	Commercial product; no standard analytical method in place for its analysis.
Ionac A-580/Permutit [SKA] (IX resin)	Commercial product, which is a solid with active methyl groups. The active methyl groups will react or degrade during production operations, leaving a nonreactive or regulated plastic. No standard analytical method in place for its analysis.

Table H-6. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Organics. (18 sheets)

Organics	Reason for Exclusion
Isodrin	Pesticide (8081). Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Isopropyl alcohol	Extremely soluble and very likely to have degraded and not be present within waste stream. Material used in low or trace quantities at Hanford Site.
Jasco paint stripper	Commercial product that most likely contains methanol, methylene chloride, and/or caustics such as sodium hydroxide owing to time period used.
Kelite 25E	Commercial product; no standard analytical method in place for its analysis.
Keraff	Commercial product; no standard analytical method in place for its analysis.
Kerosene	Contains NPH, which has been previously identified as a COC.
Lard oil	This is a food-grade chemical with no applicable regulatory action levels. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Mandelic acid	Has dissolved to a complexing agent that could have affected the mobility of certain COCs. Unexpected mobility of COCs will indicate the presence of complexents. Material used in low or trace quantities at Hanford Site. No cleanup levels established in the MTCA 3.1 tables (94-145). No direct standard analytical technique available.
Methanol	Extremely soluble and very likely to have degraded and not be present within waste stream.
Methyl isocyanate	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
Methyl lactic acid	Has decomposed to a complexing agent that could have affected the mobility of certain COCs. Unexpected mobility of COCs will indicate the presence of complexents. Material used in low or trace quantities at Hanford Site. No cleanup levels established in the MTCA 3.1 tables (94-145). No direct standard analytical technique available.
Methylcyclohexane	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
Methylhydrazine	Used in minimal quantities at Hanford Site. Reactive material with minimal lifetime in Hanford environment. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. No direct standard analytical technique available.
Mineral oil	Commercial product; no standard analytical method in place for its analysis.

Table H-6. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Organics. (18 sheets)

Organics	Reason for Exclusion
Miscellaneous commercial products	Commercial product; no standard analytical method in place for its analysis.
Molybdate - citrate reagent	Constituents analyzed as molybdenum and citrate, which has been previously excluded. Has dissolved to a complexing agent that could have affected the mobility of certain COCs. Unexpected mobility of COCs will indicate the presence of complexents. Material used in low or trace quantities at Hanford Site. No direct standard analytical technique available.
Mono-2-ethylhexyl phosphoric acid	Degradation product of di-2-ethyl hexyl phosphoric acid. Degradation products include phosphate (final COC). Has dissolved to a complexing agent that could have affected the mobility of certain COCs. Unexpected mobility of COCs will indicate the presence of complexents. No direct standard analytical technique available.
Monobutyl phosphate (MBP)	This compound is a degradation product of TBP. Will degrade to phosphate and butanol, which have been previously identified as COCs. Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2. No direct standard analytical technique available.
m-xylene	Measured as total xylene (8260).
Napthylamine	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
n-heptane	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
n-hexane	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
Nitrilotriacetic acid (NTA)	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Nitrobenzene	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
n,n-diphenylamine	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
n-nitrosodiphenylamine	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).

Table H-6. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Organics. (18 sheets)

Organics	Reason for Exclusion
n-nitroso-n,n-dimethylamine	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
n-nonane	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
n-octane	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
n-pentane	Gas above 36°C.
n-propionaldehyde	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
n-propyl alcohol (1-propanol)	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
Oakite clear guard	Commercial product; no standard analytical method in place for its analysis.
Oakite rust stripper	Commercial product; no standard analytical method in place for its analysis.
Oakite Swiff	This commercial chemical is trichloroethane, which has been previously identified as a COC.
Octachloronaphthalene	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.

Table H-6. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Organics. (18 sheets)

Organics	Reason for Exclusion
o-phenanthroline	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Orvus K	Commercial product; no standard analytical method in place for its analysis.
Oxalic acid	Has dissolved to a complexing agent that could have affected the mobility of certain COCs. Unexpected mobility of COCs will indicate the presence of complexents. Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2. No direct standard analytical technique available.
Oxirane (ethylene oxide)	Gas.
o-xylene	Measured as total xylene (8260).
Pace-S-Teen	Commercial product; no standard analytical method in place for its analysis.
Pentachloroaniline	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
Pentachlorobenzene	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493(2)(a)(i).
Pentachloronaphthalene	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
Pentachlorophenol	Pesticide (8081). Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Pentasodium diethylene triamine penta acetate (DTPA)	Has dissolved to a complexing agent that could have affected the mobility of certain COCs. Unexpected mobility of COCs will indicate the presence of complexents. Material used in low or trace quantities at Hanford Site. No cleanup levels established in the MTCA 3.1 tables (94-145). No direct standard analytical technique available.
Penvert 192	Commercial product; no standard analytical method in place for its analysis.
Peroklean	Commercial product; no standard analytical method in place for its analysis.
Phenanthrene	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Phosphotungstic acid (PTA)	Will degrade to phosphate and butanol, which have been previously identified as COCs and tungsten which has been previously excluded. Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2. No direct standard analytical technique available.

