
Post-Demolition Remedial Investigation Report



Reynolds Metals Company
TROUTDALE FACILITY

CH2MHILL

June 2006



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SECTION 1

Introduction

This post-demolition remedial investigation (RI) document summarizes onsite remedial investigation and removal, remedial, and owner-initiated action activities for the Reynolds Metals Company (RMC) Superfund site in Troutdale, Oregon (RMC-Troutdale facility). The location of the site is shown in Figure 1-1.

RMC was acquired by Alcoa in 2000, and it is now a wholly owned subsidiary of Alcoa. The plant facility was demolished from 2003 through 2005, and all structures and most foundations were removed. The post-demolition RI was implemented concurrent with plant demolition with the goal of obtaining a final Record of Decision (ROD) and Consent Decree from the U.S. Environmental Protection Agency (EPA) by September 30, 2006. RMC anticipates selling the property for industrial use by the end of 2006.

1.1 Purpose of This Document

The primary purpose of this document is to provide information in support of the post-demolition residual risk assessment (RA) for soil at the RMC-Troutdale site. This information includes investigation data and cleanup action data generated during the life of the project from 1994 to present. The term “cleanup action” is used in this document generically to describe actions taken under EPA Removal Branch oversight, EPA Remedial Branch oversight, or that are owner initiated. This document also describes the evaluation and selection of remedial options used during the demolition phase of the project.

Historical investigations and remedial actions were conducted as stipulated in the *Administrative Order on Consent for the Remedial Investigation/Feasibility Study and Remedial Action (RI/FS)* (EPA Docket No. 1094-01-19-106) (September 1995), the *Unilateral Administrative Order for Remedial Design and Remedial Action (Source Area UAO)* (EPA Docket No. CERCLA 10-2003-0115) (July 2003), and the *Unilateral Administrative Order for Remedial Design and Remedial Action (Groundwater UAO)* (EPA Docket No. CERCLA 10-2005-2017) (August 2005).

Groundwater has been adequately characterized and risks have been evaluated in the initial RI/FS process and in the groundwater portion of the *Draft Baseline Risk Assessment, Part 2 – Groundwater* (CH2M HILL, July 1999). Groundwater risks have been addressed by the *Reynolds Metals Company, Record of Decision for Interim Remedial Action (ROD)* (EPA, 2002) and are not included in this report.

Recent investigations and owner-initiated actions were conducted during plant demolition to prepare this property for sale and new ownership. Activities have been conducted both by RMC (as owner-initiated activities) and as required by EPA and the Oregon Department of Environmental Quality (DEQ) in accordance with the Superfund process. The recent investigations and actions were conducted as stipulated in *Demolition Plan, Revision 1* (Demolition Plan) (CH2M HILL, April 2004) and *Memorandum WP No. 62: Post-Demolition Remedial Investigation and Risk Assessment Work Plan* (Work Plan) (CH2M HILL, November

2004). Investigations and owner-initiated actions not identified in these documents were conducted concurrent with plant demolition activities to fill identified project needs. These activities are documented in this post-demolition RI report.

Data from all currently representative soil investigations and cleanup actions have been evaluated. In general, soils believed to contain constituents at levels that may pose an unacceptable risk to human health and the environment were removed from the site. Therefore, RMC expects to demonstrate that acceptable risk levels have been achieved for the property. The post-demolition RA is being prepared concurrently with this post-demolition RI and will be provided in a separate document. No further action is anticipated.

The body of this report summarizes the investigations and cleanup actions that represent the current status of the site. Because of the large existing administrative record on this project, not all previously published information on soil investigations and actions used to support the post-demolition RA is repeated here. Instead, reports and data that document current conditions at the site are emphasized. References are provided in the text for previously published information.

1.2 Post-Demolition RI Document Organization

The information provided in this document is organized according to four post-demolition risk exposure areas: Fairview Farms, Outside the Dike, South Wetlands, and the former plant area east of Sundial Road (East Area). The following sections are included in the post-demolition RI:

- 1: Introduction
- 2: Site Setting and History
- 3: Demolition Phase Feasibility Assessment
- 4: Fairview Farms
- 5: Outside the Dike
- 6: South Wetlands
- 7: East Area
- Appendix (bound separately)

