

5.0 RELEASES FROM SOLID WASTE MANAGEMENT UNITS

[WAC 173-303-806(4)(a)(xxiv), 645, 646]

This section describes locations where solid wastes have been managed or are managed, and provides information on known and suspected releases of dangerous wastes and/or dangerous constituents. The closure of the surface impoundment system is also described.

5.1 SOLID WASTE MANAGEMENT UNITS AND KNOWN AND SUSPECTED RELEASES OF DANGEROUS WASTES OR CONSTITUENTS

The following information relates to the entire facility which includes areas that are not encompassed by the footprint of the active facility.

5.1.1 Solid Waste Management Units (SWMU's)

A list of solid waste management units is included as Attachment 5.1. Following the listing are data sheets, one for each listed SWMU. The data sheets include:

- The location of each unit;
- A description of the type of unit and how it was used to manage solid waste;
- The operating period of the unit;
- Drawing references where applicable, and
- Types of waste(s) managed in the unit.

A RCRA Facility Assessment (RFA) was conducted by PRC Environmental Management, Inc. in 1996. The complete RFA report is included as Attachment 5.2.

5.1.2 Releases

Included in both the SWMU data sheets and RFA tables is a complete history of spills, leaks, and releases. The details for each unit include:

- Extent of the release and the dangerous constituents present;
- Results (referenced) of any sampling and analysis of the release;
- Impacts or potential impacts to humans or the environment;
- The period over which the release occurred;
- Other applicable information.

In addition to the list of SWMU's, a detailed log is kept on file of all reported spills and releases throughout the active facility.

5.2 CORRECTIVE ACTIONS IMPLEMENTED

AREVA has recently closed the surface impoundment system per Ecology approved EMF-2826 Revision 3, Closure Plan for the Surface Impoundment System. The Closure Certification for the AREVA NP Surface Impoundment System was submitted to Ecology's Nuclear Waste Program on September 28, 2006. Ecology accepted AREVA's closure certification of the surface impoundment system via letter of November 14, 2006 (Attachment 5.3). AREVA's surface impoundment system included six liquid retention impoundments and several other ancillary SWMU's. All closure work was completed per Ecology's Dangerous Waste Regulations (WAC 173-303) and Ecology's Model Toxics Control Act (WAC 173-340).

Attachment 5.1. Solid Waste Management Units (SWMU's)

Sequence No.	Unit	Unit Name
<input type="checkbox"/>	8	1 Surface Impoundments - Lagoon 1
<input type="checkbox"/>	9	2 Surface Impoundments - Lagoon 2
<input type="checkbox"/>	10	3 Surface Impoundments - Lagoon 3
<input type="checkbox"/>	11	4 Surface Impoundments - Lagoon 4
<input type="checkbox"/>	12	5 Surface Impoundments - Lagoon 5A
<input type="checkbox"/>	13	6 Surface Impoundments - Lagoon 5B
<input type="checkbox"/>	18	7 Sand Trench
<input type="checkbox"/>	17	8 Leach Pit
<input type="checkbox"/>	16	9 Former Neutralization Pit and Sump
<input type="checkbox"/>	24	10 Retention Tanks
<input type="checkbox"/>	26	11 Low-Level Waste Storage Area (North Pad)
<input type="checkbox"/>	33	12 Low-Level Waste Storage Area (South Pad)
<input type="checkbox"/>	27	13 Mixed & Under 90-Day Storage Area
<input type="checkbox"/>	34	14 Current Boneyard Area (Post-1993) (#4)
<input type="checkbox"/>	32	15 1992 Boneyard (#3) (Located at South End of Facility)
<input type="checkbox"/>	39	16 Former Boneyard (#2) (Located beneath east end of Machine Shop)
<input type="checkbox"/>	23	17 UO2 Area Boneyard (Located beneath south end of UO2 Building)
<input type="checkbox"/>	49	18 ELO Sump and Dry Well
<input type="checkbox"/>	7	19 ARF Truck Cleanout Sump
<input type="checkbox"/>	21	20 Former Paint Shop Trailer Dry Well
<input type="checkbox"/>	1	21 UO2 Building - North End
<input type="checkbox"/>	15	22 UO2 Building - East End, Former East Tank Farm
<input type="checkbox"/>	43	23 UO2 Building - West End, Former West Tank Farm
<input type="checkbox"/>	14	24 UO2 Building Low-Level Waste Staging Area <i>mixed</i>
<input type="checkbox"/>	38	25 Machine Shop
<input type="checkbox"/>	22	26 Former Paint Shop Area
<input type="checkbox"/>	31	27 Drum Storage Area Near Current Paint Shop
<input type="checkbox"/>	53	28 Solid Waste Dumpsters
<input type="checkbox"/>	28	29 Steamcleaning Area
<input type="checkbox"/>	45	30 Specialty Fuels Building Mixed Oxide Waste Storage Unit
<input type="checkbox"/>	40	31 SWUR Barrel Staging Area
<input type="checkbox"/>	36	32 Scrap Stainless Steel Storage Bin

Sequence No.	Unit	Unit Name
<input type="checkbox"/>	37	33 Zirconium Burn Towers
<input type="checkbox"/>	30	34 Sand Blast Area
<input type="checkbox"/>	25	35 Used Oil Storage Area/Former Waste Oil UST
<input type="checkbox"/>	52	36 Process Waste Transfer Lines
<input type="checkbox"/>	6	37 Product Tank Fills without Secondary Containment (North of ARF)
<input type="checkbox"/>	5	38 Ammonia Recovery Facility (ARF)
<input type="checkbox"/>	29	39 Lagoon Uranium Recovery (LUR) Facility
<input type="checkbox"/>	59	40 Open Burn Areas
<input type="checkbox"/>	60	41 Asphalt Storage Pile
<input type="checkbox"/>	63	42 City Lift Station (old)
<input type="checkbox"/>	70	43 Sewer Line
<input type="checkbox"/>	61	44 Demolition Landfill SW of Facility
<input type="checkbox"/>	58	45 Demolition Landfill in CTF Ravines
<input type="checkbox"/>	55	46 South Pit
<input type="checkbox"/>	56	47 CTF Road Area
<input type="checkbox"/>	62	48 South Diagonal Road Area
<input type="checkbox"/>	68	49 16 SE/4 Dumping Area
<input type="checkbox"/>	69	50 16 SE/4 Depression
<input type="checkbox"/>	66	51 Areas Oiled for Dust Control, North Main Parking Lot
<input type="checkbox"/>	65	52 Areas Oiled for Dust Control, West Parking Lot
<input type="checkbox"/>	67	53 Near Y in Unused Road in 16 SE/4
<input type="checkbox"/>	57	54 Centrifuge Test Facility
<input type="checkbox"/>	1000	55 Dangerous Waste Storage Pad
<input type="checkbox"/>	54	57 Satellite Accumulation Areas
<input type="checkbox"/>	3	58 Ion Exchange Columns (ARF)
<input type="checkbox"/>	46	59 Metallurgy Lab Silver Recovery Unit
<input type="checkbox"/>	35	60 Component Etch Waste Tank
<input type="checkbox"/>	20	61 Neutralization Unit for Deionized Water System Regeneration Waste
<input type="checkbox"/>	19	62 Solvent Extraction Process Waste Neutralization Unit
<input type="checkbox"/>	47	63 Dry Conversion Pilot Plant Waste Acid Neutralization Unit
<input type="checkbox"/>	42	64 UO2 Building Lab Addition Waste Neutralization Unit
<input type="checkbox"/>	4	65 IX Column Neutralization/Metals Removal Unit

Sequence No.	Unit	Unit Name	
<input type="checkbox"/>	64	66	City Lift Station
<input type="checkbox"/>	41	67	SWUR and UO2 Lab Waste Transfer Tank
<input type="checkbox"/>	44	68	SWUR Waste Accumulation Tank (TK-682)
<input type="checkbox"/>	50	69	ELO Sump Tank - Room 58
<input type="checkbox"/>	51	70	Raffinate Tanks (TK-317, 318)
<input type="checkbox"/>	48	71	High Uranium Transfer Tank (TK-16)
<input type="checkbox"/>	2	72	Quarantine Tanks (TK-709)
<input type="checkbox"/>	0	73	Solid Waste Uranium Recovery (SWUR) Facility

Unit: 1	Unit Name: Surface Impoundments - Lagoon 1
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Dates of Operation: 1971 to 2005	Operational Status: Closed	Capacity: 1.3 million gallons
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Time Waste Stored:
All waste removed

Unit Description:
Covered surface impoundment. Approximate dimensions 245 ft X 219 ft X 3.5 ft.

Location:
East of UO2 Building, south of ARF.

Drawing Numbers:
3959-C-1, ENF-609,485 (1.1)

Construction Details and Modifications:
Constructed in 1971 with single Petromat liner. Two Hypalon liners with leak detection system added in 1979. Floating Hypalon cover installed in 1984. Two HDPE 60 mil liners with intervening leak detection and HDPE cover installed in 1992.

Release Controls:
Multiple liners, floating cover, at least 2 ft of freeboard, interliner leak detection system.

Waste Types, Quantities, Sources, and Disposition:
Process solutions from ADU conversion containing mainly ammonia, ammonium hydroxide, ammonium nitrate, ammonium fluoride and ppm levels of uranium.

Inspection and Maintenance:
Daily lagoon level (freeboard) measurements. Weekly inspections for integrity/operability of berms, wave walls, covers, liners, safety/environmental equipment; presence of foreign material/debris. Monthly operation of inter-liner leachate collection/sampling system with comparison to established lagoon-specific leak response levels. All inspections documented per Plant Support procedures/daily logs. Pre-planned emergency response per formal lagoon contingency procedure. Equipment/instrumentation subject to established AREVA instrument repetitive maintenance (IRM)/equipment preventive maintenance (PM) program.

History of Leaks, Spills, and Releases:
Reported repairs of defects/holes in single liner system in early/mid-1970s. Report of liquids blown over berm in 1974. Appearance of lagoon chemical constituents in downgradient monitoring wells. Soil sampling below bottom (Petromat) liner in June 1992 in conjunction with MTCA RI/FS revealed radiological and non-radiological lagoon constituents at elevated levels with respect to background.

Conclusions and Recommendations:
Unit construction met RCRA Minimum Technological Requirements (MTRs) including multiple liners, inter-liner leachate detection/collection, and groundwater monitoring. Lagoon covered to preclude airborne release of volatile ammonia or wind-driven overtopping. Subject to multiple inspection protocols and established maintenance programs. Contaminated underlying soils have been removed per EMF-2826 Closure Plan for the Surface Impoundment System. Ecology approved final closure on 11/14/2006. Groundwater monitoring under MTCA will continue (E06-04-003 Sampling and Analysis Plan for Continuation of Groundwater Monitoring under MTCA Independent Action RI/FS).

Unit: 2	Unit Name: Surface Impoundments - Lagoon 2	
Years of Operation: 1971 to 2005	Operational Status: Closed	Capacity: 0.7 million gallons
Time Waste Stored: All waste removed	Unit Description: Covered surface impoundment. Approximate dimensions 245 ft X 119 ft X 3.5 ft.	
Location: Directly south of Lagoon 1. ENF-609,485 (1.2)		
Drawing Numbers: 3959-C-11	Construction Details and Modifications: Constructed in 1971 with single Petromat liner. Two Hypalon liners with leak detection system added in 1978. Floating Hypalon cover installed in 1989.	
Release Controls: Multiple liners, floating cover, at least 2 ft of freeboard, interliner leak detection system.	Waste Types, Quantities, Sources, and Disposition: Process solutions from ADU conversion containing mainly ammonia, ammonium hydroxide, ammonium nitrate, ammonium fluoride and ppm levels of uranium.	
Inspection and Maintenance: Daily lagoon level (freeboard) measurements. Weekly inspections for integrity/operability of berms, wave walls, covers, liners, safety/environmental equipment; presence of foreign material/debris. Monthly operation of inter-liner leachate collection/sampling system with comparison to established lagoon-specific leak response levels. All inspections documented per Plant Support procedures/daily logs. Pre-planned emergency response per formal lagoon contingency procedure. Equipment/instrumentation subject to established AREVA instrument repetitive maintenance (IRM)/equipment preventive maintenance (PM) program.		
History of Leaks, Spills, and Releases: Reported repairs of defects/holes in single liner system in early/mid-1970s. Report of liquids blown over berm in 1974. Appearance of lagoon chemical constituents in downgradient monitoring wells. Soil core sampling reportedly conducted below bottom Petromat liner at time of installation of Hypalon double liners (1978) indicated uranium contamination.		
Conclusions and Recommendations: Unit construction met RCRA Minimum Technological Requirements (MTRs) including multiple liners, inter-liner leachate detection/collection, and groundwater monitoring. Lagoon covered to preclude airborne release of volatile ammonia or wind-driven overtopping. Subject to multiple inspection protocols and established maintenance programs. Contaminated soils have been removed per EMF-2826 Closure Plan for the Surface Impoundment System. Ecology approved final closure on 11/14/2006. Groundwater monitoring under MTCA will continue (E06-04-003 Sampling and Analysis Plan for Continuation of Groundwater Monitoring Under MTCA Independent Action RI/FS).		

Unit: 3	Unit Name: Surface Impoundments - Lagoon 3
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Dates of Operation: 1974 to 2005	Operational Status: Closed	Capacity: 2.9 million gallons
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Time Waste Stored:
All waste removed

Location:
Directly south of Lagoon 2. ENF-609,485 (1.3)

Unit Description:
Open surface impoundment. Approximate dimensions 383 ft X 243 ft X 7.1 ft.

Drawing Numbers:
3959-C-24

Construction Details and Modifications:
Constructed in 1974 with single Petromat liner. Two Hypalon liners with leak detection system added in 1979.

Release Controls:
Multiple liners, at least 2 ft of freeboard, interliner leak detection system.

Waste Types, Quantities, Sources, and Disposition:
Process solutions containing mainly ammonia, ammonium hydroxide, ammonium nitrate, ammonium fluoride and gram per liter levels of uranium.

Inspection and Maintenance:
Daily lagoon level (freeboard) measurements. Weekly inspections for integrity/operability of berms, wave walls, covers, liners, safety/environmental equipment; presence of foreign material/debris. Monthly operation of inter-liner leachate collection/sampling system with comparison to established lagoon-specific leak response levels. All inspections documented per Plant Support procedures/daily logs. Pre-planned emergency response per formal lagoon contingency procedure. Equipment/instrumentation subject to established AREVA instrument repetitive maintenance (IRM)/equipment preventive maintenance (PM) program.

History of Leaks, Spills, and Releases:
Reported repair to single (Petromat) liner at time of installation of double Hypalon liners (1979). Soil core sampling reportedly conducted at time of installation of Hypalon liners indicated uranium contamination below original Petromat liner.

Conclusions and Recommendations:
Unit construction met RCRA Minimum Technological Requirements (MTRs) including multiple liners, inter-liner leachate detection/collection, and groundwater monitoring. No volatile hazardous constituents managed. Overtopping precluded via combination of freeboard maintenance and engineered barriers. Subject to multiple inspection protocols and established maintenance programs. Contaminated soils have been removed per EMF-2826 Closure Plan for the Surface Impoundment System. Ecology approved final closure on 11/14/2006. Groundwater monitoring under MTCA will continue (E06-04-003 Sampling and Analysis Plan for Continuation of Groundwater Monitoring Under MTCA Independent Action RI/FS).

Unit: 4	Unit Name: Surface Impoundments - Lagoon 4
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Years of Operation: 1979 to 2005	Operational Status: Closed	Capacity: 2.1 million gallons
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Time Waste Stored: All waste removed	Unit Description: Open surface impoundment. Approximate dimensions 288 ft X 240 ft X 6 ft.
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Location: Directly south of Lagoon 3. ENF-609,485 (1.4)
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Drawing Numbers: 3959-C-32

Construction Details and Modifications: Constructed in 1979 with two Hypalon liners with leak detection system. HDPE liner added above the two Hypalon liners in 1989.

Release Controls: Multiple liners, at least 2 ft of freeboard, interliner leak detection system.

Waste Types, Quantities, Sources, and Disposition: Process solutions from Lagoon Uranium Recovery facility containing mainly ammonia, ammonium hydroxide, ammonium nitrate, ammonium fluoride and ppm levels of uranium.

Inspection and Maintenance: Daily lagoon level (freeboard) measurements. Weekly inspections for integrity/operability of berms, wave walls, covers, liners, safety/environmental equipment; presence of foreign material/debris. Monthly operation of inter-liner leachate collection/sampling system with comparison to established lagoon-specific leak response levels. All inspections documented per Plant Support procedures/daily logs. Pre-planned emergency response per formal lagoon contingency procedure. Equipment/instrumentation subject to established AREVA instrument repetitive maintenance (IRM)/equipment preventive maintenance (PM) program.

History of Leaks, Spills, and Releases: No known releases to environment. Minimum of two liners with inter-liner leachate collection/detection from time of original construction.

Conclusions and Recommendations: Current unit construction meets RCRA Minimum Technological Requirements (MTRs) including multiple liners, inter-liner leachate detection/collection, and groundwater monitoring. No volatile hazardous constituents managed. Overtopping precluded via combination of freeboard maintenance and engineered barriers. Subject to multiple inspection protocols and established maintenance programs. Contaminated soils have been removed per EMF-2826 Closure Plan for the Surface Impoundment System. Ecology approved final closure on 11/14/2006. Groundwater monitoring under MTCA will continue (E06-04-003 Sampling and Analysis Plan for Continuation of Groundwater Monitoring Under MTCA Independent Action RI/FS).
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Unit: 5	Unit Name: Surface Impoundments - Lagoon 5A
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Dates of Operation: 1982 to 2005	Operational Status: Closed	Capacity: 1.3 million gallons
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Time Waste Stored: All waste removed	Unit Description: Open surface impoundment. Approximate dimensions 240 ft X 175 ft X 7.5 ft.
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Location: Directly east of Lagoon 1. ENF-609,485 (1.5)	
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Drawing Numbers: XN-606,176	Construction Details and Modifications: Constructed in 1982 with single Hypalon liner. Second Hypalon liner and leak detection system added in 1983.
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Release Controls: Multiple liners, at least 2 ft of freeboard, interliner leak detection system.	Waste Types, Quantities, Sources, and Disposition: Process solutions from Ammonia Recovery facility containing mainly sodium fluoride and sodium nitrate. Uranium typically < 0.1 ppm.
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Inspection and Maintenance: Daily lagoon level (freeboard) measurements. Weekly inspections for integrity/operability of berms, wave walls, covers, liners, safety/environmental equipment; presence of foreign material/debris. Monthly operation of inter-liner leachate collection/sampling system with comparison to established lagoon-specific leak response levels. All inspections documented per Plant Support procedures/daily logs. Pre-planned emergency response per formal lagoon contingency procedure. Equipment/instrumentation subject to established SPC instrument repetitive maintenance (IRM)/equipment preventive maintenance (PM) program.