Table H-6. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Organics. (18 sheets)

Organics	Reason for Exclusion
Picric acid	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
p-nitrochlorobenzene	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
Propionitrile	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
p-xylene	Measured as total xylene (8260).
Pyrene	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Pyridine	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Saf-Tee Solvent F.O. 128	Contains NPH, which has been previously identified as a COC.
s-diphenyl carbazide	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Shell E-2342	Contains NPH, which has been previously identified as a COC.
Shell spray base	Contains NPH, which has been previously identified as a COC.
Sodium gluconate	Available as food-grade material. Has dissolved to a complexing agent that could have affected the mobility of certain COCs. Unexpected mobility of COCs will indicate the presence of complexents. Material used in low or trace quantities at Hanford. Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2. No direct standard analytical technique available.
Sodium tartrate	Available as food-grade material. Has dissolved to a complexing agent that could have affected the mobility of certain COCs. Unexpected mobility of COCs will indicate the presence of complexents. Material used in low or trace quantities at Hanford. Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2. No direct standard analytical technique available.
Soltrol-170	Contains NPH, which has been previously identified as a COC.
Spartan DC 13	Commercial product; no standard analytical method in place for its analysis.

Table H-6. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Organics. (18 sheets)

Organics	Reason for Exclusion
Sugar	This is a food-grade chemical. Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2.
Sulfonic acid (chloro)	This chemical has degraded to sulfate and chlorine, which have been previously identified as COCs.
Styrene	No identified use in Hanford 200 Areas processing to retain this constituent listed in Table 749-3 of WAC 173-340-7493 (2)(a)(i).
Super Gel Hyflo	A chromatography medium (insoluble solid) that was used in determining if samples collected from various steps of the bismuth-phosphate process had successfully reacted, separated, etc. This substance is unlikely to be present in toxic concentrations.
Tartaric acid	Available as food-grade material. Has dissolved to a complexing agent that could have affected the mobility of certain COCs. Unexpected mobility of COCs will indicate the presence of complexents. Material used in low or trace quantities at Hanford Site. Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2. No direct standard analytical technique available.
Tetrabromoethane	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Tetrachloronaphthalene	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
Tetradecane	Will be measured as a normal paraffin hydrocarbon, which has been previously identified as a COC.
Tetrahydrofuran	Extremely soluble and very likely to have degraded and not be present within waste stream. Material used in low or trace quantities at Hanford. No cleanup levels established in the MTCA 3.1 tables (94-145). Presence could be reported as a TIC from volatile organic analysis.
Tetraphenyl boron	Boron and phenyl constituents of this chemical have been previously listed.
Thenoyltrifluoroacetone	Has dissolved to a complexing agent that could have affected the mobility of certain COCs. Material used in low or trace quantities at Hanford Site. Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2. No direct standard analytical technique available.
Thymolphthalein	Laboratory indicator. Typically used in drop quantities as <1% solutions. No analytical or toxicity issues identified.
Tide	This commercial chemical is sodium silicate, soap, and organic complexants; no standard analytical method in place for its analysis.
Toxaphene	Pesticide (8081). Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Trans-1,3-dichloropropene	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Tributyl phosphate (TBP)	Will degrade to phosphate and butanol, which have been previously identified as COCs. Not a Washington State toxic and not an underlying hazardous constituent as defined in 40 CFR 268.2. No direct standard analytical technique available.

Table H-6. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Organics. (18 sheets)

Organics	Reason for Exclusion
Trichlorofluoromethane	Gas above 24°C.
Triethylamine	No identified use in Hanford 200 Areas processing. Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. VOA/SVOA (via GCMS) of soils from high-organic inventory tank farms (T,TX,TY WMA) reported nondetection for this and similar compounds. Not on routine analytical calibration lists. The GCMS TIC searches could be used to screen for potential presence.
Tri-iso-octylamine	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Tri-n-dodecylamine	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities.
Tri-n-octylamine	Based on evaluation of the sources identified in Table 1-4 of CP-13196, Rev 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes; these chemicals have no suspected introduction to waste streams except in incidental quantities.
Tris (hydroxymethyl) amino methane	Very soluble. Available and used as pharmaceutical-grade material. Minimal potential for presence in toxic level quantities. Material used in low or trace quantities at Hanford Site. No cleanup levels established in the MTCA 3.1 tables (94-145). No direct standard analytical technique available.
Trisodium hydroxyethyl ethylene-diamine triacetate (HEDTA)	Has dissolved to a complexing agent that could have affected the mobility of certain COCs. Unexpected mobility of COCs will indicate the presence of complexents. Based on evaluation of the sources identified in Table 1-4 CP-13196, Rev. 0, chemicals are used in minute quantities relative to the bulk production chemicals consumed in the normal processes. These chemicals have no suspected introduction to waste streams, except in incidental quantities. No direct standard analytical technique available.
Trisodium nitrilo triacetate (NTA)	Has dissolved to a complexing agent that could have affected the mobility of certain COCs. Unexpected mobility of COCs will indicate the presence of complexents. Material used in low or trace quantities at Hanford Site. No cleanup levels established in the MTCA 3.1 tables (94-145). No direct standard analytical technique available.
Turco (Fabricfilm)	Commercial chemical compound containing toluene, butanol, and isopropanol, which have been previously identified as COCs.
Turco 2822	Commercial chemical compound containing methylene chloride and acetic acid, which have been previously identified as COCs.
Turco 2844	Commercial product; no standard analytical method in place for its analysis.
Turco 4358-4A	Commercial product; no standard analytical method in place for its analysis.
Turco 4501 A	Commercial product containing potassium hydroxide and hydroxydiamine compounds, which have been previously excluded.
Turco 4518	Commercial chemical compound containing benzene, sulfonate, and sodium, which have been previously identified as COCs.
Turco 4521	Commercial chemical compound containing benzene, sulfonate, and sodium, which have been previously identified as COCs.
Turco 4605-8	Commercial product; no standard analytical method in place for its analysis.