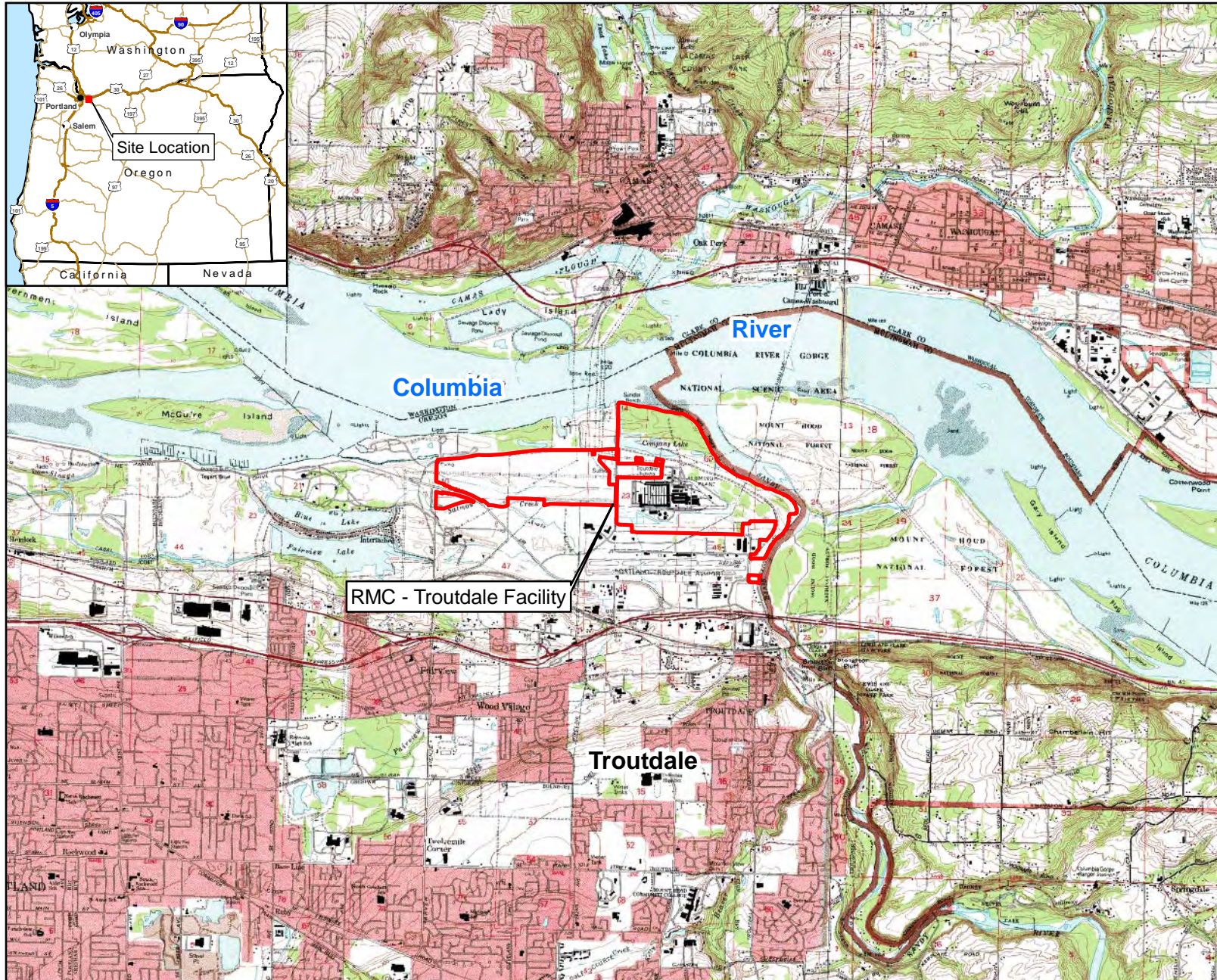



Figure 1-1
Vicinity Map
RMC-Troutdale Facility
 Troutdale, Oregon

Legend
 RMC-Troutdale
 Property Boundary



0 0.25 0.5 0.75 1
 Miles



SECTION 2

Site Setting and Background

This section discusses the location and features of the RMC-Troutdale property and briefly reviews the site history. A summary of actions that have occurred at the site is also included, along with an overview of the investigation and cleanup process.

2.1 Site Setting

The RMC-Troutdale site is located approximately 20 miles east of Portland, Oregon, and 1.25 miles north of the City of Troutdale, Oregon. The property is situated at the confluence of the Columbia and Sandy rivers and comprises a total of approximately 693 acres (Figure 2-1).

The land at the RMC-Troutdale site, including the main plant area, is bordered by the Columbia River to the north, the Sandy River to the east, the Troutdale airport to the south, and Salmon Creek to the west. A U.S. Army Corps of Engineers (COE) flood control dike runs generally east-west through the northern portion of the RMC property, bending south near the eastern property boundary along the Sandy River. The Troutdale Substation, located within the plant boundary, is owned and operated by the Bonneville Power Administration (BPA).

Topography at the site is generally flat, with some minor relief toward the north and northeast. Former plant process buildings were located centrally in the eastern half of the site (shown in Figure 2-1) prior to plant demolition. Areas north and east of the dike are within the 100-year floodplain; some areas also lie within the 10-year floodplain.

The eastern part of the plant site inside the dike consists of generally open, flat land with some wooded areas close to the plant fence. The eastern part of the plant, outside the dike, is generally flat and sandy with some vegetation cover. This area slopes down to the Sandy River and is subject to seasonal flooding.

Topography north of the dike is mostly flat, slopes gently toward the river, and is transected by numerous small east-west trending drainages. The area is wooded, with relatively heavy vegetation in most areas. There is a beach on the Columbia River along the northern part of the property that is used occasionally for recreation.

2.2 Site History

The RMC-Troutdale facility was constructed for the U.S. government in 1941 to support wartime production of aluminum. RMC leased the plant from the government in 1946 and purchased it in 1949. Historical plant operations are described in *Draft Current Situation Summary* (CH2M HILL, April 5, 1996). The plant operated at varying production capacities through 1991, when RMC temporarily curtailed operations. Plant operations were restarted

in 1998 but curtailed again in 2000 after Alcoa acquired RMC. The Troutdale plant was closed permanently in July 2002.