History of Leaks, Spills, and Releases: No known releases to environment. Single-lined for only one year prior to installation of second liner with inter-liner leachate collection/detection (1983).
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Conclusions and Recommendations: Current unit construction meets RCRA Minimum Technological Requirements (MTRs) including multiple liners, inter-liner leachate detection/collection, and groundwater monitoring. No volatile hazardous constituents managed. Overtopping precluded via combination of freeboard maintenance and engineered barriers. Subject to multiple inspection protocols and established maintenance programs. Contaminated soils have been removed per EMF-2826 Closure Plan for the Surface Impoundment System. Ecology approved final closure on 11/14/2006. Groundwater monitoring under MTCA will continue (E06-04-003 Sampling and Analysis Plan for Continuation of Groundwater Monitoring Under MTCA Independent Action RI/FS).
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Unit:	6	Unit Name:	Surface Impoundments - Lagoon 5B
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Dates of Operation:	Operational Status:	Capacity:
1983 to 2005	Closed	1.3 million gallons

Time Waste Stored:	Unit Description:
All waste removed	Open surface impoundment. Approximate dimensions 240 ft X 175 ft X 7.5 ft.

Location:
Directly east of Lagoon 2. ENF-609,485 (1.6)

Drawing Numbers:
XN-606,176

Construction Details and Modifications:
Constructed in 1983 with two Hypalon liners with leak detection system.

Release Controls:
Multiple liners, at least 2 ft of freeboard, interliner leak detection system.

Waste Types, Quantities, Sources, and Disposition:
Process solutions from ADU conversion, Ammonia Recovery, or Lagoon Uranium Recovery containing ammonia, ammonium hydroxide, ammonium nitrate, ammonium fluoride and ppm levels of uranium.

Inspection and Maintenance:
Daily lagoon level (freeboard) measurements. Weekly inspections for integrity/operability of berms, wave walls, covers, liners, safety/environmental equipment; presence of foreign material/debris. Monthly operation of inter-liner leachate collection/sampling system with comparison to established lagoon-specific leak response levels. All inspections documented per Plant Support procedures/daily logs. Pre-planned emergency response per formal lagoon contingency procedure. Equipment/instrumentation subject to established SPC instrument repetitive maintenance (IRM)/equipment preventive maintenance (PM) program.

History of Leaks, Spills, and Releases:
No known releases to environment. Minimum of two liners with inter-liner leachate collection/detection from time of original construction.

Conclusions and Recommendations:
Current unit construction meets RCRA Minimum Technological Requirements (MTRs) including multiple liners, inter-liner leachate detection/collection, and groundwater monitoring. No volatile hazardous constituents managed. Overtopping precluded via combination of freeboard maintenance and engineered barriers. Subject to multiple inspection protocols and established maintenance programs. Contaminated soils have been removed per EMF-2826 Closure Plan for the Surface Impoundment System. Ecology approved final closure on 11/14/2006. Groundwater monitoring under MTCA will continue (E06-04-003 Sampling and Analysis Plan for Continuation of Groundwater Monitoring Under MTCA Independent Action RI/FS).

Unit: 7	Unit Name: Sand Trench
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Years of Operation: 1977 to 2005	Operational Status: Closed	Capacity: 47,900 cu. ft.
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Time Waste Stored: No wastes currently stored	Unit Description: Open surface impoundment. Approximate dimensions 300 ft. long X 39 ft. wide X 6 ft. deep
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Location: Directly west of Lagoon 2. ENF-609,485 (1.7)

Drawing Numbers: Figure 2

Construction Details and Modifications: Constructed in 1977 with single Hypalon liner. Trench was used to hold wind-blown sand from the lagoons during lagoon cleaning. Hypalon cover installed in 1980 and replaced in 1988. Cover prevented rainwater accumulation.
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Release Controls: Single 20 mil Hypalon liner, Hypalon cover used to prevent rainwater accumulation.

Waste Types, Quantities, Sources, and Disposition: Washed sand and solids from Lagoons 1 and 2. No liquids other than accumulated rainwater were stored in the sand trench. Solids transferred to Leach Pit via washing/uranium recovery process.
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Inspection and Maintenance: Not applicable, no liquid wastes were stored in this unit. Liner intact and not subject to inventory addition/removal operations associated with earlier liner damage.

History of Leaks, Spills, and Releases: No confirmed leaks or environmental releases during active inventory storage; however, suspected leak in 1980 prompted addition of Hypalon cover (replaced in 1988) to preclude rainwater accumulation. Some liner holes/tears created in process of introducing inventory or transferring inventory to leach pit. Portions of unit from which inventory was removed not subsequently re-used. All existing holes/tears repaired at time of final inventory processing/cover removal. Removal of four 20'x20' liner sections (May 1995) revealed localized, visually discernible areas of soil contamination. Laboratory analysis of soil samples confirmed presence of lagoon-derived constituents (uranium, fluoride, ammonia, etc.).
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Conclusions and Recommendations: Unit has been closed per EMF-2826 Closure Plan for the Surface Impoundment System. Contaminated soils have been removed. Ecology approved final closure on 11/14/2006. Groundwater monitoring under MTCA will continue (E06-04-003 Sampling and Analysis Plan for Continuation of Groundwater Monitoring Under MTCA Independent Action RI/F5).
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Unit: 8	Unit Name: Leach Pit
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Dates of Operation: 1983 to 2005	Operational Status: Closed	Capacity: 8,446 cu. ft.
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Time Waste Stored:
No wastes currently stored

Unit Description:
Open surface impoundment. Approximate dimensions 50 ft. long X 40 ft. wide X 8.5 ft. deep

Location:
Directly west of Lagoon 3. ENF-609,485 (1.8)

Drawing Numbers:
Figure 3

Construction Details and Modifications:
Constructed in 1983 with double Hypalon liner with leak detection system. Two additional Hypalon liners added in 1987. Fifth liner of HDPE installed in 1990.

Release Controls:
Multiple liners with interliner leak detection system.

Waste Types, Quantities, Sources, and Disposition:
Washed sand from Lagoons 1 and 2 (1977-79), ammonium carbonate solution (process trial only). Sand disposed to LLW disposal site.

Inspection and Maintenance:
Only inspected while actively operated. Liner intact and not subject to potentially damaging activities.

History of Leaks, Spills, and Releases:
Unit equipped with multiple liners from time of initial installation. No reports of known releases or need for lower liner repair (upper liner repaired in 1986). Soil sampling conducted below lowest liner (May 1995) revealed no contamination. Historic inventory managed not a dangerous waste per chemical and bioassay testing.

Conclusions and Recommendations:
Unit no longer in service; contains no residual inventory. Liner sections removed for 1995 investigation resealed in place. Did not manage dangerous wastes. No evidence of past leakage or mechanism for future environmental release/public health risk. No further action recommended at this time.

Unit: 9	Unit Name: Former Neutralization Pit and Sump
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Dates of Operation: 1971 to early 1980's	Operational Status: Closed	Capacity: 1000 gal. feed tank, sump capacity unknown
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Time Waste Stored:
No wastes currently stored

Unit Description:
Epoxy-lined concrete underground neutralization sump tank with stainless steel sulfuric acid feed tank.

Location:
Directly north of leach pit. ENF-609,485 (1.9)

Drawing Numbers:
3959-C-7 (site plan rev 1973), 3959-C-3 (site plan rev 1979), 3959-C-14 (piping diagram)

Construction Details and Modifications:
Sulfuric acid feed tank (1000 gal, SST) and neutralization tank (120 gal, SST) installed in 1971. Above-ground neutralization tank replaced with underground epoxy-coated concrete sump in 1974 .

Release Controls:
Former above ground tanks mounted on curbed cement pad with epoxy coating. Underground tank cement with protective epoxy coating.

Waste Types, Quantities, Sources, and Disposition:
Process solutions from ADU conversion containing mainly ammonia, ammonium hydroxide, ammonium nitrate, ammonium fluoride and ppm levels of uranium, neutralized with sulfuric acid. Effluent sent to lagoons.

Inspection and Maintenance:
Not applicable. Unit removed in early 1980s.

History of Leaks, Spills, and Releases:
Reports of broken chemical drain in former neutralization pit/sump (1974) and leaking underground stainless steel line from sulfuric acid tank to pit (1975). Area characterized as part of SPC MTCA RI/FS; discovery of limited contamination (gross alpha, fluoride, nitrate, sulfate) above background levels but well within MTCA cleanup standards (SPC Part B Permit Application, Volume IV, Exhibit M-1).

Conclusions and Recommendations:
Unit removed from service. Reported environmental releases relative to historic neutralization activities investigated under SPC MTCA RI/FS; no concerns identified. No further action recommended.

Unit: 10	Unit Name: Retention Tanks	
Years of Operation: 1970 to present	Operational Status: Active	Capacity: Two 30,000 gallon tanks
Time Waste Stored: One week average residence time	Unit Description: Two below-ground tanks constructed of unlined concrete in 1970. Contents discharge into the City of Richland sewer line after being assayed for radionuclides.	
Location: South of UO2 Building. ENF-609,485 (2)		
Drawing Numbers: 3959-C-5	Construction Details and Modifications: Concrete underground tanks	
Release Controls: Concrete walls, single containment	Waste Types, Quantities, Sources, and Disposition: Aqueous laundry wastes containing detergents and sub-ppm levels of uranium (current); laboratory solutions (historic); freon still bottoms (small quantities 1984-86)	
Inspection and Maintenance: Tanks both in routine usage involving receipt of non-dangerous, low uranium laundry wastes. Tanks subjected to periodic visual inspection in conjunction with tank draw-down/sludge cleanout activities. No periodic or non-routine maintenance procedures necessary. Covered by immediately downgradient groundwater monitoring well.		
History of Leaks, Spills, and Releases: No evidence of past or current leakage. TCE levels in downgradient well (GM-3) at approx. 15 ppb (1991, 92) declined steadily to <1 ppb (1996). Retention tanks hypothesized as potential source of TCE in GM-3, based solely on physical proximity; no process information supporting either receipt or leakage of TCE at retention tanks. No soil sampling of soil below tanks possible during MTCA RI/FS due to depth of tank bottom being very close to or lower than water table elevation. No management of volatile constituents posing potential for airborne releases.		
Conclusions and Recommendations: No history of releases. Subject to ongoing surveillance related to routine usage and periodic cleanout activities. Currently manages non-dangerous, low uranium laundry stream. Well covered by existing groundwater monitoring program. No further action recommended. Conduct environmental (groundwater, soil) sampling as appropriate at time of decommissioning pursuant to USNRC requirements.		

Unit:	11	Unit Name: Low-Level Waste Storage Area (North Pad)
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Dates of Operation: 1979 to present	Operational Status: Active	Capacity: 55,600 sq. ft.
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Time Waste Stored:
1979 to present

Location:
West of Lagoon 3. ENF-609,485 (4.1)

Unit Description:
Asphalt storage pad for containerized (drums and boxes) low level radioactive waste (non-mixed).

Drawing Numbers:
None

Construction Details and Modifications:
Non-bermed, asphalted area.

Release Controls:
Use of compatible containers; containers stored on pallets to avoid contact with stormwater; asphalt paved area.

Waste Types, Quantities, Sources, and Disposition:
Mostly solid low-level radioactive materials; some drums may have contained liquids. Disposition of wastes: volume reduction/burial, direct burial, incineration for uranium recovery, chemical processing for uranium recovery, or long-term storage.

Inspection and Maintenance:
Active container storage area managing low-level radioactive wastes (non-mixed) and visited on routine basis by Warehousing personnel. Inspected formally by Warehousing on a quarterly basis for condition of pad, integrity of containers, proper labeling, presence of debris/spills, compliance with storage time limits, etc. Questionable containers subject to replacement and/or over-packing; any releases documented and remediated.

History of Leaks, Spills, and Releases:
No known releases to the environment from historic or current operations.

Conclusions and Recommendations:
Low risk area relative to historic usage and current management practices. Additionally, this area had previously stored both dangerous and mixed waste, but has subsequently been closed for these waste types per Ecology approved closure plan EMF-97-032 Rev. 2 Closure Plan for the Historic Dangerous Waste Storage Pad.

Unit: 12	Unit Name: Low-Level Waste Storage Area (South Pad)	
Dates of Operation: 1991 to present	Operational Status: Active	Capacity: Approximately 20,000 sq. ft.
Time Waste Stored: 1991 to present	Unit Description: Drum storage pad for low-level radioactive waste constructed in 1991.	
Location: North of Warehouse 5. ENF-609,485 (4.2)		
Drawing Numbers: None	Construction Details and Modifications: Non-bermed, asphalted area	
Release Controls: Waste is stored in compatible containers; drums stored on pallets to avoid contact with storm water; asphalt paved area.	Waste Types, Quantities, Sources, and Disposition: Solid low-level radioactive waste in drums and boxes; dangerous wastes not managed in this area. Wastes typically dispositioned via burial.	
Inspection and Maintenance: Subject to ongoing surveillance associated with routine usage by Warehousing personnel.		
History of Leaks, Spills, and Releases: No management of dangerous wastes at this unit. No known releases to environment.		
Conclusions and Recommendations: Low risk area relative to historic and current usage. No further action recommended.		

Unit: 13	Unit Name: Mixed & Under 90-Day Storage Area
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Dates of Operation: 1985 to 2004	Operational Status: Closed	Capacity: 550 sq. ft.
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Time Waste Stored:
Less than 90 days

Unit Description:
Partially covered, paved area surrounded by a fence.

Location:
East of Chemical Storage Building. ENF-609,485 (4.3)

Drawing Numbers:
None

Construction Details and Modifications:
Asphalt pad constructed in 1985; concrete curbs on three sides, asphalt berm on fourth; fenced; partially covered. A former sump located in the southeast corner of the pad was eliminated and paved over in 1988.

Release Controls:
Asphalt pad curbed/bermed on all sides; partial cover; fenced; liquids stored on secondary containment pallets.

Waste Types, Quantities, Sources, and Disposition:
Less than 90 day wastes that possess either an EPA or Ecology dangerous waste constituent. Shipped off site for treatment/disposal.

Inspection and Maintenance:
Container storage area utilized for managing dangerous, non-mixed wastes (<90 day). Historically also managed small quantities of EHW and greater-than-90- day mixed wastes. Subject to informal surveillance via frequent visits by Traffic and Warehousing (T&W) personnel plus weekly inspection requirements.

History of Leaks, Spills, and Releases:
No known releases to environment since unit placed into service in 1985. Historic reports note drum storage and possible drum dumping (no details on contents or amounts) in general area west of pad. Soil sampling around the adjacent Chemical Storage Building, a known historic drum management area, revealed no evidence of environmental release (SPC MTCA RI/FS).

Conclusions and Recommendations:
This area has been closed per Ecology approved closure plan EMF-97-032 Revision 2, Closure Plan for the Historic Dangerous Waste Storage Pad. Ecology certified closure on March 15, 2005.

Unit: 14	Unit Name: Current Boneyard Area (Post-1993) (#4)
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Dates of Operation: 1993 to present	Operational Status: Active	Capacity: Approximately 10,000 sq. ft.
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Time Waste Stored:
No wastes stored

Unit Description:
Paved, fenced, access-controlled storage yard for non-contaminated used equipment and materials.

Location:
Southwest corner of fenced facility. ENF-609,485 (5.1)

Drawing Numbers:
None

Construction Details and Modifications:
N/A

Release Controls:
Asphalt pad; non management of hazardous materials.

Waste Types, Quantities, Sources, and Disposition:
Boneyard contents (noncontaminated equipment, salvage material); dangerous wastes not managed in this area.

Inspection and Maintenance:
Managed storage area for non-contaminated used equipment/materials with foreseeable re-use or resale value. Controlled access (locked gate) with introduction of items authorized/inventoried by single assigned individual. No storage of wastes or hazardous materials.

History of Leaks, Spills, and Releases:
No releases from current usage. Area unused prior to use as boneyard.

Conclusions and Recommendations:
No further action recommended.

Unit: 15	Unit Name: 1992 Boneyard (#3) (Located at South End of Facility)	
Years of Operation: 1992 to 1993	Operational Status: Closed	Capacity: Approximately 11,000 sq. ft.
Time Waste Stored: No wastes stored	Unit Description: Paved storage area.	
Location: South of carpenter shop. ENF-609,485 (5.2)		
Drawing Numbers: None	Construction Details and Modifications: N/A	
Release Controls: Asphalt pad	Waste Types, Quantities, Sources, and Disposition: Boneyard contents (electrical boxes, batteries, drums).	
Inspection and Maintenance: Not applicable; area no longer in service as boneyard. Designated as storage area for non-contaminated equipment and materials during use as boneyard; access not rigorously controlled.		
History of Leaks, Spills, and Releases: Primary usage for storage of material posing no threat of environmental release (process/facility equipment and materials). Some storage of containerized wastes/hazardous materials (used oils, solvents, laundry residues, etc.) in south and southwest portion of pad, with reports of liquid releases to ground. Area extensively sampled (excavated trenches and pits) as part of SPC MTCA RI/FS; discovery of limited contamination at levels well below MTCA cleanup standards (SPC Part B Permit Application, Volume IV, Exhibit M-1).		
Conclusions and Recommendations: Current usage poses no environmental or public health risks. Reported environmental releases relative to boneyard activities investigated under SPC MTCA RI/FS; no concerns identified. No further action recommended.		

Unit: 16	Unit Name: Former Boneyard (#2) (Located beneath east end of Machine Shop)
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Dates of Operation: Late 1973 to 1979	Operational Status: Closed	Capacity: Approximately 9000 sq. ft.
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Time Waste Stored:
No wastes stored

Unit Description:
Storage area (boneyard) used in mid to late 1970s.

Location:
Under east end of current Machine Shop. ENF-609,485 (5.3)

Drawing Numbers:
None

Construction Details and Modifications:
Gravelled area now covered by east end of Machine Shop

Release Controls:
Release precluded primarily by nature of materials stored, i.e. equipment, solid materials, etc.

Waste Types, Quantities, Sources, and Disposition:
Used equipment, excess materials, supply materials.

Inspection and Maintenance:
Not applicable; area no longer in service as boneyard. Inspection/maintenance protocols applied during use as boneyard (1970s) not available.

