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Environmental Restoration
Five-Year Review Report

Second Five-Year Review Report
For
Bonneville Power Administration
Ross Complex
Vancouver, Washington

August 2004

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Second Five-Year Review Report

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List of Acronyms

ARAR	Applicable or Relevant and Appropriate Requirement
BPA	Bonneville Power Administration
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
DCE (1,1)	Dichloroethylene
DOB	District Office Building
EPA	Environmental Protection Agency
ESD	Explanation of Significant Differences
FFA	Federal Facilities Agreement
HPAH	High Molecular Weight Polynuclear Aromatic Hydrocarbon
MCL	Maximum Contaminant Level
MFS	Minimum Functional Standards
MOA	Memorandum of Agreement
MTCA	Model Toxics Control Act
NPL	National Priority List
OUA	Operable Unit A
OUB	Operable Unit B
PCBs	Polychlorinated Biphenyls
PCP	Pentachlorophenol
RAOS	Remedial Action Objectives
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/ Feasibility Study

ROD	Record of Decision
TCA	Trichloroethane
TSCA	Toxic Substances Control Act
UV	Ultraviolet
VOCs	Volatile Organic Compounds

Executive Summary

The remedy for the BPA Ross Complex Superfund site in Vancouver, Washington included excavation, removal and /or treatment, and capping of contaminated soils, institutional controls and monitored natural attenuation of groundwater. The final Remedial Action Reports for Operable Units A and B (January 1996 and April 1995 respectively) documented the completions of all actions. The site was deleted from the NPL on September 23, 1996.

The first five-year review was completed in September 1999 and recommended: that a long-term strategy to identify and implement specific processes to strengthen institutional controls at the Complex be developed jointly by EPA and BPA and put into place; and that an Explanation of Significant Differences (ESD) should be prepared to document facility-wide institutional controls. The review further determined that continued groundwater monitoring was not necessary due to the low levels of groundwater contaminants (nearly at or well below the MCL) and the lack of on-site or nearby off-site users. Groundwater would not be subject to future five-year reviews.

This second five-year review is focused on the adequacy of institutional controls as they apply to the Fog Chamber Dump, Trench Areas 1 and 2, Ross Substation /Capacitor Yard and the Wood Pole Storage Area East. One Explanation of Significant Differences (ESD) document was issued in January 2001. The document clarified the institutional control requirements for individual sites identified in the Records of Decision (RODS) for the Ross Complex and established general requirements that the BPA Ross Complex will undertake to ensure effective institutional controls for these sites. The remedies are functioning as designed. All caps are in place and no problems have been found. The remedies remain protective and institutional controls remain in place.

SITE IDENTIFICATION		
Site name *(from WasteLAN)*: **Bonneville Power Administration Ross Complex (USDOE)**		
EPA ID *(from WasteLAN)*: **WA 1891406349**		
Region: 10	**State: WA**	**City/County: Vancouver/ Clark**

SITE STATUS	
NPL status: ☐ Final ☒ Deleted ☐ Other (specify)	
Remediation status (choose all that apply): ☐ Under Construction ☐ Operating ☒ Complete	
Multiple OUs?* ☒ YES ☐ NO	**Construction completion date: 12 /15 /1995**
Has site been put into reuse? ☒ YES ☐ NO	

REVIEW STATUS	
Lead agency: ☐ EPA ☐ State ☐ Tribe ☒ Other Federal Agency	
Author name: Stephen R. Sander	
Author title: Superfund Coordinator	**Author affiliation: BPA**
Review period:** **04 / 01 / 2004 to 08 / 14 / 2004**	
Date(s) of site inspection: 06/08/04	
Type of review: ☒ Post-SARA ☐ Pre-SARA ☐ NPL-Removal only ☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead ☐ Regional Discretion	
Review number: ☐ 1 (first) ☒ 2 (second) ☐ 3 (third) ☐ Other (specify) _____	
Triggering action: Actual RA Onsite Construction at OU #____ ☐ Actual RA Start at OU#____ ☐ Construction Completion ☒ Previous Five-Year Review Report ☐ Other (specify)	
Triggering action date *(from WasteLAN)*: **09 / 09 / 1999**	
Due date *(five years after triggering action date)*: **09 / 09/ 2004**	

* ["OU" refers to operable unit.]
** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form, cont'd.

Issues:

No significant issues were identified during this five-year review

Recommendations and Follow-up Actions:

None. Continued implementation of institutional controls and quarterly inspection of sites with caps, fences and institutional controls to help ensure continued effectiveness of site remedies

Protectiveness Statement(s):

The remedies for both OUA and OUB remain protective of human health and the environment. All threats at the site have been addressed through capping of contaminated soil, the installation of fencing and warning signs, and the implementation of institutional controls.

Long-Term Protectiveness:

Long-term protectiveness of the remedial action will be ensured by the maintenance of institutional controls addressed in the ESD agreement.

Other Comments:

None

ENVIRONMENTAL RESTORATION
SECOND FIVE-YEAR REVIEW
BONNEVILLE POWER ADMINISTRATION
ROSS COMPLEX, VANCOUVER, WASHINGTON

I.0 INTRODUCTION

1.1 Purpose. The purpose of this second statutory five-year review is to ensure that remedial actions selected in the Records of Decision (RODs) for Operable Units A (OUA) and B (OUB), at BPA's Ross Complex, Vancouver, Washington remain protective of public health and the environment and are functioning as designed. This periodic review requirement is triggered by both the initiation of site clean up activities in the fall of 1994 and the first five-year review in 1999. The scope of this review covers selected remedies at both of the Operable Units where hazardous materials have been left in place and in particular the adequacy of institutional controls/restrictions which remain on use and/or exposure.