Table H-6. List of Excluded Contaminants of Potential Concern with Reasons for Exclusion – Organics. (18 sheets)

Organics	Reason for Exclusion
Turco 4669	Commercial product; no standard analytical method in place for its analysis.
Turco 4715	Commercial product; no standard analytical method in place for its analysis.
Turco 4738 (Thin)	Commercial product; no standard analytical method in place for its analysis.
Turco Alkaline (rust remover)	Commercial chemical compound containing sodium hydroxide and kerosene, which have been previously identified as COCs.
Turco Deseal Zit 2	Commercial chemical compound containing methylene chloride and acetic acid, which have been previously identified as COCs.
Turco EPO Strip	Commercial product; no standard analytical method in place for its analysis.
Turco EPO Strip NP	Commercial product; no standard analytical method in place for its analysis.
Turco Plaudit	Commercial product; no standard analytical method in place for its analysis.
Turco T-5561	Commercial chemical compound containing ethanol and mineral oil, which have been previously identified as COCs.
Turco T-5589	Commercial chemical compound containing isopropanol and ammonium hydroxide, which have been previously identified as COCs.
Urea	This is a constituent of some fertilizers. This compound will degrade to nitrogen, nitrate, and ammonia. Material used in low or trace quantities at Hanford Site. No cleanup levels established in the MTCA 3.1 tables (94-145). No standard analytical method in place for its analysis.
West Lode degreaser	Commercial chemical compound containing aromatic compounds such as benzene and phenol, which have been previously identified as COCs
Wyandotte 1112	Commercial product; no standard analytical method in place for its analysis.
Wyandotte Kelvar	Commercial product; no standard analytical method in place for its analysis.
Wyandotte MF	Commercial product; no standard analytical method in place for its analysis.
Wyandotte P1075	Commercial product; no standard analytical method in place for its analysis.

CFR = *Code of Federal Regulations*
COC = contaminant of concern
GCMS = gas chromatography/mass spectrometry
IX = ion exchange
MTCA = *Model Toxics Control Act*
PRF = Plutonium Reclamation Facility
SVOA = semi-volatile organic analysis
TIC = tentatively identified compound
WAC = *Washington Administrative Code*
WMA = waste management area
VOA = volatile organic analysis

REFERENCES

40 CFR 268, "Land Disposal Restrictions," *Code of Federal Regulations*, as amended.

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DOE/RL-2003-35, 2001, *200-CW-1 Operable Unit Remedial Investigation Report*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Parrington, J. R., 1996, *Nuclides and Isotopes*, General Electric Company and KAPL, Inc., San Jose, California.

Rickard, W. H., and M. C. McShane, 1984, "Demise of spiny hopsage shrubs following summer wildfire: an authentic record," *Northwest Science*, 58(4):292-295.

WAC 173-340, "Model Toxics Control Act – Cleanup," *Washington Administrative Code*, as amended.

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APPENDIX I

PRELIMINARY IDENTIFICATION OF REMEDIAL ALTERNATIVES

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APPENDIX I

PRELIMINARY IDENTIFICATION OF REMEDIAL ALTERNATIVES

Anticipated remedial alternatives that will be evaluated during the feasibility study (FS) to address the 200-IS-1 Operable Unit (OU) pipelines, diversion boxes, and associated waste sites are presented below. Early identification of potential remedies is needed to focus on gathering appropriate data for decision making. Site attribute information will be an important element in selection of the preferred remedy for a waste site. Sequential remedial responses, or combined applications of remedies, may be required for some waste sites. The final remedies selected and documented in the Record of Decision (ROD) will be applied in a consistent manner.
A preferred remedial response will be designated for each of the site profiles and then applied to the waste sites that are associated with the profile. Based on the number of site profiles that have been developed at this time, multiple remedies will likely be implemented for pipelines, diversion boxes, and associated waste sites in the 200 Areas. A summary of the remedial alternatives that have currently been identified and will be further assessed in the FS are presented below.

No Action

It is required by 40 *Code of Federal Regulations* (CFR) 300, "National Oil and Hazardous Substances Pollution Contingency Plan," that a "no action" alternative be evaluated as a baseline for comparison with other remedial alternatives. The no action alternative represents a situation where no legal restrictions, access controls, or active remedial measures are applied to the site. No action implies "walking away" from the waste site and allowing the wastes to remain in the current configuration, thus, being affected only by natural processes. No maintenance or other activities would be instituted or continued. Selecting the no action alternative would require that a waste site pose no unacceptable threat to human health or the environment.