History of Leaks, Spills, and Releases:
Boneyard included drum storage area. Reports of drums in poor condition raise possibility of environmental release but no actual releases/discharges known. Area not available for visual inspection or soil sampling during MTCA RI/FS due to location under present Machine Shop. No indication of contamination based on groundwater data in immediately downgradient well.

Conclusions and Recommendations:
Current usage poses no environmental or public health threats. No known releases to environment from historic boneyard activities. No access for soil sampling available but no contamination indicated via downgradient groundwater monitoring well. No further action recommended.

Unit: 17	Unit Name: UO2 Area Boneyard (Located beneath south end of UO2 Building)
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Dates of Operation: 1970 to 1972	Operational Status: Closed	Capacity: Approximately 20,000 sq. ft.
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Time Waste Stored:
No wastes stored

Unit Description:
Former boneyard operated during early 1970s.

Location:
South end of UO2 Building. ENF-609,485 (8.3)

Drawing Numbers:
None

Construction Details and Modifications:
N/A

Release Controls:
Asphalt paved area

Waste Types, Quantities, Sources, and Disposition:
Boneyard equipment and materials.

Inspection and Maintenance:
Not applicable; area no longer in service as boneyard. Inspection/maintenance protocols applied during use as boneyard (1970s) not available.

History of Leaks, Spills, and Releases:
No known or reported releases to environment related to historic boneyard activities. Use of wind-deposited sands retrieved from Lagoon 1 as fill material when UO2 Building was expanded over this area (1973) raises possibility for lagoon-related contaminants in soil at this location. No access under UO2 Building floor slab for visual inspection or soil sampling.

Conclusions and Recommendations:
Placement of Lagoon 1 sands reportedly shallow with respect to groundwater depth and limited to area between footings; i.e., under the building addition. No current possibility for direct soil contact, airborne release from soil, or leaching effects due to infiltration or precipitation. Groundwater quality in immediately downgradient well does not implicate area as groundwater contamination source. No current environmental or public health threat indicated.

Recommend soil sampling at time of decommissioning of UO2 Building pursuant to USNRC decommissioning requirements. No further action recommended at this time.

Unit: 18	Unit Name: ELO Sump and Dry Well	
Dates of Operation: 1983 to present	Operational Status: Inactive	Capacity: 500 gallons
Time Waste Stored: No wastes stored	Unit Description: Discharge pipe in the sump connects to dry well. Sump located at base of access ramp to ELO Building. In the past, the area around sump was used for bulk chemical storage without sufficient spill containment.	
Location: By east ELO airlock. ENF-609,485 (6)		Construction Details and Modifications: Catch basin connected by 8-in concrete pipe to 500-gal perforated drywell.
Drawing Numbers: 3959-C-037	Waste Types, Quantities, Sources, and Disposition: Potential spills of tributyl phosphate, n-dodecane, uranyl nitrate solutions.	
Release Controls: Chemical barrels containing liquids now placed on containment pallets.	Inspection and Maintenance: No routine inspection or maintenance of sump; no access to dry well possible. Existing adjacent bulk chemical storage in drums provided with double containment pallets.	
History of Leaks, Spills, and Releases: Sump (connected to associated dry well) located in area of historical and current storage/handling of bulk containerized liquid chemicals. Evidence of past spills includes historical report of visual organic sheen on sump liquid surface and positive analytical result for uranium contamination in prior sump cleanout material. No indication of any spills of significant quantity. Area covered by ongoing groundwater monitoring program.		
Conclusions and Recommendations: Unit with evidence of historic contamination and providing direct pathway for soil and potential groundwater contamination. Risk related to current operations significantly reduced due to improved operating practices and spill controls; e.g., use of double containment pallets, prompt spill reporting, etc. Characterize dry well-associated contamination at time of decommissioning in accordance with USNRC requirements. No further action recommended.		

Unit: 19	Unit Name: ARF Truck Cleanout Sump	
Years of Operation: 1990 to present	Operational Status: Active	Capacity: 94 gallons
Time Waste Stored: No wastes stored	Unit Description: Sump receives hose-remainder liquids (if present) after transfer of sodium hydroxide. Sump pump transfers liquid and associated water wash to tank 714..	
Location: North of ARF. ENF-609,485 (3)		
Drawing Numbers: EMF-608,944 (old), EMF-609,600 sht.2 (new)	Construction Details and Modifications: Stainless steel sump with sump pump. Former fiberglass sump replaced in 1992.	
Release Controls: Covered, locked, stainless steel tank with level switch and pump.	Waste Types, Quantities, Sources, and Disposition: Residual sodium hydroxide from delivery truck hose.	
Inspection and Maintenance: Sump as configured at time of January 1991 release (gravity drain with passive backflow prevention device) no longer in service; replaced with covered and locked stainless steel sump with liquid level detection and automatic positive pumpout. Access to sump limited to certified Plant Support technicians; operation manned whenever sump in use.		
History of Leaks, Spills, and Releases: Failure of backflow prevention device in drain line from previous gravity-drained sump (Jan. 1991) resulted in release to soil of approximately 125 gallons of 16-24% ammonium hydroxide solution. Minor splashes to soil around previous sump also reported in conjunction with routine truck hookup/disconnect operations for ammonium hydroxide and sodium hydroxide. Area characterized via soil sampling as part of SPC MTCA RI/FS, indicating contamination levels below MTCA cleanup standards (see SPC Part B Permit Application, Volume IV, Exhibit M-1). No evidence of environmental releases associated with current sump.		
Conclusions and Recommendations: Historic releases to soil characterized under SPC MTCA RI/FS, indicating contamination levels within cleanup standards. No evidence of recent releases; releases from current operations minimized via unit design and operational controls. No further action recommended.		

Unit: 20	Unit Name: Former Paint Shop Trailer Dry Well
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Dates of Operation: 1977 to 1990	Operational Status: Closed	Capacity: Approximately 35 gallons
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Time Waste Stored:
No wastes stored

Unit Description:
Former dry well receiving waste liquids from domestic-use sink in former paint shop.

Location:
East of Landlord Services trailer. ENF-609,485 (7)

Drawing Numbers:
None

Construction Details and Modifications:
Concrete, perforated structure, approximately 35 gallons capacity.

Release Controls:
Not applicable for current operations (dry well and paint trailer both out of service).

Waste Types, Quantities, Sources, and Disposition:
Domestic sink wastes with possibility for incidental release of paint-related wastes (brush/roller cleaning, hand washing, etc.).

Inspection and Maintenance:
Not applicable. Paint shop trailer no longer in service; dry well removed in conjunction with soil sampling conducted as part of SPC MTCA RI/FS (1992). Pesticide trailer also removed from area.

History of Leaks, Spills, and Releases:
Domestic-use sink in former paint shop trailer reportedly discharged to dry well over 1977-1990 period of operation. Not intended as disposal facility for paint-related wastes; however, possibility for incidental releases not positively precluded. Dry well also near pesticide storage trailer; no pesticide releases reported. Area subjected to soil sampling as part of SPC MTCA RI/FS; results revealed limited contamination below MTCA cleanup standards. Some soil discoloration encountered in dry well and near surface of surrounding soils (SPC Part B Permit Application, Volume IV, Exhibit M-1).

Conclusions and Recommendations:
Paint shop trailer out of service; pesticide storage no longer present; dry well removed. Soil sampling as part of MTCA RI/FS indicated limited contamination at levels below MTCA cleanup standards. No residual environmental or public health risks indicated. No further action recommended.

Unit: 21	Unit Name: UO2 Building - North End
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Dates of Operation: N/A	Operational Status: N/A	Capacity: N/A
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Time Waste Stored:
No wastes stored

Unit Description:
Asphalt-paved area.

Location:
North of UO2 Building. ENF-609,485 (8.1)

Drawing Numbers:
None

Construction Details and Modifications:
N/A

Release Controls:
Asphalt paved area

Waste Types, Quantities, Sources, and Disposition:
Not a waste storage area. Historic uranyl nitrate drum spill (1973) cleaned up to meet radiological release criteria.

Inspection and Maintenance:
Asphalt-paved area subject to informal inspection related to heavy pedestrian/ vehicle usage. Routine maintenance not applicable; discrete area cleanup or asphalt replacement performed related to specific contamination incidents.

History of Leaks, Spills, and Releases:
Presence of asphalt precludes inadvertent release of materials to soil. Documented release of uranyl nitrate solution (UNH) from drum spill cleaned up to meet radiological unrestricted access criteria. No evidence of past or current environmental releases.

Conclusions and Recommendations:
Not an area of routine waste or hazardous materials management. No environmental or public health risks associated with historic or current operations. No further action recommended.

Unit: 22	Unit Name: UO2 Building - East End, Former East Tank Farm	
Dates of Operation: 1970 to 1989	Operational Status: Closed	Capacity: 5 tanks, capacities 100 to 10,000 gallons
Time Waste Stored: No waste stored	Unit Description: Five former above-ground storage tanks operated from 1970 to 1989 stored nitric acid and ammonium hydroxide (aqua ammonia).	
Location: South of UO2 Powder Storage Bldg. ENF-609,485 (8.2)		
Drawing Numbers: JN-U-0060-P sht. 1 (old) and XN-600-060 sht 3 (1985 mod)	Construction Details and Modifications: Conc. nitric acid - 5000 gal, stainless steel; dil. nitric acid - 1000 gal, fiberglass and 100 gal fiberglass; aqua ammonia - 5,000 gal stainless steel and <100 gal fiberglass. 5,000 gal aqua ammonia tank replaced with 10,000 gal tank in 1985 mods.	
Release Controls: Nitric acid tanks surrounded by concrete curb with drain to lagoon system. Aqua ammonia tank on concrete pad.	Waste Types, Quantities, Sources, and Disposition: Potential spills of concentrated nitric acid, dilute nitric acid, ammonium hydroxide.	
Inspection and Maintenance: Not applicable. Area no longer utilized as tank farm; all tanks removed. Area now partially covered by UO2 Building addition.		
History of Leaks, Spills, and Releases: Area utilized as tank farm from early 1970s to 1989, housing above ground tanks for nitric acid (concentrated and dilute), liquid nitrogen, and ammonium hydroxide. Documented release from overflow of dilute nitric acid tank (1980). Area characterized via soil sampling as part of MTCA RI/FS (1992). Soil samples revealed radionuclides and certain process chemical constituents (F, NO3, TBP) above background but below MTCA cleanup standards. Some soil discoloration with weak acid odor (SPC Part B Permit Application, Volume IV, Exhibit M-1). Elevated nitrate levels in downgradient well (GM-4 in early 1990s) now at levels of site upgradient (background) wells.		
Conclusions and Recommendations: Historic release(s) from former tank farm usage investigated via SPC MTCA RI/FS. Soil contamination below cleanup standards; nitrate levels in downgradient well decreased to background levels. No environmental or public health risk related to current area usage. No further action recommended.		

Unit: 23	Unit Name: UO2 Building - West End, Former West Tank Farm
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Dates of Operation: 1970 to 1987	Operational Status: Closed	Capacity: Four tanks, 500 to 1000 gal capacity
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Time Waste Stored: No waste currently stored	Unit Description: Three former above-ground storage tanks and one below-ground sump operated from 1970 to 1987.
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Location: Under UO2 Lab Addition. EMF-609,485 (8.4)
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Drawing Numbers: Unnumbered as-built

Construction Details and Modifications: Nitric acid, aqua ammonia, and neutralization tanks - 1000 gal, stainless steel, above ground on cement pad. Sump tank - 500 gal, fiberglass, below ground.
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Release Controls: Tanks on 4-in concrete slab.

Waste Types, Quantities, Sources, and Disposition: Nitric acid, ammonium hydroxide, spent acid solutions and neutralized spent acid solutions. Effluents sent to lagoon system.
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<p>Inspection and Maintenance: Not applicable. Area no longer used as tank farm; all tanks removed. Area now covered by UO2 Building Laboratory Addition.</p>
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<p>History of Leaks, Spills, and Releases: Former tank farm usage included one below ground sump and three above ground tanks for storage of nitric acid and ammonium hydroxide and the receipt and neutralization of etch solutions (nitric/hydrofluoric acids). Documented releases from tanks and associated piping over operational history of tank farm (early 1970s to 1987). Soil sampling as part of SPC MTCA RI/FS (1992) revealed certain constituents (NH3, F, NO3, SO4) at levels above background but below MTCA cleanup standards. Additional characterization in preparation for construction of UO2 Laboratory Addition provided confirmatory results. Localized visually contaminated soil removed prior to construction.</p>

<p>Conclusions and Recommendations: Historic releases from former tank farm usage investigated via SPC MTCA RI/FS; followup characterization conducted prior to construction of UO2 Laboratory Addition. Soil contamination levels below MTCA cleanup standards; small amounts of visually stained soil removed prior to lab addition construction. No environmental or public health risks remaining from historic operations or imposed by current usage (area covered by lab addition). No further action recommended.</p>
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Unit: 24	Unit Name: UO2 Building Low-Level Waste Staging Area	
Dates of Operation: 1979 to present	Operational Status: Active	Capacity: 1330 sq. ft.
Time Waste Stored: 1 to 14 days	Unit Description: Short term drum staging area.	
Location: South of UO2 Volume Reduction Facility. ENF-609,485 (8.5)		
Drawing Numbers: None	Construction Details and Modifications: Asphalt paved area	
Release Controls: Asphalt paved area	Waste Types, Quantities, Sources, and Disposition: Solid and liquid low-level radioactive wastes in drums and boxes. Containers moved from here to waste storage pad.	
Inspection and Maintenance: No formalized inspection but subject to routine (daily) surveillance related to high routine usage. Spills/releases would be subject to prompt reporting/cleanup.		
History of Leaks, Spills, and Releases: Short-term staging only for drums removed from UO2 Building waste handling area or taken to the UO2 waste handling area for repackaging. All drum containing free-liquids are stored on secondary containment pallets. No known releases to environment.		
Conclusions and Recommendations: No evidence of past environmental releases. Low risk area relative to current usage. No further action recommended.		

Unit: 25	Unit Name: Machine Shop	
Dates of Operation: 1976 to late 1980's	Operational Status: Closed	Capacity: Approximately 6500 sq. ft.
Time Waste Stored: No waste stored	Unit Description: Unpaved area beneath west addition of current Machine Shop	
Location: Under west addition of Machine Shop. ENF-609,485 (9)		Construction Details and Modifications: N/A
Drawing Numbers: None	Waste Types, Quantities, Sources, and Disposition: Oils, possibly containing metals and solvents.	
Release Controls: Postulated residual soil contamination from historic cooling oil releases effectively capped by existing Machine Shop building; precludes environmental release via direct soil access, fugitive dust emissions, or rain water infiltration.		Inspection and Maintenance: Not applicable. Former waste oil storage area now covered by west addition of Machine Shop.
History of Leaks, Spills, and Releases: Unpaved area used for storage and disposal of containerized waste oils (primarily bio-degradable cooling oils) from 1976 to late 1980s. Reported disposal of oils to ground provides likelihood for soil contamination with oil and potentially associated constituents (solvents, metals). Area effectively capped by existing Machine Shop structure. No potential for soil access, fugitive dust release, or stormwater/precipitation infiltration.		
Conclusions and Recommendations: Potential historic contamination effectively contained. No potential for environmental/public health risk related to current operations. Characterize area and remediate as appropriate at time of Machine Shop decommissioning.		

Unit: 26	Unit Name: Former Paint Shop Area	
Years of Operation: 1977 to 1990	Operational Status: Closed	Capacity: N/A
Time Waste Stored: No waste stored	Unit Description: Paintbrush cleaning station located southwest of former paint trailer. Off edge of paved area.	
Location: Same as existing Landlord Services trailer. ENF-609,485 (10)		
Drawing Numbers: None	Construction Details and Modifications: N/A	
Release Controls: Not applicable for current operations.	Waste Types, Quantities, Sources, and Disposition: Paints, solvents.	
Inspection and Maintenance: Not applicable.		
History of Leaks, Spills, and Releases: Paint brush/equipment cleaning activities reportedly discharged paints and solvents to ground surface at paint brush cleaning area. Paint residues observed on adjacent asphalt. Similar potential for releases at unlined pit adjacent to former paint shop trailer. Both areas characterized via soil sampling during SPC MTCA RI/FS. Some soil staining observed in upper soil layers. Limited contamination detected at concentrations below MTCA cleanup standards (SPC Part B Permit Application, Volume IV, Exhibit M-1).		
Conclusions and Recommendations: Historic contamination investigated via MTCA RI/FS and revealed no current environmental/public health risk. No risks posed by current usage of area. No further action recommended.		

Unit: 27	Unit Name: Drum Storage Area Near Current Paint Shop	
Area of Operation: N/A	Operational Status: Inactive	Capacity: N/A
Time Waste Stored: No waste stored	Unit Description: Empty drums (formerly containing potentially hazardous substances) and drums of sand blast grit stored near Current Paint Shop.	
Location: Northeast of current Paint Shop. ENF-609,485 (11)		
Drawing Numbers: None	Construction Details and Modifications: Paved area	
Release Controls: Asphalt pad	Waste Types, Quantities, Sources, and Disposition: No waste stored. Sand blast operation no longer performed. Other drums are typically empties to be painted or stenciled.	
Inspection and Maintenance: Not applicable.		
History of Leaks, Spills, and Releases: No evidence of environmental release.		
Conclusions and Recommendations: No evidence of past environmental releases. Low risks from current paint shop operations effectively managed. No further action recommended.		

Unit: 28	Unit Name: Solid Waste Dumpsters	
ates of Operation: Early 1970's to present	Operational Status: Active	Capacity: Approximately 12, 4.5-cu. yd. dumpsters
Time Waste Stored: Picked up every 1 to 3 days	Unit Description: Various receptacles throughout facility for nondangerous waste.	
Location: Throughout the facility		
Drawing Numbers: None	Construction Details and Modifications: N/A	
Release Controls: Covered metal containers	Waste Types, Quantities, Sources, and Disposition: Dangerous wastes not managed in this area.	
Inspection and Maintenance: Subject to informal inspection/surveillance associated with routine usage by well informed employees. Formal inspection by health and safety technicians (HSTs) on daily basis for radioactive or "suspicious" materials prior to pickup by City.		
History of Leaks, Spills, and Releases: No evidence of environmental releases from past or current operations.		
Conclusions and Recommendations: No evidence of past releases or environmental/public health risks from current operations. Exclusion of radioactive and/or hazardous materials assured by well established training, waste designation, waste segregation/satellite accumulation, and inspection programs. No further action recommended.		

Unit: 29	Unit Name: Steamcleaning Area
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Dates of Operation: 1983 to present	Operational Status: Active	Capacity: N/A
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Time Waste Stored:
No waste stored

Unit Description:
Steamcleaning operations began in early 1980s, powered by kerosene-fueled generator.