1.2 Authority Statement. The Bonneville Power Administration (BPA) has conducted this review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 USC 9621(c); the national Contingency Plan (NCP), 40 CFR 300.400(f)(4)(ii); Executive Order 12580 (January 23,1987); and Section 19.1 of the Federal Facility Agreement (FFA) for BPA's Ross Complex dated May 1, 1990. This document is consistent with EPA guidance documents: OSWER Directive No. 9355.7-03B-P (June 2001). The Bonneville Power Administration is the lead agency for remediation of the Ross Complex and has performed extensive remedial action under its own authorities. Under the Federal Facilities Agreement (FFA) between BPA, EPA and the Washington State Department of Ecology (Ecology), BPA must ensure that the corrective actions taken at specific sites are consistent with appropriate environmental standards and are protective of human health and the environment. It is important to note that cleanup and remediation activities performed at the Ross Complex comply not only with the federal requirements of CERCLA but also the state requirements of the Model Toxics Control Act (MTCA).

Consistent with the FFA, the project manager for the EPA has participated in this review. This review was conducted from April 2004 through August 2004 and is hereby documented in this report. This review was limited to only those sites remediated under the RODs where hazardous substances has been left in place, still subject to five-year review, and in particular the institutional controls applicable to those sites.

II. Site Chronology

Table 1: Chronology of Site Events

Event	Date
Site Discovery	06/01/1981
Removal Negotiations	11/15/1984
Preliminary Assessment	04/01/1986
Site Inspection	11/02/1988
HRS Package	06/23/1989
Proposed to NPL	07/14/1989
Final Listing on NPL	11/21/1989
IAG Negotiations	11/20/1989
Federal Interagency Agreement	05/01/1990
Ecological Risk Assessment	03/19/1993
Risk Health Assessment	03/19/1993
FF RIFS (OUB)	05/06/1993
Administrative Records	05/06/1993
Record of Decision (OUA)	05/06/1993
FF RIFS (OUA)	09/29/1993
Record of Decision (OUB)	09/29/1993
FF RD (OUB)	05/27/1994
FF RD (OUA)	08/08/1994
FF RA (OUB)	04/27/1995
FF RA (OUA)	02/01/1996
Deletion from NPL	09/23/1996
Five Year Review	09/09/1999
Explanation of Significant Differences	01/18/2001

III. Background

Physical Characteristics

The BPA Ross Complex is a 250-acre site located in the City of Vancouver, Washington, approximately 2.7 miles north of the Columbia River and 1.7 miles east of Vancouver Lake. The site address is 5411 NE Highway 99, Vancouver, Washington, which is located in Clark County.

The site is located on an ancient alluvial terrace. Creeks and streams in the area have been cutting into the terrace deposits, creating incised channels. Elevations across the site range from greater than 250 feet above mean sea level to approximately 40 feet above mean sea level. The surface gradient generally slopes to the west across the site, with localized steep slopes descending toward Cold Creek to the north and Burnt Bridge Creek to the southwest. These two streams border the site with Cold Creek forming the northern border of the site and Burnt Bridge Creek bordering the southwestern side of the site. Cold Creek, a tributary to Burnt Bridge Creek, flows into Vancouver Lake.

A perched water table is located in the eastern and central portions of the site ranging from between 10 and 70 feet below ground surface. A deep aquifer has also been identified at or near the top of the Upper Troutdale Formation that underlies the site from 80 to 180 below ground surface. Ground water flow in the deep aquifer is toward the southwest.

Land and Resource Use

The site is an active facility that has been owned and operated by the BPA since 1939 to coordinate the distribution of hydroelectric power generated by the Federal Columbia Power System to regions throughout the Pacific Northwest. Since its construction, the site has provided research and testing facilities, maintenance and construction operations and waste storage and handling operations for BPA.

History of Contamination

Maintenance activities at the Ross Complex have routinely involved handling transformer oils containing polychlorinated biphenyls (PCBs), and organic and inorganic compounds associated with the storage of preserved wood transmission poles, paints, solvents and waste oils. Testing and laboratory activities include the use of heavy metals and other organic and inorganic compounds.

The Site was listed on the National Priorities List in November 1989 based on the presence of volatile organic compounds (VOCs) in groundwater and the Site's proximity to the City of Vancouver's drinking water supply. As a result of the listing, and pursuant to a Federal Facility Agreement (FFA) signed by BPA, EPA and Ecology on May 1, 1990, BPA conducted a Remedial Investigation/Feasibility Study (RI/FS) to determine the nature and extent of contamination at the Site and to evaluate alternatives for cleanup of contaminated areas.

Initial Response

The RI field investigation began in the summer of 1991 and was completed in September 1993. It included the collection and chemical analysis of surface and subsurface soil, water, sediment, and groundwater in an effort to characterize the nature and extent of contamination at the Site. Initially, the RI was designed to address the entire Site as one operable unit (OU). However, during the summer of 1991, BPA in conjunction with EPA and Ecology decided that the Site would be divided into two separate OUs (OUA and OUB) to facilitate the Superfund process.

The OUA RI addressed potential surface soil contamination at 21 different waste units on the Ross Complex. The OUB RI focused on characterization of subsurface soils in two waste units and also included characterization of the shallow perched water table, the deep groundwater aquifer beneath the Site, and surface water and sediments in Cold Creek and Burnt Bridge Creek.

IV. Operable Units/Contaminants/Remedial Action

OPERABLE UNIT A (OUA). The remedial investigation for OUA evaluated the nature and extent of soil contamination at 21 waste units. Results from the Baseline Risk Assessment indicated that CERCLA remedial action was necessary for contaminated soil at four waste units, the Wood Pole Storage Area East, the Ross Substation and Substation Capacitor Yard, and the Capacitor Testing Laboratory. The ROD for OUA was signed on May 6, 1993.