Maintain Existing Soil Cover/Institutional Controls/Monitored Natural Attenuation

Under this alternative, existing soil cover that has been placed on a wastes site would be maintained and/or augmented as needed to provide protection from intrusion by biological receptors, along with legal barriers (e.g., deed restrictions and excavation permits) and physical barriers (e.g., fencing) that would mitigate contaminant exposure. Radioactive contaminants remaining beneath the clean soil cover would be allowed to decay in place (i.e., to attenuate naturally) thereby reducing risk until remediation goals are met. This alternative may be preferable in the following circumstances:

- When contaminant concentrations are very close to remedial goals
- For contaminants that naturally attenuate and are not mobile in the environment
- When the cost to remediate does not gain a comparable amount of risk reduction
- When the cost for active remediation (e.g., remove and dispose, capping) is prohibitive.

For sites having a clean soil cover of less than <4.6 m [15 ft], more stringent institutional controls (e.g., physical and legal barriers, biological monitoring, removal of deeply rooted plants,

and control of deep burrowing animals) would need to be implemented. Water- and land-use restrictions also would be used to prevent exposure.

Natural attenuation relies on natural processes to lower contaminant concentrations until cleanup levels are met. Monitored natural attenuation would include sampling and/or environmental monitoring, consistent with U.S. Environmental Protection Agency (EPA) guidance (EPA 540/R-99/006, *Radiation Risk Assessment at CERCLA Sites: Q&A*, OSWER Directive No. 9200.4-31P) to verify that contaminants are attenuating as expected and to ensure that contaminants remain isolated (e.g., will not lead to degradation of groundwater or be released to air or biota). Attenuation monitoring activities could include monitoring of the vadose zone using geophysical logging methods or groundwater monitoring to verify that natural attenuation processes are effective. Monitoring of groundwater may be required near sites with mobile contaminants left in place, to verify that groundwater is not being impacted.

Remove/Treat/Dispose

Remedial alternatives will be evaluated that may involve different combinations of remove, treat, and dispose actions depending on site conditions. Consideration of radiological composition and activity, remediation worker exposure hazards, and available disposal pathways, will have a significant influence on remedy selection. Removal activities will involve excavation of soil and structures. Treatment may include in situ or ex situ operations. Treatment technologies involving in-place stabilization or post-removal stabilization will be evaluated. Additional discussion on application of these potential actions is discussed below:

- Remove and Dispose:

  Structures and soil with contaminant concentrations above the preliminary remediation goals (PRGs) would be removed using conventional techniques and would be disposed at an approved disposal facility, most likely the Environmental Restoration Disposal Facility (ERDF), or at an offsite facility if transuranic (TRU) constituents are involved. The depth and, therefore, the volume of soil removed, largely will depend on which categories of PRGs are exceeded. For example, if human health direct-contact or ecological PRGs are exceeded, removals would be conducted to a maximum of 4.6 m (15 ft). Conversely, if groundwater protection is required, soils (to the extent practicable) would be removed to meet groundwater protection PRGs. A decision logic will be developed with criteria used to determine if below-grade structures (i.e., pipelines, diversion boxes, and catch tanks) that extend deeper than 4.6 m (15 ft) will be removed.

  The remediation of sites under the remove and dispose alternative would be guided by the observational approach. The observation approach is a method of planning, designing, and implementing a remedial action that relies on information (e.g., samples) collected during remediation to guide the direction and scope of the effort. Data collected are used to assess the extent of contamination and to make real-time decisions in the field. Targeted (or hot spot) removals could be considered under this alternative if contamination is localized in only a portion of a waste site.

  Radioactive waste will require special-handling protocols. Remote-controlled equipment and containment structures may be necessary if removal actions involve high-activity waste. Removal actions using the observational approach do not require that the precise extent of contamination be known before excavation; rather, the extent of contamination

is assessed as the excavation proceeds, and the extent of remediation is adjusted accordingly. In this alternative, soils will be removed until the PRGs are achieved to a maximum depth of 4.6 m (15 ft). In some cases, deeper depths of removal, as agreed upon with the regulators, may be required where removal of an engineered structure is required. If previously unanticipated contamination above the PRGs is discovered, the extent of remediation may be increased following consultation with the U.S. Department of Energy (DOE), EPA, and the Washington State Department of Ecology (Ecology) (i.e., the Tri-Parties). A decision to excavate to a greater depth to protect groundwater would depend on factors such as the cost of further remediation, amount of risk reduction achieved, volume of soil generated, availability of disposal facility capacity, impacts on cultural and ecological resources, logistics and interference with other onsite activities/ structures, worker safety issues, and implementability of the excavation for the deeper contamination.

- Remove with Ex Situ Treatment and Disposal:

  Low-level radioactive waste and/or hazardous waste are acceptable for disposal at the ERDF in accordance with the waste acceptance criteria (BHI-00139, *Environmental Restoration Disposal Facility Waste Acceptance Criteria*). For certain removal actions involving moderate- or high-activity radiological or mixed wastes, ex situ treatment may be required to meet disposal requirements. For this waste, treatment technologies will be identified to meet potential disposal requirements.