The site was placed on the EPA National Priorities List (Superfund) in 1994. RMC began investigation and sampling at the site in June 1994.

RMC has conducted a significant number of removal and remedial actions independent of and prior to the plant demolition process. These actions, summarized in Table 2-1, were conducted both under the normal plant maintenance program and as required by EPA under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) program. These actions are referred to in this document as “historical” and are documented in other referenced reports.

Table 2-1 Historical Soil Removal and Remedial Actions	
Area	Action
Bakehouse Sumps Area	Removal and decommissioning of well points at the bakehouse. Removal of approximately 283 tons of contaminated soil from the sumps, and modification of the sumps to bring them into compliance with Oregon Water Resources Department regulations.
Casthouse	Polychlorinated biphenyl (PCB) dust removal, concrete removal and decontamination, siding removal, and soil excavation and removal. Removal of approximately 515 tons of material.
Company Lake	Excavation and removal of 93,854 tons of process residue and underlying soil from the main body of the lake. Placement of a geotextile and rock cap at the west end and a soil cap on the north toe of the U.S. Army Corps of Engineers dike near the east end of Company Lake.
Cryolite Ponds	Excavation and removal of approximately 13,900 tons of cryolite material and contaminated soil from three unlined cryolite ponds.
Diesel Spill Area	Excavation and removal of approximately 650 tons of soil containing Bunker C fuel oil and approximately 2,000 tons of soil containing diesel fuel. Removal of a total of 2,650 tons of soil.
East Potliner Area	Excavation and removal of approximately 11,542 tons of spent potliner (Resource Conservation and Recovery Act [RCRA] K088 Waste) and contaminated soil from the east potliner area.
Electrostatic Precipitator (ESP) Containment Area	Excavation and removal of approximately 1,193 tons of contaminated material, and construction of a containment system for future operations of the wet ESP.
Fairview Farms	Excavation of approximately 150 tons of debris from four piles. Material was stockpiled at the south landfill and subsequently removed as part of the south landfill remediation.
Mineral Oil Spill Area	This area was investigated using soil borings. A preliminary risk evaluation determined that no cleanup action was necessary at the mineral oil spill area.
North Landfill	Excavation and removal of approximately 10,509 tons of industrial waste and soil contaminated with fluoride, polynuclear aromatic hydrocarbons (PAHs), PCBs, metals, and cyanide from the eastern portion of the landfill. Installation of a 6-inch-thick rock cover on the western portion of the landfill.
Scrap Yard	Excavation and removal of 11,590 tons of industrial waste and soil contaminated with fluoride, PAHs, PCBs, metals, and cyanide from the north scrap yard. Additionally 11,328 tons of waste material from the south scrap yard was excavated and used for mixing with process residue from Company Lake.

Area	Action
South Landfill	Excavation and removal of approximately 66,038 tons of industrial waste and soil contaminated with fluoride, PAHs, PCBs, metals, and cyanide. This includes approximately 20,676 tons of waste material that was hauled to Company Lake and used for mixing with removed process residue. The tonnage does not include wastes temporarily stockpiled on the south landfill and accounted for elsewhere in this table.
South Wetlands	Excavation of 90 tons of PCB-contaminated process residue and soil. Excavated material was stockpiled at the south landfill in a lined and covered cell. This material was subsequently removed as part of the south landfill remediation.
West South Ditch	Excavated approximately 8,775 tons of soil and sediment to remove process residue containing PAHs, fluoride, and metals. Excavated material was stockpiled at the south landfill in a lined and covered cell. This material was subsequently removed as part of the south landfill remediation.

Removal, remedial, and owner-initiated actions resulted in removing sources of contamination for human and ecological exposure, as well as sources of contamination to groundwater. In total, these cleanup actions removed more than 348,000 tons of material. This tonnage contained an estimated 7,366 tons of fluoride that was disposed of offsite in approved landfills. Historical (pre-demolition) removal and remedial actions accounted for more than 232,000 tons of material that was the major source of contamination to the intermediate and deep groundwater zones. Excavation of this material significantly reduces the migration of fluoride to these zones.

All soil removed from the site was handled in accordance with federal and state law and disposed of in Subtitle C and D landfills as required. Recent demolition-related cleanup actions are summarized in the East Area discussion provided in Section 7.

2.3 Post-Demolition Investigation and Owner-Initiated Action Overview

Areas to be investigated and required owner-initiated actions in the demolition phase of the project were identified in the Demolition Plan and in the Work Plan. Constituents of potential concern (COPCs) and the process for determining when actions were necessary were agreed to by EPA and DEQ and documented in the Demolition Plan and Work Plan. A brief summary of the COPCs and cleanup action process is presented in the following sections.

2.3.1 Selection of Constituents of Potential Concern

Constituents of potential concern were selected for each area of interest based on knowledge of plant processes in that area and RMC's long history of site investigation and remediation at this and other aluminum reduction plants around the world. In general, the COPCs for most areas included fluoride, cyanide, and polynuclear aromatic hydrocarbons (PAHs). Additional COPCs, including metals (arsenic, beryllium, lead, and mercury), asbestos, volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and semivolatile

organic compounds (SVOCs), were included in areas where source material or activities could have resulted in localized releases to the soil.