The Wood Pole Storage Area East is a 4.2-acre site that was used to store treated transmission poles before distributing them to points throughout the Pacific Northwest. Historically, these poles were treated off-site with PCP and /or creosote. While in storage, contaminants dripped from the poles onto surface soils. Heavy polycyclic aromatic hydrocarbons (HPAH's) and pentachlorophenol (PCP) were identified as contaminants of concern. Both are considered to be carcinogenic. HPAH's were detected in soils from the surface to a maximum depth of three feet with the highest concentration being 193 mg/kg. PCP was detected as a surface contaminant with the highest level detected at 140 mg/kg. Soil concentrations for both contaminants were primarily found immediately below the poles in the pole stack areas, the roadways were only slightly contaminated.

The selected remedy for the Wood Pole Storage Area was ex-situ bioremediation with geochemical enhancements (UV light, ethanol and hydrogen peroxide). The remedial action objectives or targeted cleanup level was 1 ppm MTCA Method A for HPAH's and 8 ppm MTCA Method B for pentachlorophenol (PCP). Alternative cleanup levels were established should the technology fail to achieve the primary cleanup goals.

During the fall of 1994 a temporary treatment facility (tent) was erected and a total of 2,300 cubic yards of material was excavated and stockpiled. Soil treatments were concluded on November 30, 1995. Of the 2,300 cubic yards excavated from the pole yard, about 700 cubic yards failed to meet the targeted cleanup level even though contaminant levels were reduced by 80% for both HPAH and PCP. After treatment, this material was placed in thin layer in the

southwest corner of the pole yard. A clean cap was then applied over the entire 4.2 acre pole yard. The cap, 6 inches thick and totaling 3000 cubic yards, was completed on January 8, 1996.

With the clean gravel cap in place there are no restrictions on surface use anywhere in the Wood Pole Yard. Institutional controls will be maintained only for the southwest corner of the yard that contains the residual contamination. At this location, institutional controls will be limited to restrictions on digging.
The Southwest corner of the Wood Pole Storage Yard East is subject to the five-year review.

The Ross Substation and Substation Capacitor Yard
The Ross Substation is a fenced, 10-acre location in the central portion of the Complex. The Capacitor Yard is located in the southwestern corner of the substation and is itself fenced off from the remainder of the substation yard. Because of their direct physical relationship and operational interdependence these two waste units are addressed together.

Oil-filled electrical equipment, i.e. transformers, located within the substation proper contains PCBs in concentrations below 50 ppm. The original capacitors located in the capacitor yard contained 2 to 3 gallons of very high concentration PCB liquid. Historically, faulty capacitors and oil-filled equipment had released PCB oils to the graveled surface of the substation and capacitor yard. The only compound of concern was PCB soil contamination. The remedial investigation found that the PCB contamination was limited to surface soils with the highest concentration of 16 mg/kg in the substation and 130 mg/kg in the capacitor yard.

Because the substation and capacitor yard are fenced and isolated from any residential areas, the remedial action objective specified in the ROD was the MTCA industrial cleanup level of 10ppm for PCBs.

In January 1994 the PCB contaminated soil was removed from the substation yard. A total of 15 tons of soil removed and disposed of at Chemical Waste Management's TSCA- permitted landfill in Arlington, Oregon. Sampling confirmed no remaining PCBs in the soil.

Cleanup of the capacitor yard was delayed until the summer when the old PCB capacitors were scheduled to be replaced with new, non-PCB equipment. Although not required by the ROD, BPA chose to replace the PCB electrical equipment in order to eliminate the source of potential future contamination.

The cleanup began on June 1, 1995. A total of 2,300 tons of PCB contaminated soil; equipment and concrete footings were removed from the capacitor yard. All material removed was disposed of at Chemical Waste Management's TSCA approved landfill in Arlington, Oregon. All contaminated soil was removed down to non-detection levels except for a small area around some electrical bus work that interconnected the capacitor groups. In that area, PCB contaminated soil of up to 10 ppm was left in place. Remediation of the Capacitor Yard was completed in August 1995. Restoration of the substation capacitor yard was completed on October 23, 1995, with the energization of the new non-PCB capacitors.

Although the source of PCB contamination was removed, the Ross Substation and Substation Capacitor Yard is subject to the Five -Year Review because the site was cleaned up to industrial cleanup levels and therefore is not available for unlimited use and unlimited exposure.

The Capacitor Testing Laboratory. This facility is located in the center of the Ross Complex and is now used as a storage building. The laboratory, used to stress test PCB capacitors, was dismantled in 1984. Reportedly, while the laboratory was in operation, insulating fluids containing PCBs spilled onto the concrete floor as well as onto the dirt and gravel beyond the garage door. Two earlier cleanup actions took place whose results could not be verified.

During the Remedial Investigation surficial PCB soil contamination was found on the east, southeast and southwest areas outside the capacitor test laboratory at concentrations of up to 42 ppm. The selected remedy in the ROD was excavation and offsite removal. Because of the location of the capacitor test laboratory within the Complex, the remedial action objective was the MTCA residential cleanup level of 1 ppm.

Excavation began on January 6, 1994, and was completed on January 27,1994. A total of 229 tons of contaminated soil was removed from the area adjacent to the Capacitor Test Lab. All contaminated material was disposed of at the Chemical Waste Management TSCA approved landfill in Arlington, Oregon. Soil samples were analyzed using EPA Method 8080 to provide formal confirmation of compliance with the 1 ppm target cleanup level and then the area was graded with clean backfill. Although not part of the selected remedy, the entire area was later blacktopped to meet other operational needs.

The Capacitor Testing Laboratory is not subject to the Five -Year Review because residential cleanup levels were achieved and because the practice that resulted in the PCB contamination has been discontinued.

OPERABLE UNIT B (OUB). The remedial investigation for OUB evaluated the nature and extent of contamination in the subsurface soils at three locations: the Fog Chamber Dump, Trench Area 1& 2 and the Cold Creek Fill. The investigation also included an evaluation of the groundwater and the two surface streams, Cold Creek and Burnt Bridge Creek. The OUB ROD was signed on September 29, 1993.