- In Situ Treatment with Remove and Dispose:

  Stabilization of residual liquids within pipelines may be required prior to initiating removal actions at some waste sites. Injection or pumping of specially formulated grout mixtures designed to encapsulate and stabilize any residual liquids will be considered as a remedial alternative. In situ treatment prior to removal would also be evaluated in consideration of worker safety, waste handling, and waste disposal considerations.

- In Situ Treatment:

  Some pipeline segments may have attributes where application of an in situ treatment technology would be an appropriate remedy. This remedy may be applicable to pipelines that have sorbed contaminants (e.g., vitrified clay pipe) or that have accumulated a significant build-up of scale or other residual material inside the pipe that would be difficult to remove. Leaking pipelines may also have a localized accumulation of contaminated soil concentrated near the base of the structure. Currently identified in situ treatment technologies consist of grout injection/pumping into a pipeline and/or the surrounding soil and vitrification. For grouting, chemical fixation agents would be mixed with the grout and used to stabilize local contamination. In situ vitrification techniques will be evaluated for situations were a mechanism to stabilize high-activity and/or TRU containing materials needs to be considered. These stabilization techniques would be remedial alternatives for those locations where the exposure pathway assessment identified groundwater as a potentially impacted media.

  Some pipeline locations are anticipated where placement of a plug of material will be sufficient to isolate the structure. These situations are currently being associated with those pipelines that have been identified where a segment of the line will be positioned

under a proposed barrier. Additional discussion concerning how planned barrier systems will considered during pipeline remedial decision making is provided in the next section.

Certain pipeline segments where the constructed materials have shown no tendency to sorb chemical constituents (e.g., stainless-steel pipelines) may only require application of a decontamination procedure. Flushing of residual constituents (i.e., liquids, sediments, and sludge) may be sufficient action to remove contaminants and eliminate future exposure concerns.

Capping/Barriers

Capping consists of constructing a surface barrier over contaminated waste sites to control the amount of water that infiltrates into contaminated media in order to reduce or eliminate leaching of contamination to groundwater. In addition to their hydrological performance, barriers also may function as physical barriers to prevent intrusion by human and ecological receptors, limit wind and water erosion, and shield radiation. Institutional controls are required to prevent intrusion to the capped area and to prevent activities that might alter the effectiveness of the cap. Institutional controls (including legal, administrative, or physical controls such as deed restrictions, excavation permits, and fencing) are required to minimize the potential for exposure to contamination. Performance monitoring is associated with this alternative to ensure that the cap is performing as expected and groundwater is protected.

The *200 Areas Remedial Investigation/Feasibility Study Implementation Plan – Environmental Restoration Program* (DOE/RL-98-28) identified surface barriers that are engineered for arid climates (i.e., alternative barriers) as a viable remediation alternative for containment of waste, as opposed to conventional surface barriers (e.g., standard *Resource Conservation and Recovery Act of 1976* [RCRA], Subtitle C barrier design). Conventional barriers are multilayered systems that rely on geomembranes, clay layers, or a combination of both to form a hydraulic barrier to prevent the vertical movement of water. More recently, alternative barriers have been gaining acceptance, particularly for use in semi-arid and arid climates such as the Hanford Site. Alternative barriers that predominantly rely on evapotranspiration processes to control the movement of water are referred to as evapotranspiration barriers.

Large sections of pipelines and many of the diversion boxes that are part of the 200-IS-1 OU are located in areas where use of a barrier system has been proposed for remedial actions that will undertaken by another OU or project to address facilities, waste management areas (WMAs), and/or other waste sites. Evaluation of remedial alternatives for the 200-IS-1 waste sites will consider the benefits of these proposed barriers and how remedial strategies and decisions can be integrated. Locations of the 200-IS-1 waste sites and where barriers are currently being considered in the 200 Areas are shown on Plate Maps 1, 2, 4, and 5. Effective use of the barriers in conjunction with pipeline and diversion box remedial strategies may incorporate use of additional actions such as grouting sections of pipelines at edges of barriers. Cutting and plugging (i.e., nuclear blanking) is performed to eliminate the potential for empty pipelines to act as a conduits and permit fluid flow through the pipe and back under the barrier. The main barrier systems currently identified that will be considered in remedial alternative evaluations for pipelines, diversion boxes, and associated waste sites are listed below:

- Canyon Facility Barrier:

  A complex network of pipelines, diversion boxes, and associated waste sites occur adjacent to many of the main process facility buildings in the 200 Areas (e.g., U Plant, T Plant, B Plant, etc.). These pipelines and diversion boxes are associated with transfer of process liquids into or out of these facilities. Barrier designs have been proposed as part of the Canyon Disposition Initiative in conjunction with demolition and decommissioning actions. It is anticipated that these barriers will also be able to serve as an acceptable remedial response for the pipelines and diversion boxes that will also underlie the cover system.