2.3.2 Owner-Initiated Action Process

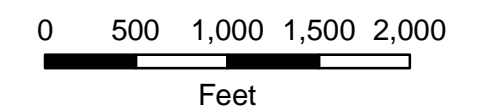
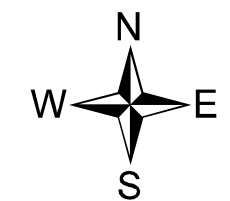
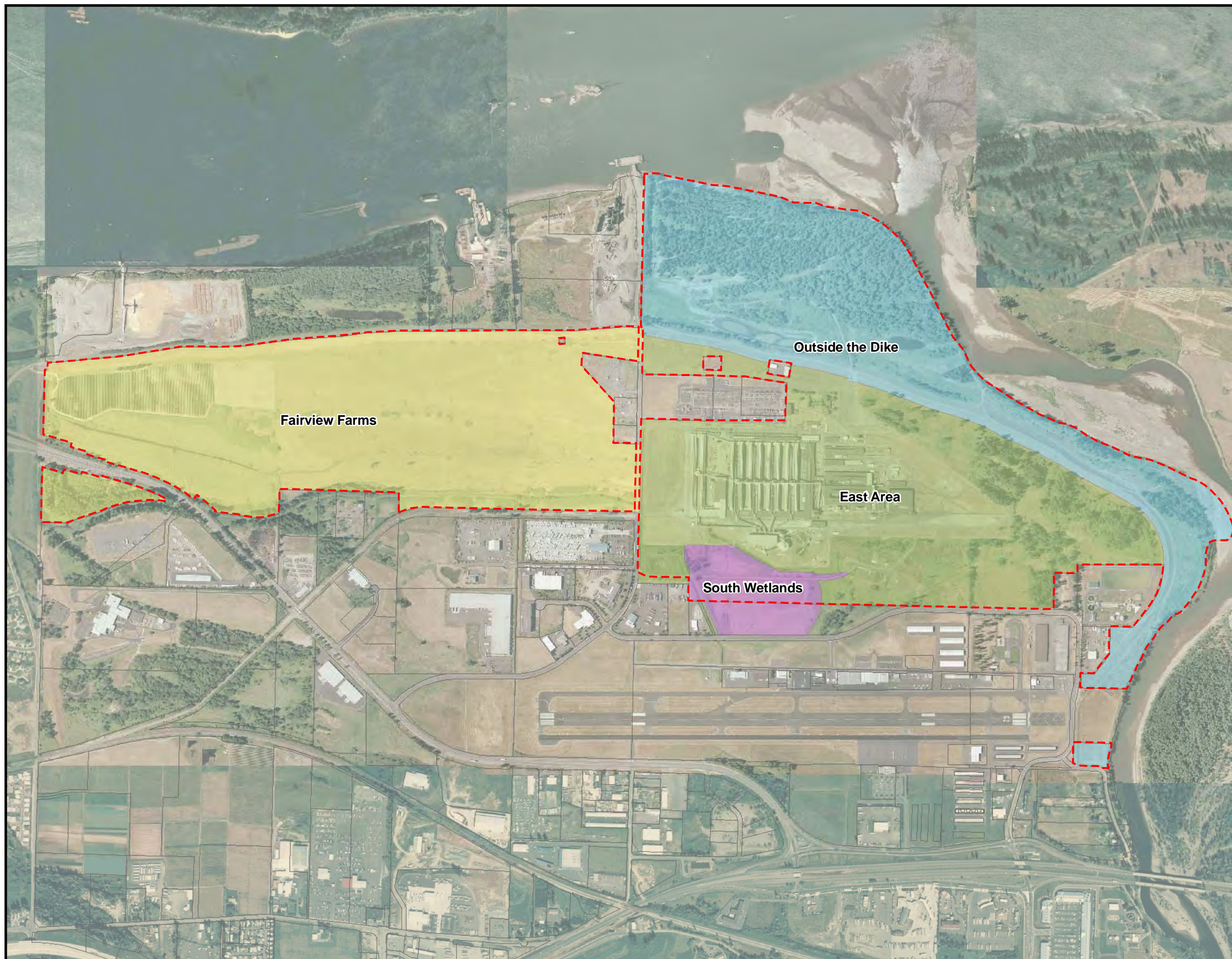
The flowcharts in Figures 2-2 and 2-3 show the decision process by which areas of the RMC-Troutdale site were chosen for cleanup action. These flowcharts, developed for the Work Plan, also describe the overall cleanup process from investigation through the risk assessment. In general, an area was investigated and an action taken if COPC concentrations were above levels believed to pose a risk, based on preliminary screening values or estimations of overall risk. The Category 1, 2, and 3 functional groupings referred to in Figure 2-2 relate to cleanup goals that are discussed in the Work Plan. Cleanup actions were conducted using visual standards and confirmation samples to document final conditions in the post-demolition RA. These actions were discussed with and agreed to by EPA and DEQ during project meetings conducted throughout the demolition process.