Fog Chamber Dump, Trench Area 1 was an open pit dump, encompassing about 66,000 square feet that was used between 1942 and approximately 1966. Waste debris was observed from 1.5 to 12 feet deep in the general disposal area and as deep as 22.5 feet in an isolated area. Soil samples collected from the debris areas contained concentrations of antimony, arsenic, copper, lead, HPAHs, PCBs and dioxin and furans above background and regulatory levels. The maximum PCB and lead concentrations were 30,000 ppm and 4,210 ppm, respectively.

Groundwater monitoring in this area did not indicate that Trench Area 1 contaminants were present. This is due to the fact that the contaminants are relatively immobile and the depth of the vadose zone between the contaminated material and the deep aquifer is approximately 100 feet.

Based on environmental considerations and BPA's intended use of this area for storage, the remedy selected was installation of a minimal functional standards (MFS) cap with institutional controls. The MFS cap was selected because the cap design provided a cost-effective means of minimizing surface water infiltration thereby limiting the potential for groundwater contamination and because it eliminates the potential for human contact. Access controls were achieved by installing a permanent security fence with a barbed wire top. Warning signs, which state that digging is prohibited, are posted on the fence around the perimeter of the landfill. The fence is posted inside and out. Construction of the cap began on September 19, 1994 and was completed on October 19,1994. Installation of the security fence was completed on October 19,1994. Land use at this location is limited to storage only.

On-site environmental personnel inspect the cap on a regular basis. Sampling and analysis of a down gradient well conducted in February 1999 did not show any change in groundwater conditions.

The Fog Chamber Dump, Trench Area 1, is subject to the Five-Year Review because waste has been left in place and there are restrictions on the use of the land.

Fog Chamber Dump, Trench Area 2 is an area adjacent to Trench Area 1 that contains concentrations of lead and other metals that exceeded state cleanup levels. These metals, which were not laterally extensive, were found in association with buried solid wastes such as wires and lead-coated cables located between 1.5 feet and 3.5 feet deep. Contaminant concentrations were considered to be associated with solid waste rather than from wastes generated by industrial processes.

Because this contamination is in isolated locations and is below the surface, the risk assessment determined that, in its present condition, this area did not pose a risk to human health or the environment through either direct contact or potential groundwater contamination. The selected remedy in the ROD was institutional controls consisting of restrictions on land use activities that might disturb subsurface contamination.

The Fog Chamber Dump, Trench Area 2, is subject to the Five-Year Review because waste has been left in place and because there are restrictions on the use of the land.

Cold Creek Fill Area is an engineered fill that was created long before the NPL listing. This area was filled, compacted and graded over time with soil obtained from various construction activities at the site completed prior to the RODs. The uppermost layers of the fill contain clean fill material. Elevated soil contaminant concentrations were found in limited isolated locations between 5 and 25 feet below the surface but were not laterally extensive. Cold Creek itself is in a culvert that lies at the bottom of the fill, in some locations as much as 80 feet below the surface.

Access to this area is restricted by fencing on the north and south sides and is topographically restricted on the west side due to a steep slope. The baseline risk assessment did not show a risk to human health or the environment from this waste unit. Migration of contamination is unlikely in this area since the types of contaminants (PCBs and HPAHs) are relatively immobile and the soils contain low permeability characteristics due to engineered controls. BPA's intended future use of this area is for construction material and equipment storage. Considering this, a determination of no further action was made for the Cold Creek Fill.

Ground Water. The main focus of the Remedial Investigation for OUB was the groundwater. It was the discovery of solvent contamination in the shallow groundwater, as well as the site's proximity to the City of Vancouver's Well Field # 3 that resulted in the Complex being put on the National Priorities List in November 1989.

Groundwater wells were installed in the shallow perched water table and the deep aquifer and were monitored on a quarterly basis from the fall of 1991 to the summer of 1993. The Remedial Investigation demonstrated that the shallow groundwater, which contained the highest levels of TCA, did not communicate with the deep aquifer but flowed instead to Cold Creek through a series of seeps.

Groundwater analysis conducted during eight quarterly sampling events showed a downward trend in contaminant levels for all monitoring wells. The OUB ROD required continued biannual groundwater monitoring for four key onsite wells for a period of two to five years. After two additional years of groundwater sampling (4 rounds), the results indicated stable groundwater conditions. In the shallow well (MW-4A), the levels of TCA had decreased by several orders of magnitude and were actually well below the MCL. In the deep wells, only one (MW-13B) showed a slight exceedance of the MCL for 1,1-DCE. From September 1991 to December 1995, levels of 1,1-DCE fluctuated from 1 to 14ppb with an MCL of 7ppb. No other deep well showed an exceedance for any of the contaminants of concern. The location of the ground water monitoring wells is depicted in Attachment A.

In conjunction with the first Five – Year Review, BPA ran another round of groundwater samples for the four wells of concern (MW-4A, MW-13B, MW-14B & MW-16B) in February 1999. As with previous sampling events, there was a continued and downward decline in contaminant levels. With a reading of 8 ppb DCE, MW-13B showed a slight exceedance of the 7 ppb MCL for that contaminant. However, DCE levels in this well have hovered at or below the MCL for the past five years. TCA levels in MW-4A also showed a steady decline with the latest readings of only .01 ppm, well below the maximum contaminant level of 0.2 ppm

A total of 33 groundwater-monitoring wells were installed at the site. Of that total 20 wells were decommissioned in 1997 following state procedures for well abandonment. The remaining 13 monitoring wells will be maintained indefinitely.

Surface Streams. Surface water and sediment quality was monitored over time for both Cold Creek and Burnt Bridge Creek. For each stream, upstream and downstream locations were selected to evaluate the potential contribution of contaminants from the site.