- Tank Farm WMA Barrier:

  Pipelines identified within the 200-IS-1 OU pass into and out of the 200 Area tank farms. The remediation approach for the pipelines and diversion boxes within the tank farms is addressed within the tank farms WMA closure plan. Delineation of the boundary between 200-IS-1 and the tank farm WMA boundary as it applies to the waste transfer pipeline system is currently being defined. During the development of this work plan, it was assumed that sections of pipelines or locations of diversion boxes that would occur under a proposed barrier system for the tank farms would use the barrier as the preferred remedial alternative.

- Waste Site Barriers:

  Barrier systems are under consideration as a remedial alternative for a number of the disposal waste sites within the 200 Areas (i.e., crib, trenches, and ditches). Portions of pipelines that are connected to these sites will be located under the effective portion of the barriers. Benefits of these barriers will be evaluated and considered in remedial decisions for the sections of the 200-IS-1 pipelines that will be affected by the proposed barrier locations.

REFERENCES

40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan," *Code of Federal Regulations*, as amended.

BHI-00139, 2002, *Environmental Restoration Disposal Facility Waste Acceptance Criteria*, Rev. 4, Bechtel Hanford, Inc., Richland, Washington.

DOE/RL-98-28, 1999, *200 Areas Remedial Investigation/Feasibility Study Implementation Plan – Environmental Restoration Program*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

EPA 540/R-99-005, *Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment* (Interim), U.S. Environmental Protection Agency, Washington, D.C.

OSWER Directive 9200.4-21P, 1999, *Radiation Risk Assessment at CERCLA Sites: Q&A*, U.S. Environmental Protection Agency, Washington, D.C.

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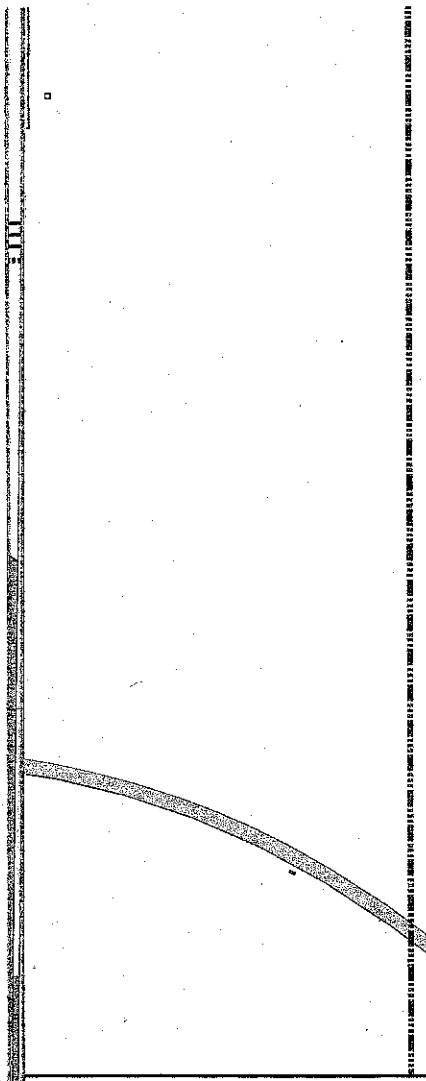
Plate 1 - Waste Sites and Underground Lines, 200 East Vicinity



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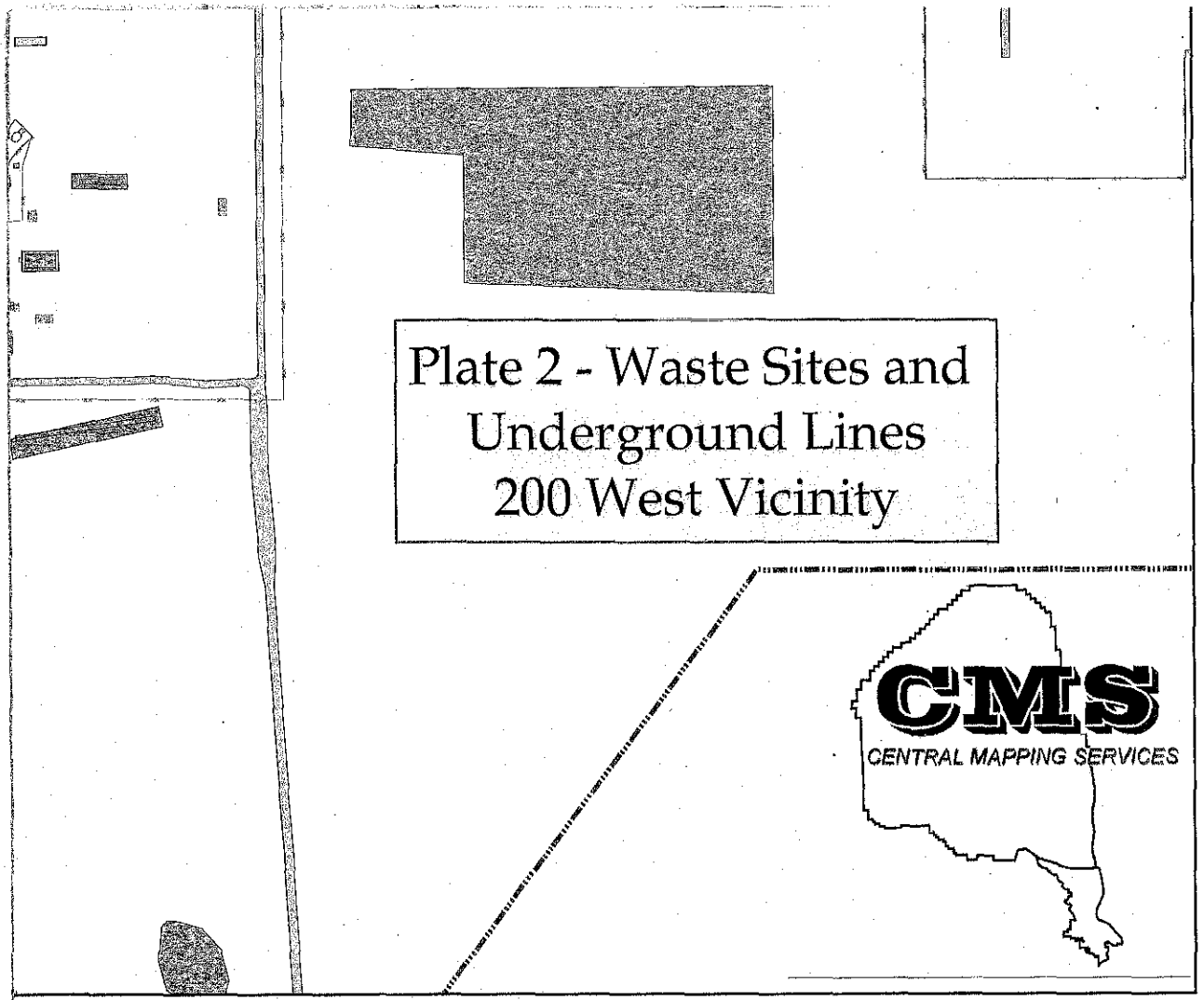