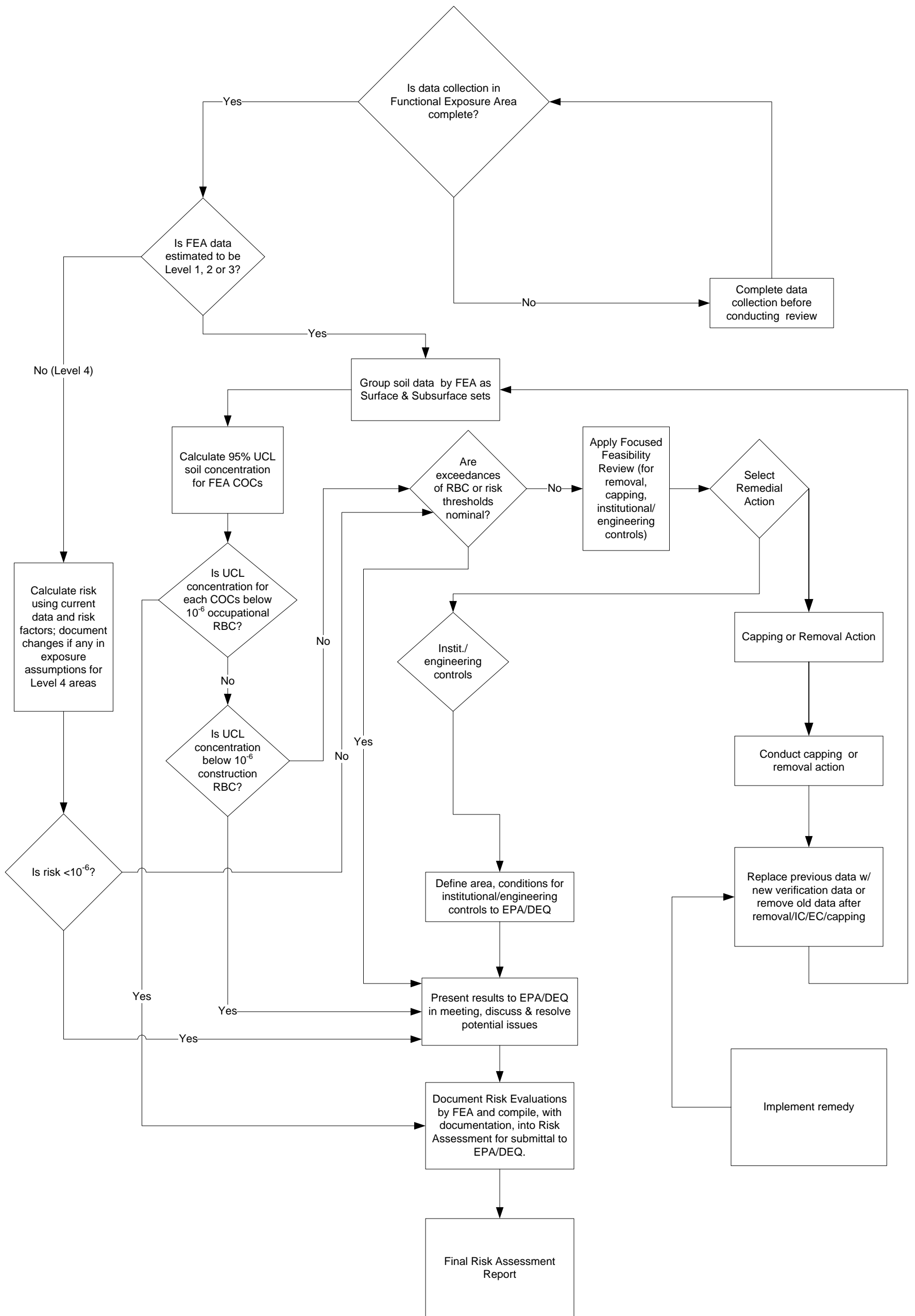
Figure 2-1 Site Map RMC-Troutdale Facility

Troutdale, Oregon

Legend

-  RMC-Troutdale Property Boundary
-  Other Tax Lots
- Exposure Areas**
-  East Area
-  Fairview Farms
-  Outside the Dike
-  South Wetlands





Reference: Memorandum WP No. 62: Post-Demolition Remedial Investigation and Risk Assessment Work Plan (Work Plan) (CH2M HILL, November, 2004)

Figure 2-3
Details of Post-Demolition RI and RA Decision Process
RMC Troutdale Facility
 Troutdale, Oregon

SECTION 3

Demolition Phase Feasibility Assessment

The *National Oil and Hazardous Substances Pollution Control Plan (NCP); Final Rule 40 CFR Part 300 Federal Register* (EPA, March 18, 1990) requires an evaluation of remedial technologies and alternatives for CERCLA sites. The *Draft Final Focused Feasibility Study, Volume 1, Technical Report (Focused Feasibility Study)* (CH2M HILL, June 2000) for soil, sediment, surface water, and groundwater at the site was prepared to meet this requirement. This Focused Feasibility Study provided the foundation and was built upon during the demolition phase of the RMC-Troutdale project to determine the most appropriate remedy for areas requiring remediation.