In Cold Creek, contaminant concentrations were similar for both upstream and downstream locations suggesting off-site sources. Contaminant concentrations in Burnt Bridge Creek were equal to or higher at the upstream locations than they were at the downstream locations again indicating that the site is not a significant source of contamination. Since the results of the Remedial Investigation indicated that neither Cold Creek nor Burnt Bridge Creek posed unacceptable risks to human health or the environment, **no further action** was required for either surface water or sediments at these locations.

Cold Creek and Burnt Bridge Creek are not subject to the Five – Year Review.

Removal Actions. The Washington State Department of Ecology determined that because some compounds of concern were above soil cleanup levels specified by the Model Toxics Control Act (MTCA), seven waste units in Operable Unit A required further action.

The seven waste units identified by the State were:

Sand Blast Area
Laboratory Waste Storage Area
Wood Pole Area South
Hazardous Waste Storage Building
Paint Shop
Untanking Tower
DOB-1 Drainline

These seven waste units contained localized surface soil contamination associated with HPAHs, PCBs, lead, arsenic and antimony.

BPA undertook an independent cleanup action at these sites on June 15, 1992. The removal actions involved the excavation of the contaminated soil and depending on their constituents, soil removed from these waste units was disposed of at either Chemical Waste Landfill (RCRA landfill) or at the Columbia Ridge Landfill (solid waste landfill), both in Arlington, Oregon.

Following excavation and removal, confirmatory soil samples were collected and submitted for chemical analysis to verify that soil concentrations were below MTCA residential soil cleanup levels. The removal actions were completed on July 6, 1992.

The Sand Blast Area, Laboratory Waste Storage Area, Wood Pole Area South, Hazardous Waste Storage Building, Paint Shop, Untanking Tower and DOB-1 Drainline are not subject to the Five-Year Review because all hazardous materials have been removed and there are no restrictions on use.

No Further Action. Neither the EPA nor the State required any further action at the remaining ten waste units in Operable Unit A. These waste units included:

DOB-2 Drainfield
Van's Way Oil Storage Area
Utilization & Disposal Yard
Herbicide Storage Area
Paint Storage Facility
Temporary Paint Storage Area
PCB Storage Building
Ellen Davis Trail
Oil Water Separators

Since there was no evidence of contamination at any of these waste units, there were no restrictions on use or exposure. Therefore, none of the above waste units are subject to the Five-Year Review.

The EPA project manager conducted a site visit on December 15, 1995 and determined that all remedial action had been successfully executed. On September 23, 1996, the BPA Ross Complex was deleted from the NPL.

V. Progress Since the Last Five-Year Review

The first five-year review was submitted in September 1999 and recommended development of a more formalized system of institutional controls for the Ross Complex. This was to be accomplished through the development of an Explanation of Significant Differences (ESD). On December 7, 2000, BPA submitted an ESD document to EPA, which clarified the institutional control requirements for individual sites, identified in the RODs for the BPA Ross Complex and established the general requirements that BPA would undertake to ensure effective institutional controls for these sites. Key points included:

- All waste units with residual contamination to be clearly delineated & mapped
- Dig permit required for any excavation on the complex, coordinated by facilities management
- All areas under institutional controls to be permanently placarded
- EPA notification prior to any sale or lease of property subject to institutional controls
- Quarterly inspections and yearly reporting to EPA of all sites subject to institutional controls
- Immediate reporting to EPA of any change in land use

Quarterly inspections and annual monitoring reports to EPA on the maintenance of institutional controls have continued during this five-year period.

VI. Five-Year Review Process

Administrative Components

Preparation for the five- year review began on April 1, 2004. Target schedule was established to complete all review activities by August 31, 2004 and submittal to EPA Region X prior to the September anniversary date.

Community Involvement

As this was the second five-year review and having received no community response during the first review, the decision was made to focus community involvement on the members of the community living nearest the Ross Complex Facility. During the first five-year review, a mailing list of "Neighbors of Ross" was developed and was again utilized to mail a letter (dated April, 2004) to each resident notifying them of the commencement of the five-year review and inviting any comments they might wish to make. The letter provided a contact point within BPA whom the resident could contact or send any comments or concerns to be considered during the review.

Only one response was received, from a resident who had since moved away from the area, asking us to remove her name from the mailing list, but also expressing appreciation for the previous sharing of information regarding the Ross Complex.

Following completion of the Second Five-Year Review Report, a notice will be sent to the same "Neighbors of Ross" mailing list informing them of the completion of the review and the availability of the report.

Document Review

This second five-year review consisted of a review of relevant documents (see Attachment 2) including the Superfund Final Closeout Report, the First Five-Year Review Report, the Explanation of Significant Differences document, and subsequent progress reports on institutional controls at the sites of concern.

Site Inspection

Inspections at the site are conducted on a regular (quarterly) basis by BPA staff. The inspection conducted during this second Five Year Review period was completed on June 8, 2004. The Ross Complex Environmental Coordinator conducts these inspections. The purpose of the inspections is to assess the protectiveness of the remedy, including the presence of fencing to restrict access, signage, and the integrity of the cap for Fog Chamber Dump, Trench Area 1 and the Wood Pole Storage Yard East. Institutional controls were reviewed, including the annual progress reports submitted to EPA since the previous five-year review.

No significant issues have been identified at any time during this five-year period regarding the cap, fencing or signage at those sites inspected. No incidents of trespass or vandalism were noted. The dig permit system is working as intended.

The institutional controls implemented in accordance with the ESD included: delineation, mapping and posting of waste units containing residual contamination; development /implementation of a dig permit system, coordinated by Facilities Management, for any excavation on the complex; permanent placarding of all areas subject to institutional controls; quarterly inspection of sites and annual reporting to EPA by the Environmental Coordinator. No activities were observed that would have violated the institutional controls. All areas subject to institutional controls are identified and maintained on a Ross Complex I/C Units Map (see Attachment #1) which is available on an electronic database. The dig permit system is working well because Facilities Management, who is frequently out on the site, closely monitors it and is aware of any excavation activity; and also due to the lack of any incidents of unauthorized excavation during the last five years.