Plate 2 - Waste Sites and Underground Lines 200 West Vicinity

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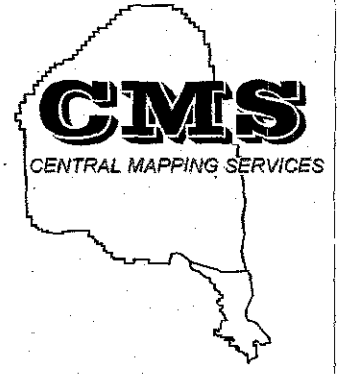
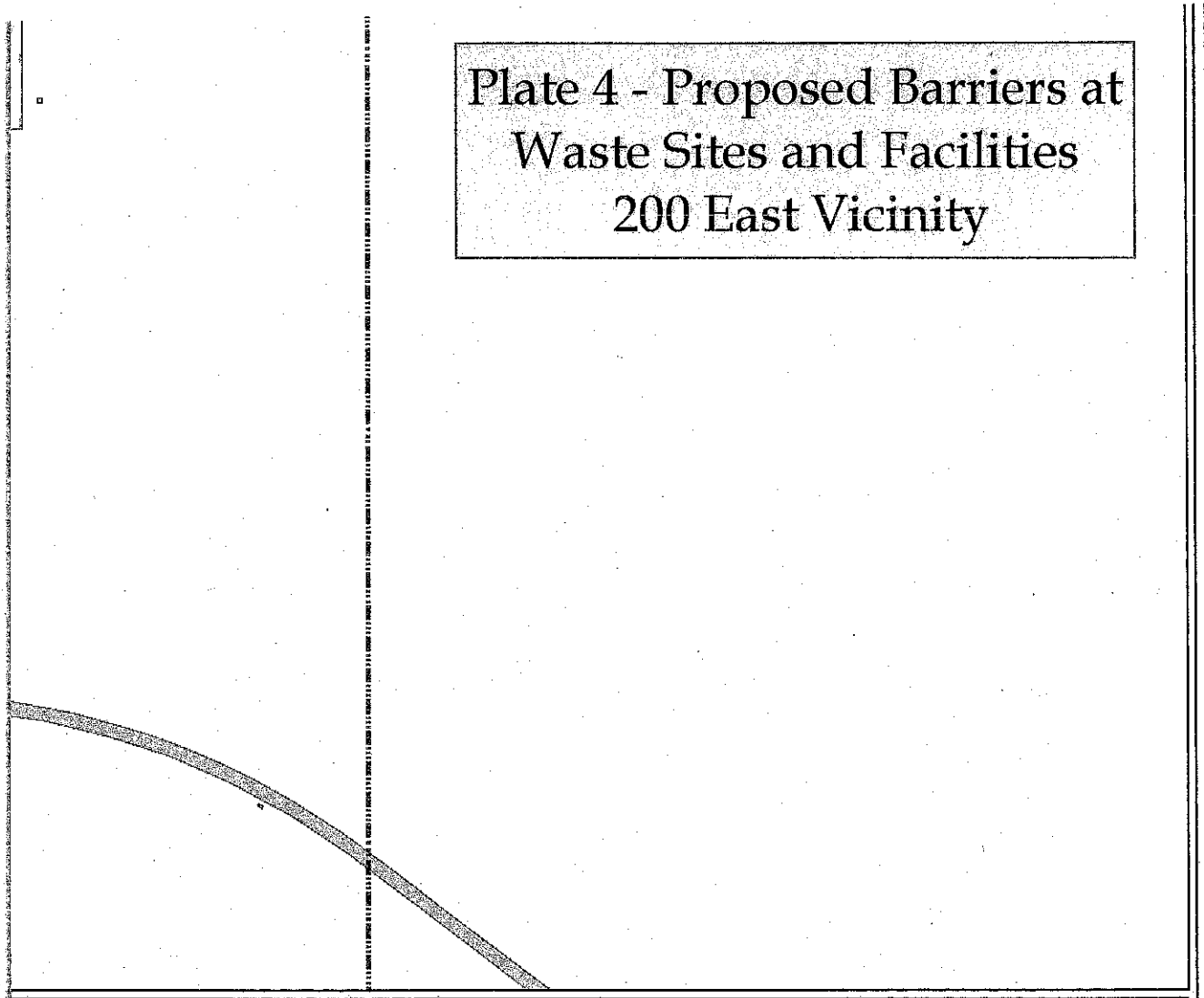