General response actions and remedial technologies were evaluated in the Focused Feasibility Study. Remedial technologies were evaluated following the NCP and *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA*, Office of Solid Waste and Emergency Response (OSWER), Directive 9355.3-01 (EPA, 1988).

On the basis of known site conditions and the Focused Feasibility Study results, RMC determined that excavation and offsite landfill disposal was the preferred cleanup alternative in owner-initiated actions during demolition. This determination was reflected in the *Post-Demolition Risk Scoping Document (Risk Scoping Document)* (CH2M HILL, 2005) and the cleanup goals used to guide excavation activities. Confirmation soil samples were collected after excavation, under EPA oversight, to ensure cleanup goals were achieved. Soil sample analytical results are provided in the Appendix to this post-demolition RI. Grading activities and backfill placement were completed after receipt of successful confirmation samples.

The post-demolition risk assessment report, published concurrent with this post-demolition RI report, demonstrates achievement of risk goals for this site. As a result, it is the conclusion of this feasibility assessment that no further action for soil is required at the RMC-Troutdale site. Institutional controls will be applied to some portions of the site as required in the forthcoming final ROD for the RMC-Troutdale site.

SECTION 4

Fairview Farms

The following section summarizes the soil investigations and the resulting actions that occurred in the Fairview Farms area, which composes the western portion of the RMC-Troutdale site.

4.1 Environmental Activities

Soil investigations and removal actions were conducted in the Fairview Farms area over the past decade to characterize and reduce risk to human health and the environment. Figure 4-1 shows the location of the Fairview Farms area, including the Drainage District Forebay (DDF), which is functionally the terminus of Salmon Creek.

4.1.1 Historical Documentation

Table 4-1 identifies and provides references for historical activities in the Fairview Farms area prior to the post-demolition RI.

Table 4-1 Fairview Farms Area Historical Documentation
Fairview Farms <i>Removal Site Assessment Report, Volume 1, Technical Report, and Volume 2, Technical Appendixes</i> (CH2M HILL, January 1995) <i>Memorandum: Cultural Resource Investigations at the RMC Troutdale Facility</i> (CH2M HILL, September 23, 1996) <i>Technical Memorandum DS No 5: Fairview Farms Supplemental Data-Gathering Summary</i> (CH2M HILL, January 24, 1996) <i>Technical Memorandum DS No. 16: Data Summary for the Soil and Debris Areas Addendum to the RI/FS Work Plan—1997 Sampling at North Landfill, South Landfill, and Scrap Yard</i> (CH2M HILL, December 15, 1997)
Salmon Creek Area of Fairview Farms <i>Draft Soil and Debris Areas Addendum to the RI/FS Work Plan</i> (CH2M HILL, February 18, 1997)

The potential presence of cultural resources at Fairview Farms has been thoroughly evaluated. A literature review, file search at the State Historic Preservation Office (SHPO), personal communication with the Troutdale Historical Society, and cultural resource surveys have been completed. These activities did not reveal cultural resources at Fairview Farms. No cultural deposits were encountered during site activities.

4.1.2 Post-Demolition Documentation

During the planning phase of the post-demolition RI, it was determined that a small portion of the Fairview Farms area had not been adequately investigated. Sampling in the DDF was conducted in February 2005 to document current conditions and address potential

migration of COPCs from the RMC-Troutdale facility. Samples of depositional material were collected from the RMC portion of the DDF (the property boundary bisects forebay areas) in areas where quiescent water might have allowed settling. The sampling results are documented in *Technical Memorandum No. 35: Data Report – Drainage District Forebay Investigation, Post-Demolition RI/RA, RMC-Troutdale Facility* (CH2M HILL, June 6, 2005), which can be found in the Appendix (bound separately).

4.1.3 Summary of Investigation and Remediation Activities

Table 4-2 provides a summary of the investigations and removal actions at Fairview Farms to supplement the information provided in Section 2.