Interviews

Interviews were conducted with parties connected to the site. Elaine Stratton, Ross Complex Environmental Coordinator, was interviewed on June 22, 2004. In addition, Paul Martin, Ross Facility Manager, was also interviewed on the same date. No significant problems were identified during the interviews. Both staff mentioned the improved efficiency and tracking of institutional requirements following the development of the ESD, in 2001.

VII. Technical Assessment

The following areas continue to be subject to the Five-year Review as well as institutional controls:

Wood Pole Storage Yard East: There are no changes in this area since the last five-year review. With the clean gravel cap in place there are no restrictions on surface use anywhere in the yard. Institutional controls have been established and are maintained to ensure that there is no occupational exposure to residual soil contaminants -only for the southwest corner of the yard. Institutional controls are limited to restrictions on digging. Wood poles are no longer stored in this area. Site inspections indicate no disturbance of the gravel cap and signs remain posted. A review of pertinent information and results of site inspections indicate that the remedy is functioning as intended in this area and remains protective of human health and the environment.

Fog Chamber Dump, Trench Area 1: This area remains a closed landfill. The area is fenced and posted with "Hazardous Waste Landfill – No Unauthorized Entry" signs. A portion of the cap originally extended outside the fence and under an adjacent paved storage yard. In early 2000, the fence line was extended to include this area to ensure that the cap perimeter could be readily identified. Subsequent inspections indicated no disturbance of the cap or perimeter fencing. Signs remain intact and site drainage is functioning. A review of pertinent information and site inspections indicates that the remedy is functioning as intended for this area.

Fog Chamber Dump, Trench Area 2: The remedy for this area was institutional controls consisting of restrictions on land use activities that might disturb subsurface contamination. The perimeter of this area has been posted and inspections indicate there has been no unauthorized disturbance of soils. In calendar year 2000, there were two projects approved by BPA that allowed for some authorized digging in this area. These projects consisted of the construction of two fiber optic regeneration facilities. Both buildings were constructed to minimize soil disturbance by placing their foundations above grade on clean, compacted gravel. Some digging through potentially contaminated areas was allowed to run electrical and fiber optic cable. Dig permits were issued prior to construction that provided workers with hazard communication information and instructions on handling and disposal of potentially contaminated materials. In both cases, no debris associated with contamination in this area was encountered during the cable trenching. Also in calendar year 2000, BPA electricians running an electrical cable along the northernmost defined area of Fog Chamber Dump Area 2 encountered unexpected debris and potentially contaminated soils. Upon investigation and following discussions with the Environmental Protection Agency Remedial Project Manager, it was determined that the debris was consistent with that found in Fog Chamber Dump Area 2. The debris and contaminated soils disturbed during this project were disposed of at Columbia Ridge Landfill located in Arlington, Oregon. The trench was back-filled with clean soil. Institutional Control Area maps were then modified to refine the boundaries of Fog Chamber Dump Area 2 for future reference. A review of pertinent information and site inspections indicates that the remedy is functioning as intended for this area.

Ross Capacitor Yard: There are no changes in this area since the last five-year review. Land use in this area continues as industrial. The area is an active high voltage capacitor yard. The area remains fenced and posted with high voltage signs. No access is allowed without an electrical outage. There has been no disturbance of soils in this area. A review of pertinent information and site inspections indicates that the remedy is functioning as intended for this area.

Cold Creek Fill Area: There have been no changes in this area since the last five-year review. A "No Digging" sign remains posted at the access gate to this area. The sign remains legible and intact based on quarterly inspections. There has been no unauthorized soil disturbance in this area. A review of pertinent information and site inspections indicates that the remedy is functioning as intended for this area.

Question A: Is the remedy functioning as intended by the decision document?

The review of documents, ARARs, and results of site inspections and interviews indicates that the remedy is functioning as intended by the RODs for both OUA and OUB, as modified by the ESD. The stabilization and capping of contaminated soils has achieved the remedial objectives to minimize the migration of contaminants to groundwater and surface water and prevent direct contact with, or ingestion of contaminants in soil.

Operation and maintenance of the caps has been effective. The caps appear to be in good condition, with no signs of erosion, cracks or disturbance. Annual costs have been minimal and

essentially consist of staff time for inspections and coordination. There is no indication of any difficulties with the remedy.

The institutional controls in place appear to be effective in preventing disturbance of the caps and other activities that would interfere with the remedy. Fencing and signage appear to be in good repair. Inspections and use of dig permits under provisions of the ESD appear to be functioning well.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

There have been no changes in the physical conditions of the site during the past five-year period that would affect the protectiveness of the remedy.

Changes in ARARs and TBCs
There have been no changes in ARARs, any new standards or TBCs affecting the protectiveness of the remedy.

Changes in Exposure Pathways, Toxicity, and Other Contaminant Characteristics
There have been no changes in the exposure pathways, toxicity factors or other contaminant characteristics that would affect the protectiveness of the remedy.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no other information that calls into question the protectiveness of the remedy.

VIII. Issues

No significant issues were identified during this five-year review.

IX. Recommendations and Follow-Up Actions

None. Continued implementation of institutional controls and quarterly inspection of sites with caps, fences and institutional controls in accordance with the provisions of the ESD and ROD should help ensure the continued effectiveness of site remedies.

X. Protectiveness Statement

Because the remedial actions at all OUs are protective, the site is protective of human health and the environment. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedies. All threats at the site have been addressed through capping of contaminated soil, thereby eliminating exposure pathways, the installation of fencing and warning signs, and the implementation of institutional controls.