Location:
East of Warehouse Bay 2. ENF-609,485 (13)

Drawing Numbers:
None

Construction Details and Modifications:
N/A

Release Controls:
Kerosene fuel stored in closed drum with drip pan in full view of heavy traffic area.

Waste Types, Quantities, Sources, and Disposition:
Steamcleaning solutions, non-hazardous dirt and grime from shipping containers.

Inspection and Maintenance:
Operation continuously manned when in operation (manual operation). Area adjacent to heavily utilized route for pedestrian and vehicle travel.

History of Leaks, Spills, and Releases:
Operation utilizes non-hazardous water-based detergent. Kerosene fuel (single drum) stored on paved area and equipped with valve drip pan. No cleaning of equipment with radioactive or hazardous chemical residues (primary activity is cleaning road grime off metal shipping containers). Cleaning solutions released to graveled and paved surfaces.

Conclusions and Recommendations:
Dangerous/hazardous materials not present on equipment cleaned or in cleaning agents. No environmental or public health risks imposed by current operations. No further action recommended.

Unit: 30	Unit Name: Specialty Fuels Building Mixed Oxide Waste Storage Unit	
Dates of Operation: Since Oct. 1989	Operational Status: Active	Capacity: 4879 cu. ft.
Time Waste Stored: Oct. 1989 to present	Unit Description: Former autoclave pit in the SF Building. Storage of 28 sealed 55-gallon drums.	
Location: SF Building. ENF-609,485 (15.1)		
Drawing Numbers: 3959-N-10, ANF-608,736 sht. 1	Construction Details and Modifications: Originally constructed as an autoclave pit, was modified in 1989 to store waste drums from 1985 decommissioning of Mixed Oxide Fuel Facility.	
Release Controls: Sealed concrete pit with locked access, double HEPA filtered exhaust, alpha room air monitor with remote alarm to Central Guard Station, floor sump with liquid detection and alarm (despite lack of liquids in wastes).	Waste Types, Quantities, Sources, and Disposition: Small equipment (pumps, filters, parts, etc.) and residual decontamination materials (rags, protective clothing, etc.) contaminated with PuO ₂ and UO ₂ . Two drums suspected mixed waste based on inventory listing lead (shielding).	
Inspection and Maintenance: Storage unit subject to strict operational and inspection protocols as condition of USNRC license. Protocols include controlled access, continuous HEPA-filtered room exhaust with alarming alpha monitor, floor sump with liquid level alarm (despite lack of stored liquids), and routine six-month physical inspection by health and safety technician (see Exhibit C-1, SPC Part B Permit Application).		
History of Leaks, Spills, and Releases: No evidence of release based on results of intensive monitoring and inspection protocols.		
Conclusions and Recommendations: Unit environmentally isolated, strictly controlled, and well monitored per license conditions of USNRC site operating license. No environmental or public health risks posed. No further action recommended.		

Unit: 31	Unit Name: SWUR Barrel Staging Area	
Dates of Operation: Aug. 1988 to present	Operational Status: Active	Capacity: 528 drums
Time Waste Stored: 1 to 15 days	Unit Description: Paved drum staging area	
Location: East side of SF Building. ENF-609,485 (15.2)		
Drawing Numbers: None	Construction Details and Modifications: N/A	
Release Controls: Paved area	Waste Types, Quantities, Sources, and Disposition: Low-level radioactive waste awaiting SWUR processing; dangerous wastes not managed in this area.	
Inspection and Maintenance: No formal inspection but area subject to ongoing informal surveillance related to routine (daily) usage.		
History of Leaks, Spills, and Releases: No known releases to environment. Area paved and handles only solid (no free standing liquid), non-dangerous, low-level radioactive combustible wastes in closed drums.		
Conclusions and Recommendations: No environmental or public health risks per historical or current operations. No further action recommended.		

Unit: 32	Unit Name: Scrap Stainless Steel Storage Bin	
Dates of Operation: 1979 to present	Operational Status: Inactive	Capacity: 7 cu. yards
Time Waste Stored: Approximately one-two weeks	Unit Description: Open top steel container for stainless steel scrap serviced by private recycling company.	
Location: North of Machine Shop. ENF-609,485 (16)		
Drawing Numbers: None	Construction Details and Modifications: N/A	
Release Controls: Steel load lugger set on steel containment pan and concrete pad.	Waste Types, Quantities, Sources, and Disposition: Stainless steel scrap; dangerous wastes not managed in this area.	
Inspection and Maintenance: Subject to ongoing surveillance related to routine usage. Oil level in catch pan below bin maintained via use of absorbent materials and/or pumping to drum for recycling.		
History of Leaks, Spills, and Releases: History of small releases of non-hazardous cutting oils to ground prior to installation of concrete pad below catch pan. Contaminated soil removed at the time of pad installation.		
Conclusions and Recommendations: Minor historic soil contamination removed. No current environmental/public health risks. The scrap stainless steel collection bin has been relocated to the south side of the machine shop and is located under a protective cover. No further action recommended.		

Unit: 33	Unit Name: Zirconium Burn Towers
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Years of Operation: 1971 to 1992	Operational Status: Closed	Capacity: Up to 3 drums per day
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Time Waste Stored:
No waste stored

Unit Description:
Two towers used for burning Zircaloy shavings and turnings.

Location:
North of Machine Shop. ENF-609,485 (17)

Drawing Numbers:
None

Construction Details and Modifications:
Towers consisted of 6-ft. diameter by 8-ft. high concrete pipe used to contain the zirconium while burning. Towers sat on concrete pad with curbs.

Release Controls:
Concrete pad with berm.

Waste Types, Quantities, Sources, and Disposition:
Dangerous wastes not managed in this area.

Inspection and Maintenance:
Not applicable. Units no longer in service/removed.

History of Leaks, Spills, and Releases:
No evidence of environmental contamination. Decommissioning of units effectively accomplished; involved straightforward removal of towers (vertical concrete tiles) and residual non-hazardous ash.

Conclusions and Recommendations:
Units removed from service and effectively decommissioned. No residual environmental or public health risk. No further action recommended.

Unit: 34	Unit Name: Sand Blast Area
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Dates of Operation: 1987 to 1994	Operational Status: Closed	Capacity: N/A
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Time Waste Stored:
No waste stored

Unit Description:
Semi-enclosed area used for sand blasting shipping containers.

Location:
East of Carpenter Shop. ENF-609,485 (18)

Drawing Numbers:
None

Construction Details and Modifications:
Plywood pen placed on asphalt pavement.

Release Controls:
Fenced area with plywood walls and asphalt pad

Waste Types, Quantities, Sources, and Disposition:
Spent sand blast grit (formally designated as non-dangerous) disposed to municipal landfill.

Inspection and Maintenance:
Not applicable. Area removed from service; activity no longer performed.

History of Leaks, Spills, and Releases:
Historic usage involved non-dangerous abrasive media; used media also non-dangerous per formal analytical designation. Used media also screened for radiological contamination prior to release. Residual material substantially removed when facility taken out of service.

Conclusions and Recommendations:
Historic operation involved non-dangerous, non-radioactive materials. Unit effectively taken out of service; activity replaced by water blasting unit. No residual environmental or public health risks. No further action recommended.

Unit: 35	Unit Name: Used Oil Storage Area/Former Waste Oil UST
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Dates of Operation: 1987 to present	Operational Status: Active	Capacity: 340 gal UST (removed 1988), current tank = 235 gal
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Time Waste Stored:
3-6 months

Unit Description:
Concrete curbed pad with metal building for storage of new oils. Used oil underground storage tank removed in 1988. Used oil currently stored in above ground storage tank.

Location:
East of Retention Tanks. ENF-609,485 (19)

Drawing Numbers:
EMF-608,609 sht. 14 and G. Grant sketch

Construction Details and Modifications:
Building enclosing a 6-in thick pad with 6-in curb was built in 1987 with 340-gal. waste oil underground storage tank (UST). UST was removed in 1988 and replaced with above-ground tank. Former access to UST (sump and floor drain) sealed.

Release Controls:
Former UST removed and access points sealed. Current used oil stored in steel above-ground tank set on asphalt and subject to full visual inspection. New oil stored in curbed building equipped with drip pans.

Waste Types, Quantities, Sources, and Disposition:
Oil and waste oils stored. Dangerous wastes not managed in this area.

Inspection and Maintenance:
Both new and used oil storage facilities subject to visual inspection as part of routine usage. Drip pans emptied and cleaned as required.

History of Leaks, Spills, and Releases:
Oil-like stains observed on pavement; no known releases to environment from historic or current operations.

Conclusions and Recommendations:
No evidence of environmental releases from past or current usage. Current activities well designed and controlled. No further action recommended.

Unit: 36	Unit Name: Process Waste Transfer Lines	
Dates of Operation: 1970 to present	Operational Status: Active	Capacity: N/A
Time Waste Stored: flow-through, no hold up	Unit Description: Underground piping located throughout the facility.	
Location: Throughout the facility	Construction Details and Modifications: Primary containment piping is PVC, CPVC, stainless steel, and polypropylene. Secondary containment is sch 40 OVC with leak detection.	
Drawing Numbers: Large number of drawings, impractical to provide.	Waste Types, Quantities, Sources, and Disposition: Process solutions.	
Release Controls: Underground lines double-encased with leak detection, above ground lines heat traced for freeze protection.	Inspection and Maintenance: Underground process waste lines all double-contained with continuous electronic leak detection within interstitial space. Pressure testing conducted based on unsatisfactory or questionable leak detection results. Above-ground lines directly observable and subject to prompt abnormal event/spill reporting procedures.	
History of Leaks, Spills, and Releases: Documented historical releases from leaks/breaks of former single-contained underground lines. Most significant releases in general vicinity of Ammonia Recovery Facility (see No. 38); fully characterized via SPC RI/FS (SPC Part B Permit Application, Volume IV, Exhibit M-1). Less significant releases and associated environmental characterization/remediation documented in SPC spill logs.		
Conclusions and Recommendations: Well engineered and protected system with well established engineered and/or administrative controls to address potential releases. Past historical releases (associated with former single-contained underground lines) effectively documented and characterized via AREVA MTCA RI/FS and spill records. Closure of the surface impoundment system and associated underground piping has resulted in only aboveground waste piping in use at the facility. No further action recommended.		

Unit: 37	Unit Name: Product Tank Fills without Secondary Containment (North of ARF)	
Dates of Operation: No waste stored	Operational Status: Active	Capacity: Three tanks 70,000 gallon total capacity
Time Waste Stored: N/A	Unit Description: Three above-ground tanks surrounded by concrete curbing; fill pipes extend outside the curbing over unpaved soil.	
Location: North of ARF. ENF-609,485 (22)		
Drawing Numbers: 3959-M94 and ANF-608,581 sht 1 and 2		Construction Details and Modifications: Above-ground tanks surrounded by concrete curbing; fill pipes extend outside the curbing over unpaved soil.
Release Controls: Concrete spill basin lined with synthetic coating provides secondary containment for tank contents. Continuously manned operation (truck driver) with AREVA technician present at hook up and disconnect. Bucket placed below connection during use.		Waste Types, Quantities, Sources, and Disposition: Ammonium hydroxide, sodium hydroxide, nitric acid.
Inspection and Maintenance: Continuously manned operation with overview of hook up and disconnect by certified AREVA plant support technician.		
History of Leaks, Spills, and Releases: No known releases to environment.		
Conclusions and Recommendations: Infrequent operation with potential for environmental release effectively minimized by stringent operating protocols. No history of past environmental release or public health risk. No further action recommended.		

Unit: 38	Unit Name: Ammonia Recovery Facility (ARF)	
Years of Operation: 1984 to present	Operational Status: Active	Capacity: Feed tank volume 3000 gallons
Time Waste Stored: Flow-through system, 130 min. avg. residence time	Unit Description: Steam stripping and distillation unit for recovering ammonium hydroxide from uranium conversion effluent.	
Location: Northeast of Dry Conversion Facility		
Drawing Numbers: EMF-605,595 sht. 1	Construction Details and Modifications: Metal building with concrete floor and sumps. Major equipment includes feed tank, stripping column, distillate tank, steam generators, and cooling equipment.	
Release Controls: Equipment confined inside containment pit with sump. Leaks collected in sump and automatically pumped to lagoon system for reprocessing. Associated outside underground piping is double contained with leak detection.	Waste Types, Quantities, Sources, and Disposition: Removes ammonium hydroxide from ADU conversion effluent.. Treated solutions sent to Richland POTW. Recovered ammonium hydroxide recycled to ADU conversion process.	
Inspection and Maintenance: Facility visually inspected in conjunction with daily sampling protocols. Unit monitored and controlled via MICON system in DCF control room, including automatic alarm and interlock functions. Facility subject to established instrument repetitive maintenance (IRM)/preventive maintenance (PM) program. All associated piping aboveground, double-contained with leak detection. Leak detection monitoring systems on established PM schedule. Pressure testing protocol established for implementation as indicated by leak detection monitoring.		
History of Leaks, Spills, and Releases: No history of environmental release from unit/equipment within confines of ARF building. Potential for future releases precluded by unit design, engineered controls, and operational protocols. Outside area around ARF (outside confines of building) impacted by five reported ARF-associated underground process piping breaks/leaks (inclusive of release discussed in conjunction with ARF Truck Cleanout Sump-SWMU No. 19). All releases associated with historic single-containment piping (1988-1991). Area extensively characterized via soil sampling as part of SPC RCRA RI/FS, indicating ARF/lagoon-associated contaminant levels above background but below MTCA cleanup standards (SPC Part B Permit Application, Volume IV, Exhibit M-1).		
Conclusions and Recommendations: Well engineered, operated, and monitored unit with no history of environmental releases. Potential for future releases precluded by engineered controls and operational protocols. Reported releases to soil outside of facility from historic associated single-contained underground process piping investigated under SPC MTCA RI/FS; no required actions identified relative to soil contamination levels encountered. Potential for future piping releases minimized via complete transition to double-contained and continuously monitored (leak detection) underground piping or appropriately protected above ground piping. Groundwater impacts from historic releases to soil in the ARF/surface impoundment area adequately monitored via existing extensive groundwater monitoring program. No further action recommended.		

Unit: 39	Unit Name: Lagoon Uranium Recovery (LUR) Facility
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Dates of Operation: 1982 to 2005	Operational Status: Closed	Capacity: Two 6000-gallon feed tanks
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Time Waste Stored:
Process cycle time 24 hours

Unit Description:
Precipitation process uses two large plastic feed tanks and a reducing chemical to recover uranium from lagoon solutions.

Location:
Near NW corner of Lagoon 4. ENF-609,485 (21)

Drawing Numbers:
XN-606,644

Construction Details and Modifications:
Originally constructed in 1982, now being modified to add building enclosure, HVAC, and solids treatment.

Release Controls:
New building will completely enclose unit; sumps will pump leaks or spills to Lagoon 3 or return them to the feed tanks. All equipment on concrete, curbed pad enclosed in building.

Waste Types, Quantities, Sources, and Disposition:
Liquid waste from Lagoon 3 is processed at LUR Facility to recover uranium via precipitation. Effluent is sent to ARF for ammonia recovery.

Inspection and Maintenance:
Historic operation continuously manned when operational. Subject to routine radiation protection surveys for external contamination/loss of containment. Equipment subject to pre-start up inspection and established preventive maintenance program.

History of Leaks, Spills, and Releases:
No known releases to environment. Some potential for pad hose-down overspray escaping containment. Know small spills on asphalt access ramp promptly cleaned up and subject to radiation release survey. Localized asphalt removal and replacement conducted as necessary. Minor radiological contamination detected as part of the facility expansion site preparation (1996); all areas cleaned to background levels.

Conclusions and Recommendations:
Historic operation controlled to preclude environmental release; minor contamination releases identified and cleaned up as part of routine operations. Unit has been removed from service. No further action recommended.

Unit: 40	Unit Name: Open Burn Areas	
Dates of Operation: 1970's to 1992	Operational Status: Closed	Capacity: N/A
Time Waste Stored: Periodically over life of facility (until 1992)	Unit Description: Two areas along western plant boundary formerly used for open burning of lumber.	
Location: West of facility. Map M-1b (23)		
Drawing Numbers: None	Construction Details and Modifications: Both areas were gravel when in use; both paved over since being taken out of service (last one in 1992).	
Release Controls: No hazardous materials burned.	Waste Types, Quantities, Sources, and Disposition: Lumber.	
Inspection and Maintenance: Not applicable. Two former burn sites both out of service and paved over.		
History of Leaks, Spills, and Releases: No known releases to environment. Burned lumber; no burning of hazardous materials.		
Conclusions and Recommendations: No known historic releases. Burning of non-hazardous materials only (lumber). Areas no longer utilized. No further action recommended.		

Unit: 41	Unit Name: Asphalt Storage Pile
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Dates of Operation: 1980's to present	Operational Status: Inactive	Capacity: N/A
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Time Waste Stored:
Temporary accumulation

Unit Description:
Area outside western fence line used to store asphalt debris.

Location:
West of Building 9. Map M-1b (27)

Drawing Numbers:
None

Construction Details and Modifications:
N/A

Release Controls:
None

Waste Types, Quantities, Sources, and Disposition:
Asphalt and concrete debris. Dangerous wastes not managed in this area.

Inspection and Maintenance:
Not applicable.

History of Leaks, Spills, and Releases:
Asphalt and concrete debris present in large, non-friable pieces. No mechanisms for environmental release.

Conclusions and Recommendations:
Asphalt/concrete temporarily staged here prior to offsite disposal. No mechanisms for environmental release. No further action recommended.

Unit: 42	Unit Name: City Lift Station (old)	
ates of Operation: Through Nov. 1995	Operational Status: Closed	Capacity: Working volume ~ 1700 gal
Time Waste Stored: Flow-through system, avg. residence time 10-15 min	Unit Description: Facility for the collection of SPC wastewater for pumping into the Richland sewer line. Lift station owned and maintained by City of Richland.	
Location: South of facility. Map M-1b (28.2)		
Drawing Numbers: None available	Construction Details and Modifications: 8 ft. dia. precast concrete pipe well with two sewage pumps (one is a backup or booster) and level transducer.	
Release Controls: High level alarm, backup/booster pump came on at high level indication.	Waste Types, Quantities, Sources, and Disposition: Treated wastewater and domestic sewage in route to Richland POTW. Typical AREVA effluent volume 150,000 to 250,000 gal/day.	
Inspection and Maintenance: Not applicable. City of Richland owned and operated system removed from service in November 1995.		
History of Leaks, Spills, and Releases: Documented historic releases of liquid wastes to surrounding soil in conjunction with accidental overflows (e.g. pump failure) or infrequent intentional maintenance-related bypasses. No potential for current releases (system out of service).		
Conclusions and Recommendations: Documented past releases of waste solutions to surrounding soil. No potential for current release.		