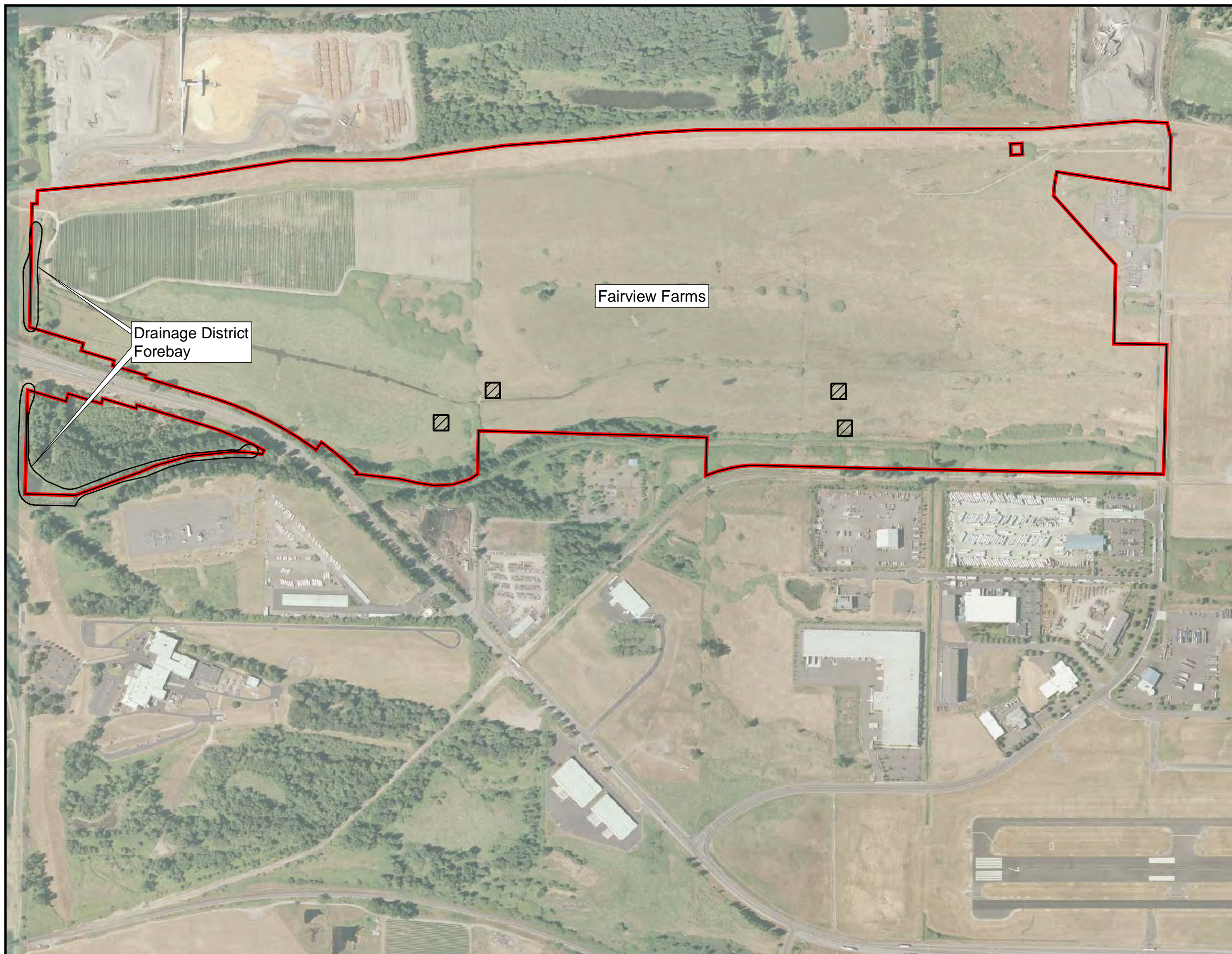
Area	Investigation Date	Action Date	Quantity of Material Removed (Tons)	Conclusion
Fairview Farms, near Salmon Creek	1994–1997	1996	150	No Further Action Necessary
Drainage District Forebay (DDF)	2005	No Action Required	--	No Further Action Necessary

Figure 4-1 shows the areas where the removal actions were conducted. Debris stockpiles were removed in 1996. The results of the most recent investigation, when reviewed in tandem with the historical data from Salmon Creek, indicate that Fairview Farms was not significantly affected by plant operations. The Fairview Farms area has been thoroughly investigated and remediated over the last decade under the review of and approval from EPA and DEQ. No further investigation or action is considered necessary in this area.

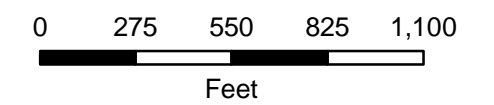
4.2 Current Site Conditions and Status

Removal of the debris piles from Fairview Farms has reduced the potential risk to human health and the environment. Representative site information and analytical data have been collected for the Fairview Farms area. This information is adequate to accurately document the risk-based conditions in this area at the RMC-Troutdale site.

Figure 4-1
Fairview Farms
Investigation and
Remediation Areas
RMC-Troutdale Facility
 Troutdale, Oregon



- Legend**
- Investigation Areas
 - Approximate Remediation Areas
 - Fairview Farms Exposure Area



SECTION 5

Outside the Dike

The following section summarizes the soil investigations and the resulting removal and remedial actions that occurred in the Outside the Dike area, north of the plant area of the RMC-Troutdale site.

5.1 Environmental Activities

Soil investigations, removal actions, and remedial actions were conducted in the Outside the Dike area over the past decade to characterize and reduce risk to human health and the environment. Figure 5-1 shows the location of the Outside the Dike area relative to the RMC-Troutdale facility. Areas of concern within the Outside the Dike area include Company Lake, the north landfill area, and East Lake.

5.1.1 Historical Documentation

Table 5-1 identifies and provides references for the historical activities that were undertaken in the Outside the Dike area.