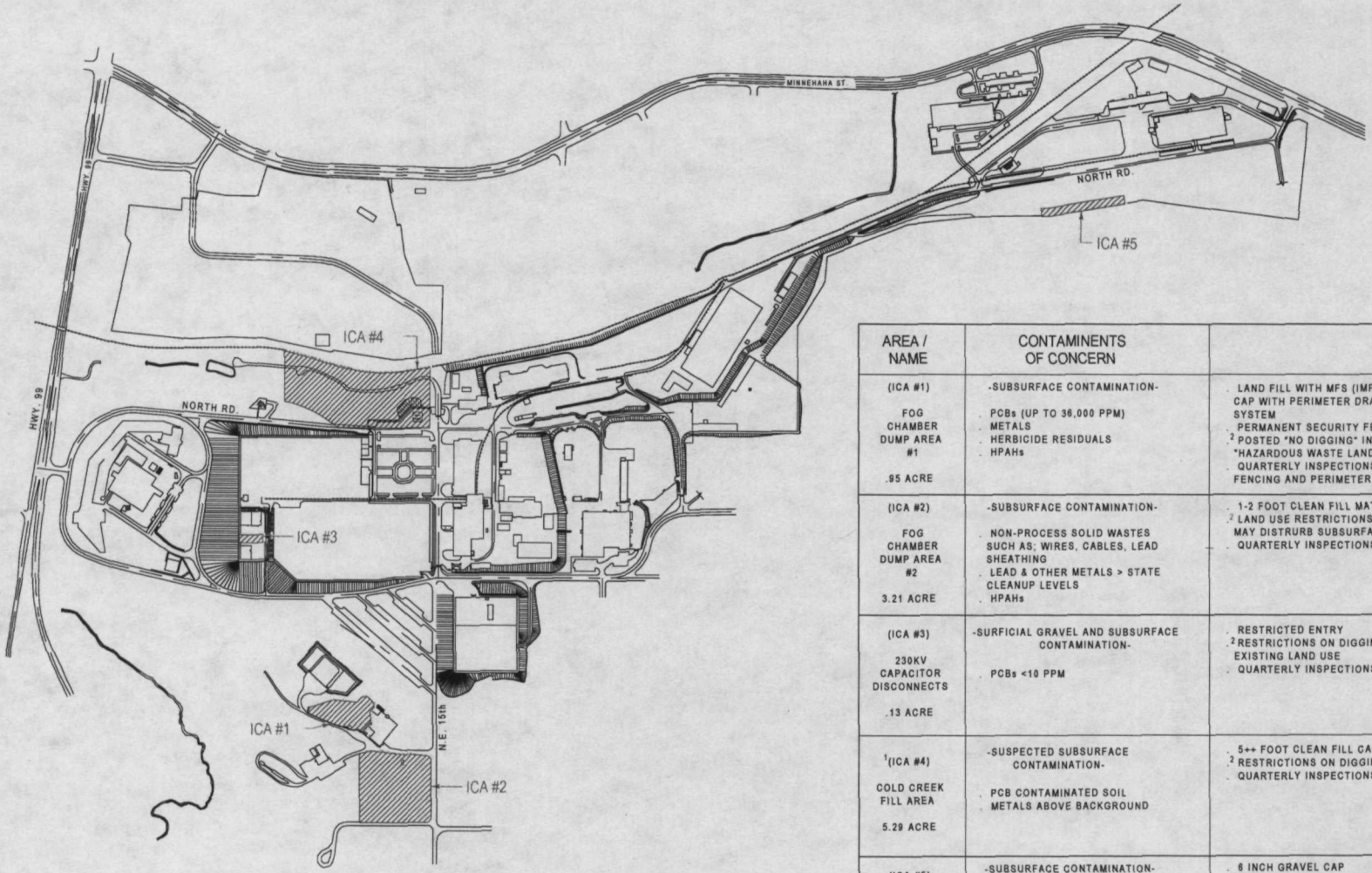
Long-term protectiveness will be achieved by implementation of the ESD and the associated institutional controls; quarterly inspections, annual reporting and use of dig permits.

XI. Next Review

The next five-year review for the BPA Ross Complex Site is required by September 2009, five years from the date of this review.

ATTACHMENTS

Attachment 1
Map of Ross complex I/C Sites



AREA / NAME	CONTAMINENTS OF CONCERN	CONTROL MEASURES	SEE FIG#
(ICA #1) FOG CHAMBER DUMP AREA #1 .95 ACRE	-SUBSURFACE CONTAMINATION- . PCBs (UP TO 36,000 PPM) . METALS . HERBICIDE RESIDUALS . HPAHs	. LAND FILL WITH MFS (IMPERVIOUS) ENGINEERED CAP WITH PERIMETER DRAINAGE COLLECTION SYSTEM . PERMANENT SECURITY FENCE AROUND AREA .[2] POSTED "NO DIGGING" INSIDE OF FENCE, "HAZARDOUS WASTE LANDFILL" OUTSIDE FENCE . QUARTERLY INSPECTIONS OF CAP, PERIMETER FENCING AND PERIMETER DRAINAGE CLEANOUTS	FIG #1
(ICA #2) FOG CHAMBER DUMP AREA #2 3.21 ACRE	-SUBSURFACE CONTAMINATION- . NON-PROCESS SOLID WASTES SUCH AS; WIRES, CABLES, LEAD SHEATHING . LEAD & OTHER METALS > STATE CLEANUP LEVELS . HPAHs	. 1-2 FOOT CLEAN FILL MATERIAL COVER .[2] LAND USE RESTRICTIONS ON ACTIVITIES WHICH MAY DISTRURB SUBSURFACE CONTAMINATION . QUARTERLY INSPECTIONS	FIG #1
(ICA #3) 230KV CAPACITOR DISCONNECTS .13 ACRE	-SURFICIAL GRAVEL AND SUBSURFACE CONTAMINATION- . PCBs <10 PPM	. RESTRICTED ENTRY .[2] RESTRICTIONS ON DIGGING AND NO CHANGE IN EXISTING LAND USE . QUARTERLY INSPECTIONS	FIG #2
[1](ICA #4) COLD CREEK FILL AREA 5.29 ACRE	-SUSPECTED SUBSURFACE CONTAMINATION- . PCB CONTAMINATED SOIL . METALS ABOVE BACKGROUND	. 5++ FOOT CLEAN FILL CAP .[2] RESTRICTIONS ON DIGGING . QUARTERLY INSPECTIONS	FIG #3
(ICA #5) WOOD POLE STORAGE AREA, EAST .47 ACRE	-SUBSURFACE CONTAMINATION- . HPAHs UP TO 10-15 PPM (1 PPM & 8 PPM CLEAN UP LEVELS RESPECTIVELY)	. 6 INCH GRAVEL CAP .[2] RESTRICTIONS ON DIGGING & LAND USE . QUARTERLY INSPECTIONS	FIG #4