Unit: 43	Unit Name: Sewer Line	
Dates of Operation: 1970 to present	Operational Status: Active	Capacity: N/A
Time Waste Stored: Flow-through system, no hold up	Unit Description: Main trunk line to POTW from SPC facility.	
Location: See drawing for locations.		
Drawing Numbers: EMF-609,485 sht. 14	Construction Details and Modifications: Vitreous clay pipe 6-inch to 8-inch from main office to manhole. 12-inch RCP from manhole to new lift station.	
Release Controls: None	Waste Types, Quantities, Sources, and Disposition: Treated wastewater and domestic sewage.	
Inspection and Maintenance: Periodic preventive cleaning via Roto Rooter process. Volume of sewage discharged to City lift station monitored on daily basis.		
History of Leaks, Spills, and Releases: No history of sewer line breaks or other environmental releases of sewer-bound effluent upstream of City lift station.		
Conclusions and Recommendations: No history of environmental release from sewer line on AREVA property. No further action recommended.		

Unit:	44	Unit Name:	Demolition Landfill SW of Facility
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Dates of Operation:	Operational Status:	Capacity:
Early 1980's to present	Inactive	N/A

Time Waste Stored:	Unit Description:
Ongoing accumulation	Natural surface depression used for disposal of construction and demolition debris. Was being used in 1991.

Location:
Southwest of facility. Map M-1b (24.1)

Drawing Numbers:
None

Construction Details and Modifications:
N/A

Release Controls:
None

Waste Types, Quantities, Sources, and Disposition:
Primarily concrete and asphalt plus minor amounts of miscellaneous materials, such as electrical conduit, metal electrical panels, sand-blast grit. Now limited to concrete, asphalt, dirt, and gravel.

Inspection and Maintenance:
Area periodically regraded.

History of Leaks, Spills, and Releases:
No known releases to environment. Receipt of non-hazardous construction/demolition debris only; currently limited to concrete, asphalt, dirt, and gravel.

Conclusions and Recommendations:
No known releases to environment. No management of hazardous materials. This area is no longer used as a demolition landfill. No further action recommended.

AREVA

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Unit: 45	Unit Name: Demolition Landfill in CTF Ravines
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Years of Operation: 1976 to 1991(SPC; infrequent)	Operational Status: Closed	Capacity: N/A
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Time Waste Stored:
Permanent placement

Unit Description:
Two natural ravines; one ravine used by SPC for disposal of construction and demolition debris from approximately 1976 to 1991.

Location:
South of CTF Building. Map M-1b (24.2)

Drawing Numbers:
None

Construction Details and Modifications:
N/A

Release Controls:
Area now covered over. Materials placed in unit not subject to release (non-toxic, non-friable).

Waste Types, Quantities, Sources, and Disposition:
Construction and demolition debris; process knowledge indicates area did not manage dangerous wastes.

Inspection and Maintenance:
Not applicable. Areas no longer receive debris.

History of Leaks, Spills, and Releases:
Natural ravines pre-date AREVA presence. Small area of one ravine used by AREVA to receive limited amounts of construction/demolition debris (asphalt, concrete, etc.). Practice discontinued and area covered over. No hazardous materials managed. No known environmental releases.

Potential pre-AREVA use of area as solid waste disposal site related to U.S. government Hanford site activities investigated by U.S. Army Corps of Engineers and Golder Associates (1993/94). No evidence indicative of need for further investigation identified.

Conclusions and Recommendations:
No identified environmental releases or public health risks associated with limited historic placement of AREVA-generated demolition debris or postulated prior U.S. government usage. No current activities ongoing. No further action recommended.

Unit: 46	Unit Name: South Pit
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Periods of Operation: mid 1940's to 1964	Operational Status: Closed	Capacity: N/A
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Time Waste Stored: Mid 1940's to present	Unit Description: Former solid waste disposal area operated as part of U.S. Government Hanford site from sometime prior to 1948; closed by 1964. Materials discarded on ground surface above closed pit.
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Location: Either side of CTF road. Map M-1b (24.3)

Drawing Numbers: None

Construction Details and Modifications: N/A
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Release Controls: N/A

Waste Types, Quantities, Sources, and Disposition: Solid wastes from U.S. Government Hanford site activities. Waste types not conclusively known. USDOE RI/FS for contiguous Horn Rapids landfill posutulates office and construction waste, asbestos, sewage sludge, fly ash, and possible organic liquids.

Inspection and Maintenance: Not applicable. Unit no longer in service; closed by U.S. Department of Energy in mid 1960s prior to AREVA presence on site.

History of Leaks, Spills, and Releases: Operation pre-dates AREVA ownership of land. Possible usage as solid waste landfill as former part of federal Hanford Reservation (U.S. Atomic Energy Commission and predecessor agencies). Scattered debris of unknown origin found on ground surface (per USDOE RI/FS for the 1100-EM-1 Operable Unit; DOE/RL-92-67). No historic or current usage of area by AREVA.

Conclusions and Recommendations: Release potential from historic (pre-AREVA) usage investigated by U.S. Department of Energy (DOE/RL-92-67); corrective action addressed in USDOE 1100 Area Record of Decision. No evidence of releases; no current activities ongoing. No further action recommended.

Unit: 47	Unit Name: CTF Road Area
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Dates of Operation: N/A	Operational Status: Inactive	Capacity: N/A
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Time Waste Stored:
No waste stored

Unit Description:
Materials discarded on ground surface adjacent to road.

Location:
Either side of CTF road. Map M-1b (24.3)

Drawing Numbers:
None

Construction Details and Modifications:
N/A

Release Controls:
N/A

Waste Types, Quantities, Sources, and Disposition:
Concrete, paints, oils (empty containers).

Inspection and Maintenance:
Not applicable.

History of Leaks, Spills, and Releases:
Minor amounts of incidental surface litter (metal scraps, tin cans, cardboard, etc.) along road to Centifuge Test Facility (inactive since 1980's). No history of use as disposal site; no history of hazardous materials usage in or adjacent to CTF (other than small quantities of natural and enriched UF6 and later oil well stream materials maintained within processing equipment and hoods inside CTF).

Conclusions and Recommendations:
No history of environmental releases, use of hazardous materials, or utilization as disposal area. No further action recommended.

Unit: 48	Unit Name: South Diagonal Road Area
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Dates of Operation: Never a disposal area	Operational Status: Inactive	Capacity: N/A
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Time Waste Stored:
N/A

Unit Description:
Materials discarded on ground surface adjacent to unused roads.

Location:
South of facility. Map M-1b (25.2)

Drawing Numbers:
None

Construction Details and Modifications:
N/A

Release Controls:
Never a disposal area

Waste Types, Quantities, Sources, and Disposition:
Resin, surface debris; process knowledge indicates area did not manage dangerous wastes.

Inspection and Maintenance:
Not applicable.

History of Leaks, Spills, and Releases:
Minor amounts of incidental surface litter adjacent to infrequently used gravel road. Area significantly excavated in autumn 1995 in conjunction with installation of new sewer line, manholes, and lift station. No evidence of sub-surface contamination or debris detected. No history of waste handling or disposal.

Conclusions and Recommendations:
No evidence of disposal other than minor amounts of scattered surface debris. No evidence of sub-surface disposal or history of waste handling activities. No evidence of environmental release. No further action recommended.

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Unit: 49	Unit Name: 16 SE/4 Dumping Area
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Dates of Operation: No AREVA usage	Operational Status: Inactive	Capacity: N/A
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Time Waste Stored: Not a waste storage site	Unit Description: Materials discarded on ground surface of undeveloped area.
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Location: Southwest of facility. Map M-1c (25.3)	
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Drawing Numbers: None	Construction Details and Modifications: N/A
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Release Controls: N/A	Waste Types, Quantities, Sources, and Disposition: Automobiles, boiler ash, clinker.
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Inspection and Maintenance: Not applicable. Undeveloped land owned but not utilized by AREVA or predecessors.
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History of Leaks, Spills, and Releases: No known releases to environment. Area not used by AREVA for operations or disposal. Some discarded materials on surface from scattered trash dumping prior to AREVA (and predecessor) ownership (car parts, boiler ash, concrete, etc.).
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Conclusions and Recommendations: This area is now in use as farm land. Historically, no known releases to environment. No evidence of disposal other than residual scattered debris from historic (pre-AREVA and predecessors) surface dumping of non-hazardous trash. No further action recommended.
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Unit: 50	Unit Name: 16 SE/4 Depression
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Dates of Operation: No AREVA usage	Operational Status: Inactive	Capacity: N/A
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Time Waste Stored:
Not a waste storage site

Unit Description:
Materials discarded in and around natural depression of undeveloped area.

Location:
Southwest of facility. Map M-1c (25.4)

Drawing Numbers:
None

Construction Details and Modifications:
N/A

Release Controls:
N/A

Waste Types, Quantities, Sources, and Disposition:
Automobiles, demolition debris, boiler ash, metallic lathe turnings, possible asbestos, petroleum product containers.

Inspection and Maintenance:
Not applicable. Undeveloped land owned but not utilized by AREVA or predecessors.

History of Leaks, Spills, and Releases:
No known releases to environment. Area not used by AREVA for operations or disposal. Some discarded materials on surface from scattered trash and waste material dumping prior to AREVA (and predecessor) ownership (car bodies, metallic lathe turnings, empty cans, etc.).

Conclusions and Recommendations:
This area is now in us as farm land. Historically no known releases to environment. No evidence of disposal other than residual scattered debris from historic (pre-AREVA and predecessors) surface dumping of non-hazardous trash. No further action recommended.

Unit: 51	Unit Name: Areas Oiled for Dust Control, North Main Parking Lot
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Dates of Operation: 1970 to 1976	Operational Status: Paved Parking Lot	Capacity: N/A
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Time Waste Stored: No waste stored	Unit Description: Paved area; formerly unpaved gravel.
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Location: Parking lot north of facility. Map M-1b (26.1)

Drawing Numbers: None

Construction Details and Modifications: N/A
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Release Controls: N/A

Waste Types, Quantities, Sources, and Disposition: Oils, spent rust inhibitor (Rust-LickO; contains polyglycol, copper, amines).

Inspection and Maintenance: Not applicable. Activity no longer conducted. Areas involved now paved.
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History of Leaks, Spills, and Releases: Oil purchased from and applied by commercial vendor. Quantities limited to those appropriate for dust suppression on graveled area; not a disposal practice. All areas now paved.
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Conclusions and Recommendations: Historic practice with very limited potential for environmental release. No potential for current environmental release (activity discontinued; areas paved over). No further action recommended.

Unit:
52

Unit Name:
Areas Oiled for Dust Control, West Parking Lot

Dates of Operation:
1970 to 1976

Operational Status:
Paved Parking Lot

Capacity:
N/A

Time Waste Stored:
No waste stored

Unit Description:
Paved area; formerly unpaved.

Location:
Parking lot west of facility

Drawing Numbers:
None

Construction Details and Modifications:
N/A

Release Controls:
N/A

Waste Types, Quantities, Sources, and Disposition:
Oils, spent rust inhibitor (Rust-Lick; contains polyglycol, copper, amines).

Inspection and Maintenance:
Not applicable. Activity no longer conducted. Areas involved now paved.

History of Leaks, Spills, and Releases:
Oil purchased from and applied by commercial vendor. Quantities limited to those appropriate for dust suppression on graveled area; not a disposal practice. All areas now paved.

Conclusions and Recommendations:
Historic practice with very limited potential for environmental release. No potential for current environmental release (activity discontinued; areas paved over). No further action recommended.

Unit: 53	Unit Name: Near Y in Unused Road in 16 SE/4
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Dates of Operation: N/A	Operational Status: Inactive	Capacity: N/A
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Time Waste Stored: Not a waste storage area	Unit Description: Oil-like substance reportedly discarded on ground surface and noted by 1991/92 facility reconnaissance tour.
Location: West of facility. Map M-1c (26.3)	

Drawing Numbers: None	Construction Details and Modifications: N/A
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Release Controls: N/A	Waste Types, Quantities, Sources, and Disposition: Oil-like substance, possibly from oiling the road.
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Inspection and Maintenance: Not applicable. Undeveloped land owned, but never utilized by AREVA or predecessors.

History of Leaks, Spills, and Releases: No history of environmental releases. No evidence of disposal other than stained area (no longer evident) from postulated road oil. No further action recommended.

Conclusions and Recommendations: This area is now used as farm land. No further action recommended.
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Unit: 54	Unit Name: Centrifuge Test Facility	
Dates of Operation: 1976 to 1987	Operational Status: Closed	Capacity: N/A
Time Waste Stored: No waste currently stored	Unit Description: Metal building housed high-speed centrifuge test facility. Used for development of centrifuge uranium enrichment technology from 1976 to 1980 and oil well product separation technology from 1985 to 1987.	
Location: East of main facility. Map M-1b (near 25.1)		
Drawing Numbers: 451004-80-4-001	Construction Details and Modifications: N/A; large and complex facility slated for demolition	
Release Controls: Enclosed metal building with concrete floors. Loading areas asphalt paved. All operations conducted in fully enclosed process systems. No outdoor storage or processing.	Waste Types, Quantities, Sources, and Disposition: No handling of dangerous wastes. Residual materials from R&D projects appropriately disposed of.	
Inspection and Maintenance: Not applicable. Facility decontaminated, surveyed for release by both SPC and NRC, and removed from all license restrictions (1987). Facility closed and demolished in 1997.		
History of Leaks, Spills, and Releases: Handled small quantities only of natural and enriched UF ₆ within confines of hoods and process equipment. No known releases of chemicals either within or exterior to the facility (1976-1980). Handled small quantities of simulated oil well stream materials (oil, water, natural gas, sand, gravel) in closed equipment. No known releases of chemicals within or exterior to the facility (1985-1987). Facility demolished in 1997.		
Conclusions and Recommendations: No historic management of hazardous materials outside containment. No known releases to environment or ongoing activities. No further action recommended.		

Unit: 55	Unit Name: Dangerous Waste Storage Pad
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Dates of Operation:	Operational Status: Closed	Capacity:
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Time Waste Stored:

Unit Description:
Repeat of unit 11

Location:

Drawing Numbers:

Construction Details and Modifications:

Release Controls:

Waste Types, Quantities, Sources, and Disposition:

Inspection and Maintenance:

History of Leaks, Spills, and Releases:

Conclusions and Recommendations:
Low risk area relative to historic usage and current management practices. Additionally, this area had previously stored both dangerous and mixed waste, but has subsequently been closed for these waste types per Ecology approved closure plan EMF-97-032 Rev. 2 Closure Plan for the Historic Dangerous Waste Storage Pad.

Unit: 57	Unit Name: Satellite Accumulation Areas	
Dates of Operation: 1992 to present	Operational Status: Active	Capacity: ~75 satellite containers
Time Waste Stored: Variable depending on generation rate	Unit Description: Containers of various sizes and construction used to accumulate dangerous wastes before they are transferred to the DWSP.	
Location: Throughout the plant.		
Drawing Numbers: Locations listed in MCP-30132	Construction Details and Modifications: N/A	
Release Controls: Liquid containers selected for chemical compatibility; outside liquid containers placed on secondary containment pallets. Satellite containers are typically located inside of buildings.	Waste Types, Quantities, Sources, and Disposition: Waste that contains an EPA or Ecology regulated constituent.	
Inspection and Maintenance: Satellites managed in accordance with posted satellite accumulation control sheets. Containers subject to informal inspection for integrity and evidence of release by nature of their frequent usage and location at or near point of generation.		
History of Leaks, Spills, and Releases: No reports of environmental releases. Releases precluded by effectively implemented and managed sitewide program for satellite accumulation (e.g. properly selected containers, posted control sheets, secondary containment for liquids at outdoor locations, etc.).		
Conclusions and Recommendations: No history of environmental releases. Ongoing risks very low due to properly implemented and maintained satellite accumulation program. No further action recommended.		

Unit: 58	Unit Name: Ion Exchange Columns (ARF)	
Years of Operation: 1993 to present	Operational Status: Active	Capacity: Can remove approximately 10 kg of uranium
Time Waste Stored: Flow-through system, 13 min. avg. residence time	Unit Description: Ion exchange column, sand filter, and associated piping, valves, and controls.	
Location: ARF Building. ENF-609,485		
Drawing Numbers: EMF-607,590	Construction Details and Modifications: Sand filters and ion exchange column housed in metal building adjacent to ARF.	
Release Controls: Units completely contained within recessed area of building. Units regenerated minimum of once every six months per procedure.	Waste Types, Quantities, Sources, and Disposition: Receives low-uranium solutions from various liquid waste streams, discharges to city sewer. Recovered uranium sent to MURS for processing, metal wash solutions sent to metals removal unit (Unit 65).	
Inspection and Maintenance: Unit visually inspected at least daily as part of routine sample collection protocol. Unit monitored and controlled via computer system in Dry Conversion control room. System includes alarm functions and automatic interlocks.		
History of Leaks, Spills, and Releases: No known environmental releases. Potential for future releases effectively precluded via system design, monitoring and operational protocols.		
Conclusions and Recommendations: Well designed, maintained, and monitored system with no history of, or potential for, environmental releases. No further action recommended.		

Unit: 59	Unit Name: Metallurgy Lab Silver Recovery Unit
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Dates of Operation: Unit operational since 1994	Operational Status: Active	Capacity: 140 oz. silver
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Time Waste Stored:
6-12 months between column changes

Unit Description:
Dual column ion exchange system for silver recovery from fixer and photographic/x-ray film development.

Location:
Metallurgy Lab, UO2 Building. ENF-609,485

Drawing Numbers:
Sketch

Construction Details and Modifications:
Standard commercial silver recovery unit (Hallmark Mark 15A). Replaced an older system in 1994.

Release Controls:
Dual column always allows clean column in "polishing" position. Unit is located inside a building to prevent spills or releases to the environment.

Waste Types, Quantities, Sources, and Disposition:
Unit initially treated approximately 10 gallons per week fixer and photographic solutions from x-ray film development, now operates on batch basis only. Treated solutions sent to Tank 713. Loaded columns are returned to vendor for silver recovery.

Inspection and Maintenance:
Low volume system confined within UO2 Building. Subject to routine visual surveillance related batch operation. Collection tank and floor sump equipped with locally alarming high level indicators. Lead column is sent to vendor for silver recovery when operating time limit is met.