Plate 4 - Proposed Barriers at Waste Sites and Facilities 200 East Vicinity



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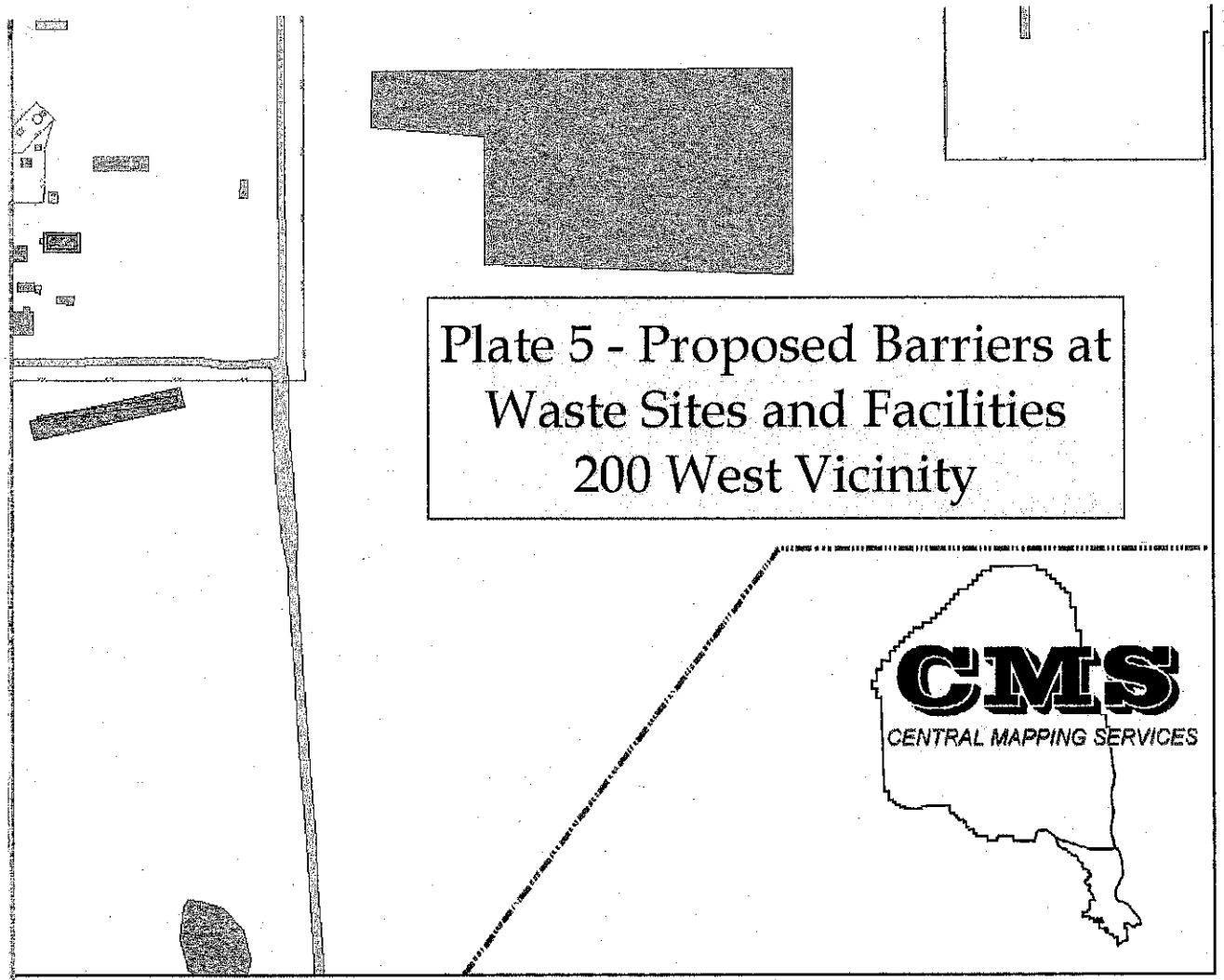

Plate 5 - Proposed Barriers at Waste Sites and Facilities 200 West Vicinity

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