[1]NOT AN EPA DESIGNATED CONTROL AREA, BPA ESTABLISHED CONTROL AREA.
[2]CONTACT BUILDING & GROUNDS MANAGER, OR ROSS ENVIRONMENTAL COORDINATOR PRIOR TO DISTURBING ANY SOIL.

SCALE 1" = 60010" 0 300 600 900 FT

NO.	W.O.	COMPUTER REVISION ONLY

OFFICIAL USE ONLY

Drawn BE BOSCO
Chkd BG HUGILL

ENVIRONMENT

BPA PP&A

Last Revised:

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

ROSS COMPLEX
INSTITUTIONAL CONTROL AREAS
(ICAs)
SITE PLAN

SERIAL	SOURCE	SIZE	SHEET	REVISION
258317	KEP	A1	1 OF 2	1

Attachment 2

List of Documents Reviewed

Bonneville Power Administration / Ross Complex – Superfund Site Final Closeout Report, December 1995

Bonneville Power Administration / Ross Complex – Environmental Restoration Five-Year Review, September 1999

Bonneville Power Administration / Ross Complex – Explanation of Significant Differences, January 2001

Bonneville Power Administration / Ross Complex – Six Month Progress Report on Effectiveness of Institutional Controls, July 2001

Bonneville Power Administration / Ross Complex – Annual Progress Report on Effectiveness of Institutional Controls, July 2002

Bonneville Power Administration / Ross Complex – Annual Progress Report on Effectiveness of Institutional Controls, July 2003

Bonneville Power Administration / Ross Complex – Annual Progress Report on Effectiveness of Institutional Controls, June 2004

ATTACHMENT 3

Interview Records

INTERVIEW RECORD

Site Name: Bonneville Power Administration Ross Complex (USDOE)		**EPA ID No.: WA1891406349**
Subject: 2nd Five Year Review	**Time: I:00pm**	**Date: 06/22/04**
Type: 9 Telephone x Visit 9 Other **Location of Visit:**	9 Incoming 9 Outgoing	

Contact Made By:

Name: Stephen Sander	**Title: Superfund Coordinator**	**Organization: BPA-KEP**

Individual Contacted:

Name: Elaine Stratton	**Title: Ross Environ. Specialist**	**Organization: BPA-KEP**

Telephone No: (360) 418-2554 **Fax No: (360) 418-2449** **E-Mail Address: esstratton@bpa.gov**	**Street Address: 5411 NE HWY 99** **City, State, Zip: Vancouver, WA 98666**

Summary Of Conversation

Elaine felt that the project has been successful and protective of human health and the environment. She believes that the remedy is functioning as expected. She indicated that no monitoring has been done since the last five-year review in 1999, when groundwater monitoring was ceased due to the low and decreasing levels of contaminants. There is a limited facilities maintenance presence associated with the sites of concern. Also, quarterly inspections are conducted at the institutional control areas in accordance with the ESD agreement. Elaine indicated no significant changes in O&M requirements, schedules or unexpected difficulties or costs in the last five years. She felt that the implementation of the ESD and institutional controls had led to efficiencies in tracking the sites of concern on the complex. She was not aware of any impacts to or concerns by the surrounding community associated with the project. Only incident she recalled within the last five years was the discovery of additional debris in the vicinity of the Fog Chamber dump, which was reported to EPA and addressed. Her only general comment was that it is important to continue to remind /educate complex employees about the history of the site and the continuing institutional controls and no-dig areas.

INTERVIEW RECORD

Site Name: Bonneville Power Administration Ross Complex (USDOE)	**EPA ID No.: WA1891406349**	
Subject: 2nd Five Year Review	**Time: 1:30 pm**	**Date:06/22/04**
Type: 9 Telephone x Visit 9 Other **Location of Visit:**	9 Incoming 9 Outgoing	

Contact Made By:

Name: Stephen Sander	**Title: Superfund Coordinator**	**Organization: BPA-KEP**

Individual Contacted:

Name: Paul Martin	**Title: Ross Facility Manager**	**Organization: BPA-TBL**

Telephone No: (360) 418-2072 **Fax No: (360) 418-2449** **E-Mail Address: pwmartin@bpa.gov**	**Street Address: 5411 NE HWY 99** **City, State, Zip: Vancouver, WA 98666**

Summary Of Conversation

Paul felt that the original problems at the complex had been identified and corrective actions were taken to address them. He said the remedy is functioning as expected. As Facility Manager for the Ross complex, he maintains the signs, fences, cap, etc, on the sites of concern and administers the no –dig permit process for the institutional controls under the ESD agreement. He indicated that there have been no significant changes, problems or costs associated with the O&M requirements, schedules, etc. in the last five years. He agreed that the development of the ESD and institutional controls, including the no-dig permit process had improved efficiency in tracking the sites of concern on the complex. He was not aware of any concerns from or impacts to the surrounding community as a result of the project.