History of Leaks, Spills, and Releases:
No history of past releases from unit. No potential for release via floor sump (routed to tank 713).

Conclusions and Recommendations:
No history of past releases or significant potential for future release. No further action recommended.

Unit: 60	Unit Name: Component Etch Waste Tank	
Years of Operation: Since January 1995	Operational Status: Active	Capacity: 2000 gallons
Time Waste Stored: Less than 90-day accumulation	Unit Description: Crosslinked polyethylene waste storage tank.	
Location: Adjacent to the component etch facility in the machine shop. ENF-609,485 (25)		
Drawing Numbers: EMF-609,063	Construction Details and Modifications: 2000 gallon crosslinked polyethylene tank contained inside 3500 gallon tank of similar construction. Annular space provided with electronic leak detection.	
Release Controls: Annular tank-in-tank construction with electronic leak detection.	Waste Types, Quantities, Sources, and Disposition: Spent etch solutions and pickling solutions, 300 gallons per week containing acids from the component etch processes. Tank managed as a 90-day accumulation tank, contents picked up by a waste disposal vendor.	
Inspection and Maintenance: Secondary contained (tank in tank) unit certified by registered engineer upon initial installation (1995). Equipped with level indicator and interstitial leak detection, both with alarms to etch room. Level indication and leak detection systems covered by formal instrument repetitive maintenance (IRM)/equipment preventive maintenance (PM) program. Unit also subject to formal daily operator inspection.		
History of Leaks, Spills, and Releases: No release to environment from this secondary contained system installed in 1995. Potential for future releases precluded by unit design, engineered controls, and inspection protocols.		
Conclusions and Recommendations: Well engineered and monitored system, recently installed, with no history of environmental release. Potential for future releases precluded by unit design, engineered controls, and inspection protocols. No further action recommended.		

Unit: 61	Unit Name: Neutralization Unit for Deionized Water System Regeneration Waste	
Dates of Operation: Since June 1994	Operational Status: Active	Capacity: 5000 gallons
Time Waste Stored: 3-hour cycle time.	Unit Description: Permit-by-rule elementary neutralization system consisting of a 5000 gallon tank and pH control system. pH adjustment up or down with sulfuric acid or sodium hydroxide.	
Location: Deionized Water (DIW) Building. ENF-609,485		
Drawing Numbers: EMF-610,694	Construction Details and Modifications: 5000 gallon crosslinked polyethylene tank contained inside a larger tank of similar construction. Annular space provided with electronic leak detection.	
Release Controls: Annular tank-in-tank construction with electronic leak detection.	Waste Types, Quantities, Sources, and Disposition: Receives regeneration solutions from DIW system, one to three times per week, 4000 gallons per batch. Regeneration solutions are corrosive (pH < 2 or pH > 12.5). Neutralized solutions discharged to sewer.	
Inspection and Maintenance: Secondary contained (tank in tank) unit certified by registered engineer upon initial installation (1994). Equipped with liquid level indicator and interstitial leak detection, both with alarms to inside the Deionized Water Building. Level indication and leak detection systems covered by formal instrument repetitive maintenance (IRM)/equipment preventive maintenance (PM) program. Unit also subject to formal operator inspection whenever wastes introduced into system.		
History of Leaks, Spills, and Releases: No release to environment from this secondary contained system installed in 1994. Potential for future releases precluded by unit design, engineered controls, and inspection protocols.		
Conclusions and Recommendations: Well engineered and monitored system with no history of environmental release. Potential for future releases precluded by unit design, engineered controls, and inspection protocols. No further action recommended.		

Unit: 62	Unit Name: Solvent Extraction Process Waste Neutralization Unit
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ates of Operation: July 1995 - 2004	Operational Status: Closed	Capacity: 15-20 gallons per minute, intermittent flow
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Time Waste Stored: Flow-through system, no hold up	Unit Description: In-line neutralization sytem.
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Location: Lagoon 3 Waste Neutralization Building, n.w. corner of Lagoon 3. ENF-609,485 (27)	
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Drawing Numbers: EMF-613,147	Construction Details and Modifications: In-line system utilizes Lagoon 3 solution, pump, eductor, and pH controller with automatic flow controllers to maintain flow ratios.
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Release Controls: Located inside a building with containment berm and electronic leak detection. Leak detection also in containment piping.	Waste Types, Quantities, Sources, and Disposition: Received raffinate solution from solvent extraction, 6000 to 7000 gallons per week. Raffinate solutions are corrosive (pH < 2). Neutralized solution discharged to Lagoon 3.
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Inspection and Maintenance: Newly installed system (1995) totally confined within dedicated building. Building equipped with sump with liquid level detection, activating alarm in Line 2 control room and shutting down system flows. Leak detection/alarm/system shutdown equipment on formal IRM/PM system. Facility visually inspected on daily basis by Plant Support staff. Yearly PMs on flow meters, control valves, pump, and leak detection system.
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History of Leska, Spills, and Releases: No releases to environment from this well engineered and monitored system installed in 1995. Potential for future releases precluded by unit design, engineered controls, and inspection protocols.
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Conclusions and Recommendations: Facility has been closed per EMF-2826 Revision 3, Closure Plan for the Surface Impoundment System. Closure approved by Ecology on 11/14/2006. No further action recommended.
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Unit: 63	Unit Name: Dry Conversion Pilot Plant Waste Acid Neutralization Unit	
Dates of Operation: 1984-1997	Operational Status: Closed	Capacity: 500 gallons
Time Waste Stored: 6 to 8 hours average residence time	Unit Description: Stainless steel tank for neutralization of off-specification hydrofluoric acid.	
Location: UO2 Building Room 104, adjacent to dry conversion pilot plant. ENF-609,485 (28)		
Drawing Numbers: EMF-607,590 sht. 5	Construction Details and Modifications: 500 gallon stainless steel tank installed in 1984. Pilot plant was modified in 1995 to recover HF for sale. Previously all HF was neutralized and discharged to lagoons.	
Release Controls: Stainless steel tank with level indication located inside a building providing effective secondary containment.	Waste Types, Quantities, Sources, and Disposition: Off-specification hydrofluoric acid (HF) from dry conversion process, approximately 4000 gallons per year. Neutralized solution discharged to Lagoon 1 or 2.	
Inspection and Maintenance: Transfer of waste HF to tank a short term, low volume (~10 gal) operation which is manned and monitored. System subject to ongoing operator oversight while in use. System also covered by established SPC instrument repetitive maintenance/equipment preventive maintenance program (pump, level indicator, tank internals).		
History of Leaks, Spills, and Releases: No history of, or potential for, release of liquids to environment. System fully contained within confines of UO2 Building. Insignificant vapor volume releases from potential liquid spills to floor (pump or piping leaks) exhausted via building ventilation system.		
Conclusions and Recommendations: System removed from service and decommissioned in 1997. No further action recommended.		

Unit: 64	Unit Name: UO2 Building Lab Addition Waste Neutralization Unit
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Dates of Operation: June 1995 - Present	Operational Status: Active	Capacity: 200 gallons
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Time Waste Stored:
Approx. one week

Unit Description:
Two 115-gallon low-uranium waste collection tanks with pH neutralization capability.

Location:
UO2 Building laboratory addition main floor mechanical room. ENF-609,485 (29)

Drawing Numbers:
CSA-609,590 sht. 49

Construction Details and Modifications:
Stainless steel tanks with level instrumentation.

Release Controls:
Located inside a building with containment berm. Tanks equipped with electronic level indication/control with remote alarms to Laboratory and Plant Support office.

Waste Types, Quantities, Sources, and Disposition:
UO2 laboratory solutions, approximately 10,000 gallons per year. Solutions may be corrosive (pH < 2 or pH > 12.5). Neutralized solutions previously sent to Lagoon 5A.

Inspection and Maintenance:
Tanks equipped with electronic level indication/control, with remote alarms to laboratory and Plant Support office. Electronic flow indication/control system subject to formal instrument repetitive maintenance (IRM)/equipment preventive maintenance (PM) program. Facility inspected by Plant Support staff minimum of once per shift.

History of Leaks, Spills, and Releases:
No releases to environment from this system placed into service in 1995. Tanks located within confines of building providing secondary containment. Potential for future releases precluded by unit design, engineered controls, and routine surveillance.

Conclusions and Recommendations:
Tanks are no longer used for neutralization purposes. Neutralization now takes place in Tank 717, located in ARF. There is no history of environmental release. Potential for future releases precluded by unit design, engineered controls, and routine surveillance. No further action recommended.

Unit: 65	Unit Name: IX Column Neutralization/Metals Removal Unit	
Years of Operation: 1995 to present	Operational Status: Active	Capacity: 1600 gallon feed tank
Time Waste Stored: 6 day cycle time every 6 months	Unit Description: Permit-by-rule neutralization system consisting of holding tank, metals removal tank, filter, and pH adjustment system.	
Location: ARF Building. ENF-609,485 (30)		
Drawing Numbers: Sketch DS-RK-086-95	Construction Details and Modifications: Commercial waste water treatment system installed in 1995. Consists of a 1600-gal polyethylene feed tank, 250-gal PVC batch treatment tank, chemical additive equipment, and 0.5 cu.ft. filter press.	
Release Controls: Located inside a building with containment berm.	Waste Types, Quantities, Sources, and Disposition: Receives metal wash stream from the ion exchange system, approximately 1600 gallons about twice a year. Neutralized solution discharged to sewer. Metals-containing solids sent off site to a waste contractor for treatment/disposal.	
Inspection and Maintenance: Unit given pre-operational checks prior to each campaign (approx. 1-2 per year of 1 week duration each). Operator surveillance during processing campaigns.		
History of Leaks, Spills, and Releases: No history of releases from this unit installed in 1995. Filling of receiving tank a manned manual operation; batch tank equipped with full/high level alarms interlocked to pump. Unit entirely confined within building; room equipped with sump with pumpout to surface impoundment system.		
Conclusions and Recommendations: No past releases from this infrequently utilized system installed in 1995. Risk of future releases minimized via system design, engineering controls, and operations surveillance. No further action recommended.		

Unit: 66	Unit Name: City Lift Station	
ates of Operation: Since Nov. 1995	Operational Status: Active	Capacity: Working volume ~ 3800 gal
Time Waste Stored: Flow-through system, avg. residence time 20-30 min	Unit Description: Sewer line from AREVA facility is routed through lift station to City of Richland POTW. Lift station owned and maintained by City of Richland.	
Location: South of AREVA facility, near diagonal gravel road.		
Drawing Numbers: 942-M-2.0 (not as built)	Construction Details and Modifications: 12 ft. dia. precast concrete pipe well with two sewage pumps (one is a backup or booster) and level transducer.	
Release Controls: High level alarm, backup/booster pump comes on at high level indication.	Waste Types, Quantities, Sources, and Disposition: Treated waste water and domestic sewage.	
Inspection and Maintenance: Unit owned and operated by City of Richland. Equipped with high/low level and pump failure alarms routed via telemetry to Richland treatment plant. Visually inspected by City personnel on weekly basis (wet well, monitoring systems, alarms).		
History of Leaks, Spills, and Releases: Single overflow incident related to influent to unit from non-AREVA source (July 1996). Overflow pathway from present unit is via manhole to area off AREVA property.		
Conclusions and Recommendations: City owned and operated unit handling waste streams from AREVA plus other industrial dischargers. Underlying cause of July 1996 flooding remedied by City. No environmental release to AREVA property. No further action applicable to AREVA.		

Unit: 67	Unit Name: SWUR and UO2 Lab Waste Transfer Tank
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Dates of Operation: 1993 to present	Operational Status: Active	Capacity: 500 gallons
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Time Waste Stored:
Approx. 2 hour residence time

Unit Description:
Below-ground liquid waste transfer tank

Location:
UO2 Analytical Lab main floor equipment room

Drawing Numbers:
EMF-609,989

Construction Details and Modifications:
500 gallon polypropylene tank with liner in concrete containment with dual submersible pumps

Release Controls:
Epoxy-coated, concrete secondary containment with liquid leak detection and alarms local and DCF Control Room. Leak detection equipment and alarms on regular PM program.

Waste Types, Quantities, Sources, and Disposition:
Spent SWUR scrub solution (mainly sodium chloride) and miscellaneous neutralized laboratory solutions, ppm levels of uranium. Solutions pumped to tank 717.

Inspection and Maintenance:
Leak detection equipment and alarms on routine PM program.

History of Leaks, Spills, and Releases:
Some history of tank overflows during system startup and early operations, but confined entirely to secondary containment. No history of environmental release.

Conclusions and Recommendations:
Location of this tank changed in 2005 from west side of UO2 to UO2 Analytical lab main floor equipment room. Well designed, operated, and monitored system with environmental releases precluded by engineered controls and operating protocols. No environmental or public health risks. No further action recommended.

Unit: 68	Unit Name: SWUR Waste Accumulation Tank (TK-682)	
Years of Operation: 1987 to present	Operational Status: Active	Capacity: 21 gallons
Time Waste Stored: Intermittent use. Pumped out about once a week.	Unit Description: SWUR mop water accumulation tank	
Location: SF Building. ENF-609,485 (32)		
Drawing Numbers: CSA-609,971	Construction Details and Modifications: 8 in. sch 80 polypropylene tank. Replaced in Dec. 1995.	
Release Controls: Plastic tank confined within concrete bermed area. Bermed area equipped with liquid leak detection and alarm. Entire system confined within SF Building.	Waste Types, Quantities, Sources, and Disposition: Mop water from SWUR floor and pump seal water. Effluent sent to SWUR and Lab Waste transfer tank (Unit #67).	
Inspection and Maintenance: Tank and bermed containment area subject to direct visual observation by process operators.		
History of Leaks, Spills, and Releases: Minor spills and leaks entirely confined within secondary containment. No history of environmental release.		
Conclusions and Recommendations: Effectively monitored, double-contained system with no history of, or potential for, environmental release. No further action recommended.		

Unit: 69	Unit Name: ELO Sump Tank - Room 58
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Years of Operation: 1983 to 1999	Operational Status: Closed	Capacity: 82 gallons
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Time Waste Stored:
less than 20 minutes avg. residence time

Unit Description:
Below grade tank collects and transfers ELO buiding liquid effluents to Lagoon Neutralization System.

Location:
ELO Building Room 58.. ENF-609,485 (33)

Drawing Numbers:
CSA-606,080 and CSA-606,081

Construction Details and Modifications:
Slab tank, 304L stainless steel, 5'11" long X 3.5" thick X 6'4" high, equipped with mild steel outer liner, embedded in concrete with level control and automatic pump-out.

Release Controls:
Stainless steel tank with exterior mild steel liner set in a concrete containment pit equipped with leak detection and alarm. Tank has level indication and automatic pumpout. Entire system confined within the ELO Building.

Waste Types, Quantities, Sources, and Disposition:
Solvent extraction wastes containing nitric acid, ammonium fluoride, ammonium carbonate; miscellaneous laboratory wastes. Contents pumped to the Lagoon Neutralization System and into Lagoon 3.

Inspection and Maintenance:
Sump operations subject to routine operator surveillance.

History of Leaks, Spills, and Releases:
Reported instances of sump overflow confined to process area and readily detected by operators. No history of environmental release.

Conclusions and Recommendations:
System removed from service in 1999; liquid effluent piped aboveground to tank 717 in ARF. Well confined system subject to operator surveillance. No history of environmental release. No futher action recommended.

Unit: 70	Unit Name: Raffinate Tanks (TK-317, 318)	
Dates of Operation: 1992 to present	Operational Status: Active	Capacity: 52 gallons per tank
Time Waste Stored: Typically less than one day	Unit Description: Collection tanks for ELO solvent extraction raffinate solution.	
Location: ELO Building. ENF-609,485 (35)		
Drawing Numbers: CSA-609,542	Construction Details and Modifications: Eight cylindrical polypropylene tanks covered with fiberglass, 9.5-in. diameter by 15 ft. tall. Two banks of four tanks, each bank connected to a transfer pump.	
Release Controls: Fiberglass coated polypropylene tanks located within concrete-curbed area. Entire area confined within the ELO Building.	Waste Types, Quantities, Sources, and Disposition: Solvent extraction raffinate containing nitric acid, aluminum nitrate, traces of uranium. Solution pumped to tank 717.	
Inspection and Maintenance: Tanks and containment area subject to direct visual observation by process operators.		
History of Leaks, Spills, and Releases: No history of leaks or spills beyond minor releases (drips) from piping to containment. No environmental releases.		
Conclusions and Recommendations: Well designed and monitored system with no history of, or potential for, environmental release. No further action recommended.		

Unit: 71	Unit Name: High Uranium Transfer Tank (TK-16)
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Years of Operation: 1971 to 2000	Operational Status: Closed	Capacity: 94 gallons per tank
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Time Waste Stored:
Approximately 2 days

Unit Description:
Collection tanks used to accumulate cylinder wash solutions prior to discharge to Lagoon 3.

Location:
Room 102A, UO2 Building. ENF-609,485 (34)

Drawing Numbers:
CSA-603,686 and EMF-607,590 sht. 5 (see Unit #63)

Construction Details and Modifications:
Two cylindrical polypropylene tanks covered with fiberglass, 10-in. diameter by 20 ft. tall, connected to a transfer pump.

Release Controls:
Fiberglass-covered polypropylene tanks set above recessed floor sump. Floor sump has electronic leak detection that triggers automatic pumpout to MURS system. Entire system confined within the UO2 Building.

Waste Types, Quantities, Sources, and Disposition:
Cylinder wash solution containing water, UO₂F₂, and dilute hydrofluoric acid.

Inspection and Maintenance:
Unit subject to frequent visual inspection based on routine operator visits. Discharge of sump to MURS system detected by MURS process monitors.

History of Leaks, Spills, and Releases:
Minor releases confined within sump area. No history of environmental releases.

Conclusions and Recommendations:
This tank has been removed from service. No further action recommended.

Unit: 72	Unit Name: Quarantine Tanks (TK-709)
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Dates of Operation: 1978 to about 1985	Operational Status: Closed	Capacity: Approximately 750 gallons
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Time Waste Stored: < 2 days when in service	Unit Description: Tanks formerly used to hold ADU conversion effluent until uranium analysis completed.
Location: Northeast corner of UO2 Building. ENF-609,485 (36)	

Drawing Numbers: None	Construction Details and Modifications: Ten fiberglass-covered polypropylene tanks, 8 and 10-in diameter by 20 ft. tall. Taken out of service in about 1985 and dismantled in 1993. Tanks reused for other applications.
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Release Controls: Fiberglass-covered, polypropylene tanks enclosed in concrete bermed area inside a metal building. Electronic leak detection and alarm.	Waste Types, Quantities, Sources, and Disposition: Process solutions from ADU conversion containing mainly ammonia, ammonium hydroxide, ammonium nitrate, ammonium fluoride and ppm levels of uranium.
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Inspection and Maintenance: Not applicable, no longer in service.
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History of Leaks, Spills, and Releases: Minor leaks and spills to containment. No known environmental releases.
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Conclusions and Recommendations: Well designed and monitored system with no history of environmental release. System no longer in service. No further action recommended.
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Unit:	73	Unit Name:	Solid Waste Uranium Recovery (SWUR) Facility
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Dates of Operation:	Operational Status:	Capacity:
1988 to present	Active	40 to 60 kg/hour of combustible material

Time Waste Stored: Typical 1 to 3 weeks	Unit Description: Double-hearth, controlled-air, propane-fired incinerator with semi-continuous feed using cardboard burn boxes. Facility includes material sorting, box packaging and uranium assay, and off-gas scrubbing and filtration.
Location: Specialty Fuels Building	

Drawing Numbers: CSA-613,389	Construction Details and Modifications: Originally constructed in 1986. Modified in 1995-96 to improve nuclear criticality controls and ash product handling.
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Release Controls: Entire unit confined within closed, contamination-control area. Offgas system includes a quench column, venturi scrubber, packed column scrubber, plus two HEPA filter banks. Offgas scrubbing equipment contained in bermed area.	Waste Types, Quantities, Sources, and Disposition: Burns non-hazardous, dry combustible material containing uranium (gloves, disposable clothing, etc.) and produces a high-uranium ash for off-site uranium recovery. Non-hazardous off-gas scrub solution sent to surface impoundment system (see Unit #67).
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Inspection and Maintenance: Unit continuously manned when in operation. Key components of incinerator and offgas system on formal preventive maintenance (PM) program ; instruments on formal instrument repetitive maintenance (IRM) program. Offgas stack and scrubber solution continuously sampled for environmental/process control.
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History of Leaks, Spills, and Releases: No history of uncontrolled, unplanned, or detrimental environmental releases. Releases precluded/controlled via engineered features and strict operational protocols.
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Conclusions and Recommendations: Well engineered, operated, and monitored unit with no history of uncontrolled, unplanned, or detrimental environmental releases. Potential for future releases precluded by engineered controls and operational protocols. Characteristics of feed materials (i.e. combustible, non-hazardous) strictly controlled via segregation at point of generation, 100% visual inspection during manual loading into burn boxes, and quality control overcheck. No further action recommended.
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Attachment 5.2. Final RCRA Facility Assessment Report

Original - LJM (file)

S. Penman

R. Vaughan

S. Kogler

R. Griffith (Steel River)

M. Gerhart (G+M)

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EPA File Category - II-A

December 23, 1996

Vicky Tapang
U.S. Environmental Protection Agency, Region 10
1200 Sixth Avenue, HW-105
Seattle, Washington 98101

RECEIVED

DEC 24 1996

EPA - WOO

**Subject: Final Resource Conservation and Recovery Act
Facility Assessment Report, Conclusions and Recommendations
Siemens Power Corporation
Work Assignment R10019
Contract 68-W4-0004, RCRA Enforcement, Permitting, and Assistance,
Zone III**

Dear Ms. Tapang:

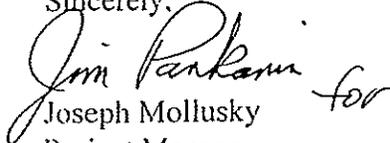
PRC Environmental Management, Inc., is submitting under separate cover the conclusions and recommendations section of draft RCRA Facility Assessment report for the Siemens Power Corporation.

The final RCRA facility assessment (RFA) for activities at the Siemens Power Corporation in Richland, Washington has concluded that there are 71 solid waste management units (SWMU) on site. Many of the SWMUs have been previously studied in the 1994 Remedial Investigation/Feasibility Study (RI/FS), prepared by Geraghty & Miller, Inc. Much of the information on which the RFA recommendations were made came from the RI/FS. None of the SWMUs require immediate further investigation. The SWMUs that are probable or suspected sources of groundwater contamination are the Lagoons (SWMU 1-6) and the Sand Trench (SWMU 7). An existing groundwater monitoring program for these SWMUs provides ongoing assessments of potential groundwater impacts. The units will also be formally closed by the year 2004. Other SWMUs (SWMU 11-13, 17, 18, and 25) will be closed in the near future following execution of dangerous waste closure plans or will have further investigation performed during decommissioning, pursuant to NRC requirements. PRC recommends that further evaluation be conducted at SWMUs 60, 61, 62, and 64 to assess the impact of process releases that occurred before 1995. For the remaining SWMUs, PRC recommends either to continue with the existing monitoring systems in place or no further investigation is necessary. The following table provides detailed information for each SWMU and summarizes recommendations for further actions.

Vicky Tapang
December 23, 1996
Page 2

Please contact me at 587-4650 or Jim Pankanin at 587-4651 if you have any questions.

Sincerely,


Joseph Mollusky *for*
Project Manager

Enclosure

cc: Jack Boller, EPA Olympia Operations Office
Jim Pankanin, PRC Regional Program Manager (without enclosures)
Mark Johnson, PRC Zone Program Manager (without enclosures)

HISTORY OF RELEASES AND RECOMMENDATIONS
SIEMENS POWER CORPORATION, RICHLAND, WASHINGTON
 (Page 1 of 11)

Unit No.	Unit Number and Name/Dates of Operation	History of Releases	Recommendations
1	Surface Impoundments - Lagoon 1 1971 to present Unit in Closure Plan	Reported repairs of defects/holes in single liner system in early/mid-1970s. Reported leak caused by liner defect in 1973. Report of liquids blown over berm in 1974. Appearance of lagoon chemical constituents in downgradient monitoring wells. Soil sampling below bottom (Petromat™) liner in June 1992 in conjunction with MTCA RI/FS revealed radiological and nonradiological lagoon constituents at elevated levels with respect to background.	Continue groundwater monitoring program with quarterly reports to Ecology. Sample soils under lagoon at time of closure. Closure estimated by year 2004.
2	Surface Impoundments - Lagoon 2 1971 to present Unit in Closure Plan	Reported repairs of defects/holes in single liner system in early/mid-1970s. Report of liquids blown over berm in 1974. Appearance of lagoon chemical constituents in downgradient monitoring wells. Soil core sampling conducted below bottom Petromat™ liner at time of installation of Hypalon™ double liners reportedly indicated uranium contamination.	Continue groundwater monitoring program with quarterly reports to Ecology. Sample soils under lagoon at time of closure. Closure estimated by year 2004.
3	Surface Impoundments - Lagoon 3 1974 to present Unit in Closure Plan	Reported repair to single (Petromat™) liner at time of installation of double Hypalon™ liners (1979). Soil core sampling conducted at time of installation of Hypalon™ liners reportedly indicated uranium contamination below original Petromat™ liner.	Continue groundwater monitoring program with quarterly reports to Ecology. Sample soils under lagoon at time of closure. Closure estimated by year 2004.
4	Surface Impoundments - Lagoon 4 1974 to present Unit in Closure Plan	No known releases to environment. Minimum of two liners with interliner leachate collection and detection from time of original construction.	Continue groundwater monitoring program with quarterly reports to Ecology. Sample soils under lagoon at time of closure. Closure estimated by year 2004.
5	Surface Impoundments - Lagoon 5A 1982 to present Unit in Closure Plan	No known releases to environment. Single-lined for only 1 year before 1983 installation of second liner with interliner leachate collection and detection.	Continue groundwater monitoring program with quarterly reports to Ecology. Sample soils under lagoon at time of closure. Closure estimated by year 2004.
6	Surface Impoundments - Lagoon 5B 1983 to present Unit in Closure Plan	No known releases to environment. Minimum of two liners with interliner leachate collection and detection from time of original construction.	Continue groundwater monitoring program with quarterly reports to Ecology. Sample soils under lagoon at time of closure. Closure estimated by year 2004.

**HISTORY OF RELEASES AND POTENTIAL RISK
SIEMENS POWER CORPORATION, RICHLAND, WASHINGTON
(Page 2 of 11)**

Unit No.	Unit Number and Name/Dates of Operation	History of Releases	Recommendations
7	Sand Trench 1977 to 1993	No confirmed leaks or environmental releases during active inventory storage; however, suspected leak in 1980 prompted addition of Hypalon™ cover (replaced in 1988) to preclude rainwater accumulation. Some liner holes/tears created in process of introducing inventory or transferring inventory to leach pit. Portions of unit from which inventory was removed not subsequently re-used. All existing holes/tears repaired at time of final inventory removal. Removal of four 20 by 20-foot liner sections (May 1995) revealed localized, visually discernible areas of soil contamination. Laboratory analysis of soil samples confirmed presence of lagoon-derived constituents.	Continue groundwater monitoring program with quarterly reports to Ecology. Sample soils below trench liner at time of lagoon closure. Closure estimated by year 2004.
8	Leach Pit 1983 to 1993	Unit equipped with multiple liners from time of initial installation. No reports of known releases or need for lower liner repair (upper liner repaired in 1986). Soil sampling conducted below lowest liner (May 1995) revealed no contamination. Historic inventory managed was not dangerous waste per chemical and bioassay testing.	SWMU can be screened from further investigation.
9	Former Neutralization Pit and Sump 1971 to early 1980's	Reports of broken chemical drain in former neutralization pit/sump (1974) and leaking underground stainless steel line from sulfuric acid tank to pit (1975). Area characterized as part of SPC RI/FS; according to RI/FS discovery of limited contamination (gross alpha, fluoride, nitrate, sulfate) above background levels but well within MTCA cleanup standards.	No further action based upon RI/FS (Geraghty and Miller, 1994).
10	Retention Tanks 1970 to present	No evidence of past or current leakage. TCE levels in downgradient well (GM-3) at approximately 15 ppb (1991 and 1992) declined steadily to less than 1 ppb (1996). Retention tanks hypothesized as potential source of TCE in GM-3, based solely on physical proximity; no process information supporting either receipt or leakage of TCE at retention tanks. No soil sampling of soil below tanks possible during RI/FS because the depth of tank bottom was very close to or lower than water table elevation. No management of volatile constituents posing potential for airborne releases.	Continue groundwater monitoring with quarterly reports to Ecology. Conduct environmental sampling at time of decommissioning.
11 (also 55*)	Low-Level Waste Storage Area (North Pad) 1979 to present Unit will undergo closure	No known releases to the environment from historic or current operations. After the replacement dangerous waste storage pad is brought on line in 1997, low-level solid waste and mixed wastes inventory at this location will be processed and eventually eliminated (PRC 1996a).	Follow closure plan when replacement pad is brought on line.
12	Low-Level Waste Storage Area (South Pad) 1991 to present Unit will undergo closure	No known releases to environment.	SWMU can be screened from further investigation.

**IIISTORY OF RELEASES AND POTENTIAL RISK
SIEMENS POWER CORPORATION, RICHLAND, WASHINGTON
(Page 3 of 11)**

Unit No.	Unit Number and Name/Dates of Operation	History of Releases	Recommendations
13	Mixed and Under 90-Day Storage Area 1985 to present Unit will undergo closure	No known releases to environment since unit placed into service in 1985. Historic reports note drum storage and possible drum dumping (no details on contents or amounts) in general area west of pad. Soil sampling around the adjacent Chemical Storage Building, a known historic drum management area, revealed no evidence of environmental release during the RI/FS.	Follow closure plan when replacement pad is brought on line.
14	Current Boneyard Area (No. 4) 1993 to present	No releases from current usage. Area unused before use as boneyard.	SWMU can be screened from further investigation.
15	1992 Boneyard (No. 3) (Located at South End of Facility) 1992 to 1993	Primary usage for storage of process and facility equipment and materials. Some storage of containerized wastes (hazardous materials) in south and southwest portion of pad with reports of liquid releases to ground. Area sampled (excavated trenches and pits) as part of RI/FS; discovery of contamination at levels below MICA cleanup standards.	No further action based upon RI/FS (Geraghty and Miller, 1994).
16	Former Boneyard (No. 2) (Located beneath east end of Machine Shop) Late 1973 to 1979	Boneyard included drum storage area. Reports of drums in poor condition raise possibility of environmental release but no actual releases or discharges known. Area not available for visual inspection or soil sampling during MICA RI/FS because of the location under present machine shop. No indication of contamination based on groundwater data in immediately downgradient well.	SWMU can be screened from further investigation.
17	UO ₂ Area Boneyard (Located beneath south end of UO ₂ Building) 1970 to 1972	No known or reported releases to environment related to historic boneyard activities. Use of wind-deposited sands retrieved from Lagoon 1 as fill material when UO ₂ Building was expanded over this area (1973) raises possibility for lagoon-related contaminants in soil at this location. No access under UO ₂ Building floor slab for visual inspection or soil sampling.	Sample soil fill below building at time of UO ₂ building decommissioning pursuant to NRC decommissioning requirements.
18	ELO Sump and Dry Well 1983 to present	Sump (connected to associated dry well) located in area of historical and current storage/handling of bulk containerized liquid chemicals. Evidence of past spills includes historical report of visual organic sheen on sump liquid surface and positive analytical result for uranium contamination in prior sump cleanout material. No indication of large spills (SPC 1996). Area covered by ongoing groundwater monitoring program. Stored materials now have secondary containment to reduce spill potential.	Sample soil below dry well at time of NRC required facility decommissioning.

**HISTORY OF RELEASES AND POTENTIAL RISK
SIEMENS POWER CORPORATION, RICHLAND, WASHINGTON
(Page 4 of 11)**

Unit No.	Unit Number and Name/Dates of Operation	History of Releases	Recommendations
19	ARI Truck Cleanout Sump 1990 to present	Failure of backflow prevention device in drain line from previous gravity-drained sump (January 1991) resulted in release to soil of approximately 125 gallons of 16 to 24 percent ammonium hydroxide solution. Minor splashes to soil around previous sump also reported in conjunction with routine truck hookup/disconnect operations for ammonium hydroxide and sodium hydroxide. Area characterized via soil sampling as part of RI/FS, indicating contamination levels below MTCA cleanup standards. No evidence of environmental releases associated with current sump (SPC, 1996).	No further action based upon RI/FS (Geraghty and Miller, 1994).
20	Former Paint Shop Trailer Dry Well 1977 to 1990	Domestic-use sink in former paint shop trailer reportedly discharged to dry well over 1977 to 1990 period of operation. Not intended as disposal facility for paint-related wastes; however, possibility for incidental releases not positively precluded. Dry well near pesticide storage trailer; no pesticide releases reported. Area subjected to soil sampling as part of RI/FS; results revealed limited contamination below MTCA cleanup standards. Some soil discoloration encountered in dry well and near surface of surrounding soils (Geraghty and Miller, 1994b).	No further action based upon RI/FS (Geraghty and Miller, 1994).
21	UO ₂ Building - North End N/A	Presence of asphalt precludes inadvertent release of materials to soil. Documented release of UNH from drum spill in 1973 cleaned up to meet radiological unrestricted access criteria.	SWMU can be screened from further investigation.
22	UO ₂ Building - East End. Former East Tank Farm 1970 to 1989	Area used as tank farm from early 1970s to 1989, housing aboveground tanks for nitric acid (concentrated and dilute), liquid nitrogen, and ammonium hydroxide. Documented release from overflow of dilute nitric acid tank (1980). Area characterized via soil sampling as part of RI/FS. Soil samples revealed radionuclides and certain process chemical constituents above background but below MTCA cleanup standards. Some soil discoloration with weak acidic odor. Historical elevated nitrate levels in downgradient well now at levels of site upgradient wells.	No further action based upon RI/FS (Geraghty and Miller, 1994).

**HISTORY OF RELEASES AND POTENTIAL RISK
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Unit No.	Unit Number and Name/Dates of Operation	History of Releases	Recommendations
23	UO ₂ Building - West End, Former West Tank Farm 1970 to 1987	Former tank farm usage included one belowground sump and three aboveground tanks for storage of nitric acid and ammonium hydroxide and (the receipt and neutralization of etch solutions (nitric/hydrofluoric acids). Documented releases from tanks and associated pipes over operational history of tank farm. Soil sampling as part of RI/FS revealed certain constituents (NH ₃ , F, NO ₃ , SO ₄) at levels above background but below MTCA cleanup standards. Additional characterization in preparation for construction of UO ₂ laboratory addition provided confirmatory results. Localized, contaminated soil (determined visually) removed before construction.	No further action based upon RI/FS (Geraghty and Miller, 1994).
24	UO ₂ Building Low-Level Waste Staging Area 1979 to present	Short-term staging only for drums removed from UO ₂ Building waste handling area or taken to the UO ₂ waste handling area for repackaging. No known releases to environment.	SWMU can be screened from further investigation.
25	Machine Shop 1976 to late 1980's	Unpaved area used for storage and disposal of containerized waste oils (primarily biodegradable cooling oils) from 1976 to late 1980s. Reported disposal of oils to ground provides likelihood for soil contamination with oil and potentially associated constituents (solvents, metals). Area effectively capped by existing machine shop structure.	Sample soil below west end of machine shop at time of building decommissioning.
26	Former Paint Shop Area 1977 to 1990	Paint brush/equipment cleaning activities reportedly discharged paints and solvents to ground surface. Paint residues observed on adjacent asphalt. Similar potential for releases at unlined pit adjacent to former paint shop trailer (SWMU 20). Both areas characterized by soil sampling during RI/FS. Some soil staining observed in upper soil layers. Limited contamination detected at concentrations below MTCA cleanup standards. No evidence of environmental release.	No further action based upon RI/FS (Geraghty and Miller, 1994).
27	Drum Storage Area Near Current Paint Shop 1990 to present	No evidence of environmental releases from past or current operations. Approximately twelve, 4.5-cubic yard dumpsters on site.	SWMU can be screened from further investigation.
28	Solid Waste Dumpsters Early 1970's to present	Operation uses nonhazardous water-based detergent. Kerosene fuel (single drum) stored on paved area and equipped with valve drip pan. No cleaning of equipment with radioactive or hazardous chemical residues (primary activity is cleaning road grime off metal shipping containers). Cleaning solutions released to gravelled and paved surfaces.	SWMU can be screened from further investigation.
29	Steamcleaning Area 1983 to present	No evidence of release based on results of intensive monitoring and inspection protocols (SPC 1996). Locked, vented vault room has spill detection alarm. Building inspected every six months (PRC 1996a).	SWMU can be screened from further investigation.
30 (also 56*)	Specialty Fuels Building Mixed Oxide Waste Storage Unit Since October 1989		Continue monitoring per NRC license.

**HISTORY OF RELEASES AND POTENTIAL RISK
SIEMENS POWER CORPORATION, RICHLAND, WASHINGTON
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Unit No.	Unit Number and Name/Dates of Operation	History of Releases	Recommendations
31	SWUR Barrel Staging Area August 1988 to present	No known releases to environment. Area paved and handles only solid (no free standing liquid), nondangerous, low-level radioactive combustible wastes in closed drums.	SWMU can be screened from further investigation.
32	Scrap Stainless Steel Storage Bin	History of small releases of nonhazardous biodegradable (90% water, 10% mineral oil) cutting oils to ground before to installation of concrete pad below catch pan. Contaminated soil removed at the time of pad installation.	SWMU can be screened from further investigation.
33	Zirconium Burn Towers 1971 to 1992	No evidence of environmental contamination. Decommissioning of units effectively accomplished; involved removal of towers (vertical concrete pipes) and residual nonhazardous ash.	SWMU can be screened from further investigation.
34	Sand Blast Area 1987 to 1994	Historic usage involved nondangerous abrasive media; used media also nondangerous per formal analytical designation. Used media also screened for radiological contamination before offsite disposal. Residual material substantially removed when facility taken out of service.	SWMU can be screened from further investigation.
35	Used Oil Storage Area/Former Waste Oil UST 1987 to present	Oil-like stains observed on pavement; no known releases to environment from historic or current operations.	SWMU can be screened from further investigation.
36	Process Waste Transfer Lines 1970 to present	Documented historical releases from leaks/breaks of former single-contained underground lines. Most significant releases in general vicinity of Ammonia Recovery Facility (see SWMU 38); fully characterized via RI/FS. Smaller releases and associated environmental characterization/remediation documented in SPC spill logs.	Continue leak detection monitoring.
AOC 37	Product Tank Fills without Secondary Containment (North of ARF)	No known releases to environment. No releases observed, and no wastes stored at the unit (PRC 1996a).	SWMU can be screened from further investigation.
38	ARF 1984 to present	No history of environmental release from unit within confines of ARF building. Potential for future releases precluded by unit design, engineered controls, and operational protocols. Concrete sumps have high-level activated pumps with alarms. Spills would be pumped back to lagoons. Outside area around ARF (outside confines of building) impacted by five reported ARF-associated underground process piping breaks/leaks (inclusive of release discussed in conjunction with ARF Truck Cleanout Sump (SWMU No. 19). All releases associated with historic single-containment piping. Area extensively characterized with historic single-part of RI/FS, indicating ARF/lagoon-associated contaminant levels above background, but below MTCA cleanup standards.	Continue groundwater monitoring program with quarterly reports to Ecology.

**HISTORY OF RELEASES AND POTENTIAL RISK
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Unit No.	Unit Number and Name/Dates of Operation	History of Releases	Recommendations
47	CTF; Road Area	Minor amounts of incidental surface litter (metal scraps, tin cans, cardboard, etc.) along road to CTF (inactive since 1980s). No history of use as disposal site; no history of hazardous materials usage in or adjacent to CTF (other than small quantities of natural and enriched UF6 and oil well stream materials maintained within processing equipment and hoods inside CTF). No indication of stressed vegetation (PRC 1996a).	SWMU can be screened from further investigation.
48	South Diagonal Road Area N/A	Minor amounts of incidental surface litter adjacent to infrequently used gravel road. Area significantly excavated in autumn 1995 in conjunction with installation of new sewer line, manholes, and lift station. No evidence of subsurface contamination or debris detected. No history of waste handling or disposal.	SWMU can be screened from further investigation.
49	16 SE/4 Dumping Area Prior to SPC ownership	Area not used by SPC for operations or disposal. Some discarded materials on surface from scattered trash dumping prior to SPC (and predecessor) ownership (car parts, boiler ash, concrete, etc.).	SWMU can be screened from further investigation.
50	16 SE/4 Depression No SPC usage	Area not used by SPC for operations or disposal. Some discarded materials on surface from scattered trash and waste material dumping prior to SPC (and predecessor) ownership (car bodies, metallic lathe turnings, empty cans, etc.).	SWMU can be screened from further investigation.
AOC 51	Areas Oiled for Dust Control, North Main Parking Lot 1970 to 1976	Oil purchased from and applied by commercial vendor. Quantities limited to those appropriate for dust suppression on graveled area; not a disposal practice. All areas now paved.	SWMU can be screened from further investigation.
AOC 52	Areas Oiled for Dust Control, West Parking Lot 1970 to 1976	Oil purchased from and applied by commercial vendor. Quantities limited to those appropriate for dust suppression on graveled area; not a disposal practice. All areas now paved.	SWMU can be screened from further investigation.
53	Near Y in Unused Road in 16 SE/4 N/A	No history of environmental releases. No evidence of disposal other than stained area (no longer evident) from postulated road oil. Location of stain unknown now (PRC 1996a).	SWMU can be screened from further investigation.
54	Centrifuge Test Facility 1976 to 1987	Handled small quantities only of natural and enriched UF6 within confines of hoods and process equipment. No known releases of chemicals either within or exterior to the facility (1976 through 1980). Handled small quantities of simulated oil well stream materials (oil, water, natural gas, sand, gravel) in closed equipment. No known releases of chemicals within or exterior to facility (1985 through 1987). No activities (operational or storage) currently conducted by facility.	SWMU can be screened from further investigation.

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Unit No.	Unit Number and Name/Dates of Operation	History of Releases	Recommendations
55 (also 11*)	Dangerous Waste Storage Pad 1979 to present	No known releases to the environment from historic or current operations. After the replacement dangerous waste storage pad is brought on line in 1997, low-level solid waste and mixed wastes inventory at this location will be processed and eventually eliminated (PRC 1996b).	Follow closure plan when replacement pad is brought on line.
56 (also 30*)	Mixed Oxide Waste Storage Unit	No evidence of release based on results of intensive monitoring and inspection protocols (SPC 1996). Locked, vented vault room has spill detection alarm. Building inspected every 6 months (PRC 1996a).	Continue monitoring per NRC license.
57	Satellite Accumulations Areas 1992 to present	No reports of environmental releases. Release potential minimized by effectively implemented and managed site-wide program for satellite accumulation (e.g. properly selected containers, posted control sheets, secondary containment for liquids at outdoor locations).	SWMU can be screened from further investigation
58	Lagoon 5A Ion Exchange Column 1993 to present	No known environmental releases. Potential for future releases limited by system design, monitoring and operational protocols (SPC 1996). Floor is concrete, bermed, with a sump equipped with high level pump (PRC 1996a).	SWMU can be screened from further investigation
59	Metallurgy Laboratory Silver Recovery Unit New unit operational since 1994	No history of past releases from unit. No potential for release via floor sump (routed to surface impoundment system).	SWMU can be screened from further investigation
60	Component Etch Waste Tank Since January 1995	No release to environment from this secondary contained system installed in 1995. Potential for future releases significantly reduced by unit design, engineered controls, and inspection protocols. No information provided on treatment or disposal of corrosive regeneration solutions before the 1994 installation.	Evaluate impact of releases from process prior to 1994 installation of tank.
61	Neutralization Unit for Deionized Water System Regeneration Waste Since June 1994	No release to environment from this secondary contained system installed in 1994. Potential for future releases significantly reduced by unit design, engineered controls, and inspection protocols. No information provided on treatment or disposal of corrosive regeneration solutions before the 1994 installation.	Evaluate impact of releases from process prior to 1994 installation of system.
62	Solvent Extraction Process Waste Neutralization Unit Since July 1995	No releases to environment from this monitored system installed in 1995. Potential for future releases significantly reduced by unit design, engineered controls, and inspection protocols. No information provided on raffinate solution treatment or disposal before the 1995 installation.	Evaluate impact of releases from process prior to 1995 installation of unit.
63	Dry Conversion Pilot Plant Waste Acid Neutralization Unit Since 1984	No history of, or potential for, release of liquids to environment. System fully contained within confines of UO ₂ Building. Insignificant vapor volume releases from potential liquid spills to floor (pump or piping leaks) are exhausted and filtered via building ventilation system.	SWMU can be screened from further investigation

**HISTORY OF RELEASES AND POTENTIAL RISK
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Unit No.	Unit Number and Name/Dates of Operation	History of Releases	Recommendations
64	UO, Building Lab Addition Waste Neutralization Unit Since June 1995	No releases to environment from this system placed into service in 1995. Tanks located within confines of building providing secondary containment via concrete berm and sump. Potential for future releases precluded by unit design, engineered controls, and routine surveillance. No information provided on waste neutralization or disposal before the 1995 installation.	Evaluate impact of releases from process prior to 1995 installation of unit.
65	Lagoon 5A Ion Exchange Column Neutralization/Metals Removal Unit 1995 to present	No history of releases from this unit installed in 1995. Filling of receiving tank is a manual, manual operation; hatch tank equipped with full/high level alarms interlocked to pump. Unit entirely confined within building; room equipped with sump with pumpout to surface impoundment system.	SWMU can be screened from further investigation
AOC 66	City Lift Station (new) Since November 1995	Single overflow incident related to influent to unit from non-SPC source (July 1996). Overflow pathway from present unit is via manhole to area off SPC property.	SWMU can be screened from further investigation
67	SWUR and UO, Laboratory Waste Transfer Tank 1993 to present	Some history of tank overflows during system startup and early operations, but confined entirely to secondary containment in concrete sump.	SWMU can be screened from further investigation
68	SWUR Waste Accumulation Tank (TK-682) 1987 to present	Minor spills and leaks entirely confined within secondary containment. No history of environmental release.	SWMU can be screened from further investigation
69	ELO Sump Tank - Room 58 1983 to present	Reported instances of sump overflow confined to process area and readily detected by operators. No history of environmental release.	SWMU can be screened from further investigation
70	Raffinate Tanks (TK-317, 318) 1992 to present	No history of leaks or spills beyond minor releases (drips) from piping to containment.	SWMU can be screened from further investigation
71	High Uranium Transfer Tanks (TK-16) 1971 to present	Minor releases confined within sump area. No history of environmental releases. Bottom of concrete sump is stained black and yellow but appears intact (PRC 1996a).	SWMU can be screened from further investigation
72	Quarantine Tanks (TK-709) 1978 to about 1985	Minor leaks and spills to containment. No known environmental releases.	SWMU can be screened from further investigation
73	SWUR Incinerator 1988 to present	No history of uncontrolled, unplanned, or detrimental environmental releases. Releases precluded and controlled via engineered features and strict operational protocols.	SWMU can be screened from further investigation

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SIEMENS POWER CORPORATION, RICHLAND, WASHINGTON
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Source: Modified from Siemens Power Corporation 1996 unless otherwise referenced.

Notes:

ADU	Ammonium diuranate	NH ₄ OH	Ammonium hydroxide
AOC	Area of concerns	NH ₄ NO ₃	Ammonium hydroxide nitrate
ARF	Ammonia reduction facility	NH ₄ F	Ammonium hydroxide fluoride
CTF	Centrifuge test facility	POTW	Publicly owned treatment works
DOE	Department of Energy	PPM	Parts per million
DWSP	Dangerous waste storage pad	PuO ₂	Plutonium dioxide
Ecology	Washington State Department of Ecology	PVC	Polyvinyl chloride
ELO	Engineering Laboratory Operations	RCP	Reinforced concrete pipe
EPA	Environmental Protection Agency	ROD	Record of decision
HDPE	High density polyethylene	RI/FS	Remedial Investigation/Feasibility Study
HF	Hydrofluoric acid	SF	Specialty fuels
HVAC	Heating, ventilation, air conditioning	SPC	Siemens Power Corporation
L.L.W	Low-level radioactive waste	SST	Stainless steel tank
LUR	Lagoon Uranium Recovery	SWMU	Solid Waste Management Unit
MOWSU	Mixed-oxide waste storage unit	SWUR	Solid Waste Uranium Recovery
MTCA	Model Toxics Control Act	TCE	Trichloroethylene
NaOH	Sodium hydroxide	UO ₂	Uranium dioxide
NRC	Nuclear Regulatory Commission	UO ₂ F ₂	Uranium dioxide difluoride
		UST	Underground storage tank
		VSI	Visual site inspection

Attachment 5.3. Closure Certification for AREVA Surface Impoundments



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

3100 Port of Benton Blvd • Richland, WA 99354 • (509) 372-7950

November 14, 2006

Mr. Ron Land
Richland Site Manager
AREVA NP INC.
2101 Horn Rapids Road
Richland, Washington 99354

Re: Closure Certification for the AREVA NP INC Surface Impoundment System

Reference: Consent Decree No. 96 2 00559 0, Benton County Superior Court,
dated April 12, 1996

Dear Mr. Land:

AREVA NP INC (AREVA) surface impoundment system (SIS) consists of six lagoons, a leach pit, and a sand trench. Closure of the SIS is required in accordance with the Superior Court of Washington for Benton County Consent Decree No. 96 2 00559 0, Benton County Superior Court, dated April 12, 1996. Closure was required to be completed by August 8, 2006. This milestone was later amended to November 30, 2006 for completion. The amended milestone was approved by the Department of Ecology on July 11, 2006.

On September 28, 2006, AREVA submitted certified copies of the Closure Certification report for SIS to Ecology. We reviewed the data presented in the certified report. The lagoon closure was performed in accordance with the referenced Consent Decree and the Closure Plan for the Surface Impoundment System EMF-2826, Revision 3, dated February 2005 (Closure Plan). Any deviations from the closure plan were determined by Ecology to be necessary and had no environmentally adverse effects on the closure of the lagoons. We accept the Closure Certification with the stipulations listed below.

Ecology has determined that AREVA has met the conditions set forth in the Consent Decree and the Closure Plan, except as noted below with respect to future post closure ground water monitoring. The lagoons have been removed and replaced with the new dry process. Contaminated soils have been removed in accordance with the Closure Plan. The remaining soils within the lagoon footprint appear to be free of contamination. In order to assess the adequacy of the lagoon cleanup, post closure ground water monitoring is still required (40 Code of Federal Regulations 265 and Section 3.9 of the Closure Plan). Post closure groundwater

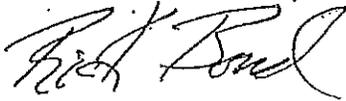
Mr. Ron Land
November 14, 2006
Page 2

monitoring should address all contaminants of concern that are currently being monitored under the existing AREVA groundwater monitoring program and the Closure Plan. Backfilling the holes that were created during the lagoon closure and general site contouring and regrading may proceed. We recommend that general site grading and contouring occur to prevent future ponding of any accumulations of seasonal rain fall and surface runoff.

Ecology has required that AREVA submit a Part B Permit application for the existing Hazardous Waste Storage Building. The permit application is due in May 2007. Ecology and AREVA have discussed including the post closure groundwater monitoring conditions in the Hazardous Waste Storage Building permit. Combining the post closure monitoring requirements with the permit will eliminate the necessity of having a separate post closure plan for groundwater monitoring. Future modifications to the post closure groundwater monitoring may be accomplished through normal permit modification procedures. The Consent Decree will remain open and in effect until the Part B permit has been issued to AREVA. At that time Ecology will close the requirements set forth in the Consent Decree and the Closure Plan.

If you any questions, contact me at 509-372-7885 or Mr. Jeff Ayres at 509-372-7881.

Sincerely,



Rick Bond
Transition Project Manager
Nuclear Waste Program

ja/pll

cc: Stuart Harris, CTUIR
Gabriel Bohnee, NPT
Russell Jim, YN
Todd Martin, HAB
Ken Niles, ODOE
Administrative Record: AREVA
Environmental Portal

Attachment F-2b. Monthly Fire Extinguisher Inspection Procedure

C774P003 FIRE EXTINGUISHERS 1MO AB

WRITTEN BY:	TC PROBASCO	DATE	100704
APPROVED: RESP ENGINEER	TC PROBASCO	DATE	100704
APPROVED: PC SUPERVISOR	SH SCHLAX	DATE	100704
APPROVED: CRIT SAFETY SPEC	CD MANNING	DATE	100704

REVISION #0 *****

REQUIREMENTS/INFORMATION;

- _____ * 1. FIRE EXTINGUISHERS WILL BE INSPECTED IN ACCORDANCE WITH NFPA NO. 10-1981 CHAPTER 4, SECTION 4-3 "INSPECTION."
- _____ * 2. THIS PROCEDURE PROVIDES FOR THE CALIBRATION OR MAINTENANCE OF A DEVICE WHICH PROVIDES A CRITICALITY SAFETY FUNCTION. ANY CHANGES TO THE TECHNICAL CONTENT, SCHEDULE OR FREQUENCY OF THIS PROCEDURE REQUIRES THE APPROVAL OF THE CRITICALITY SAFETY SPECIALIST.

CHECK STEPS COMPLETED AND FILL IN INFORMATION REQUESTED

- _____ * 1. EACH EXTINGUISHER SHALL BE IN ITS DESIGNATED PLACE.
- _____ * 2. ACCESS TO, OR VISIBILITY OF, THE EXTINGUISHER SHALL NOT BE OBSTRUCTED.
- _____ * 3. THE OPERATING INSTRUCTIONS ON THE EXTINGUISHER NAMEPLATE SHALL BE LEGIBLE AND FACE OUTWARD.
- _____ * 4. ANY SEALS OR TAMPER INDICATORS THAT ARE BROKEN OR MISSING SHALL BE REPLACED.
- _____ * 5. FOR WATER TYPES WITHOUT GAUGES, THEIR FULLNESS SHALL BE DETERMINED BY "HEFTING."
- _____ * 6. ANY OBVIOUS PHYSICAL DAMAGE, CORROSION, LEAKAGE, OR CLOGGED NOZZLES SHALL BE NOTED.
- _____ * 7. PRESSURE GAUGE READINGS WHEN NOT IN THE OPERABLE RANGE SHALL BE NOTED.

NOTE: WHEN AN INSPECTION REVEALS THAT TAMPERING HAS OCCURRED, OR THAT THE EXTINGUISHER IS DAMAGED, IMPAIRED, LEAKING, UNDER OR OVERCHARGED, OR HAS OBVIOUS CORROSION, THE EXTINGUISHER SHALL BE SUBJECTED TO APPLICABLE MAINTENANCE PROCEDURES PERFORMED BY AN OUTSIDE VENDOR.

MAINTENANCE PERFORMED OR REQUIRED AND/OR UNUSUAL CONDITIONS;

PERFORMED BY; _____ DATE _____

APPROVED/SUPRV; _____ HRS TO COMPLETE _____

*** FORWARD COMPLETED PM TO PM ADMINISTRATOR ***