Table 5-1 Outside the Dike Area Historical Documentation
Company Lake
<i>Final Site Inspection Prioritization Report</i> (PRC Environmental Management, October 19, 1993)
<i>Removal Site Assessment Report, Volume 1, Technical Report , and Volume 2, Technical Appendixes</i> (CH2M HILL, January 1995)
<i>Draft Current Situation Summary</i> (CH2M HILL, April 5, 1996)
<i>Memorandum: Cultural Resource Investigations at the RMC Troutdale Facility</i> (CH2M HILL, September 23, 1996)
<i>Technical Memorandum DS No. 15: Company Lake Supplemental Data Summary</i> (CH2M HILL, March 26, 1997)
<i>Wastewater Discharge Areas Addendum to the RI/FS Work Plan</i> (CH2M HILL, December 1997)
<i>Technical Memorandum DS No. 17: Data Summary for the Wastewater Discharge Areas Addendum to the RI/FS Work Plan, Part 1</i> (CH2M HILL, December 12, 1997)
<i>Draft Nongroundwater Remedial Investigation Report</i> (CH2M HILL, August 1999)
<i>Company Lake Early Action Report</i> (CH2M HILL, March 2002)
<i>Draft Cultural Resources Assessment</i> (CH2M HILL, June 26, 2003)
<i>Company Lake Early Remedial Action Interim Report</i> (CH2M HILL, April 2004)
<i>Company Lake Early Remedial Action 2004 and Early 2005 Interim Report</i> (CH2M HILL, May 7, 2005)
<i>Final Report: Company Lake Early Remedial Action</i> (CH2M HILL, February 2006)

**Table 5-1
Outside the Dike Area Historical Documentation**

North Landfill

Final Site Inspection Prioritization Report (PRC Environmental Management, October 19, 1993)

Removal Site Assessment Report, Volume 1, Technical Report, and Volume 2, Technical Appendixes (CH2M HILL, January 1995)

Draft Current Situation Summary (CH2M HILL, April 5, 1996)

Memorandum: Cultural Resource Investigations at the RMC Troutdale Facility (CH2M HILL, September 23, 1996)

Draft Soil and Debris Areas Addendum to the RI/FS Work Plan (CH2M HILL, February 18, 1997)

Technical Memorandum DS No. 16: Data Summary for the Soil and Debris Areas Addendum to the RI/FS Work Plan—1997 Sampling at North Landfill, South Landfill, and Scrap Yard (CH2M HILL, December 15, 1997)

Draft Nongroundwater Remedial Investigation Report (CH2M HILL, August 1999)

Draft Cultural Resources Assessment (CH2M HILL, June 26, 2003)

Memorandum No. 21: Addendum No. 2 to Specifications for Excavation and Transportation of Company Lake Process Residue (CH2M HILL, May 20, 2003)

Memorandum No. 22: Addendum No. 2 to Specifications for Disposal of Excavated Material from Company Lake (CH2M HILL, May 21, 2003)

Interim Report: North Landfill Early Remedial Action (CH2M HILL, April 2004)

North Landfill Remedial Action Final Report (Reynolds Metals Company, March 28, 2005)

East Lake

Removal Site Assessment Report, Volume 1, Technical Report, and Volume 2, Technical Appendixes (CH2M HILL, January 1995)

Memorandum: Cultural Resource Investigations at the RMC Troutdale Facility (CH2M HILL, September 23, 1996)

Draft Surface Water and Sediment Areas Addendum to the RI/FS Work Plan (CH2M HILL, April 3, 1998)

Draft Nongroundwater Remedial Investigation Report (CH2M HILL, August 1999)

The potential presence of cultural resources at the Outside the Dike area has been thoroughly evaluated. A literature review, file search at the SHPO, personal communication with the Troutdale Historical Society, and cultural resource surveys have been completed. Prior to implementation of removal and remedial actions, a survey of Company Lake and the north landfill area was completed to assess the potential impacts to area cultural resources, as discussed in *Interim Report: North Landfill Early Remedial Action* (CH2M HILL, April 2004) and *Company Lake Remedial Action at the Reynolds Metals Company/Alcoa, Inc. Facility, Troutdale, Oregon, Draft Cultural Resources Assessment* (CH2M HILL, June 26, 2003). No evidence of activities of cultural interest was observed.

5.1.2 Post-Demolition Documentation

No additional work activities beyond those described above were undertaken in the Outside the Dike area as a result of the post-demolition RI.

5.1.3 Summary of Investigation and Remediation Activities

Table 5-2 presents a summary of the investigations and remedial actions at the Outside the Dike area. This table provides additional details of the investigations and actions including sequence of activities, activity dates, amount of material removed, and the conclusion of the activity. Figure 5-1 shows the locations of the investigations and remedial actions.

Area	Investigation Date	Action Date	Quantity of Material Removed (Tons)	Quantity of Fluoride Removed (Tons)	Conclusion
Company Lake	1993-1997, 1999-2000	2001	3,780	88	Removal action successful in thumb portion of the lake.
	1993-1997, 1999-2001	2003	59,851	1,389	Partial remedial action complete.
	1993-1997, 1999-2001	2004	30,223	701	Remedial action complete.
	1993-1997, 1999-2001	2005	--	--	Soil cap placed on bank of levee. No further action necessary.
North Landfill	1993, 1994, 1997	2003	10,509	51	6-inch riprap cap placed on west half of north landfill. No further action necessary.
East Lake	1994, 1998	No Action Required	--	--	No further action necessary.




More than 100,000 tons of soil, debris, and brick were removed from these areas in 2002-2005 and disposed of offsite. The Outside the Dike area has been thoroughly investigated and remediated over the last decade under the review of and approval from EPA and DEQ. No further investigation or cleanup action is considered necessary in this area.

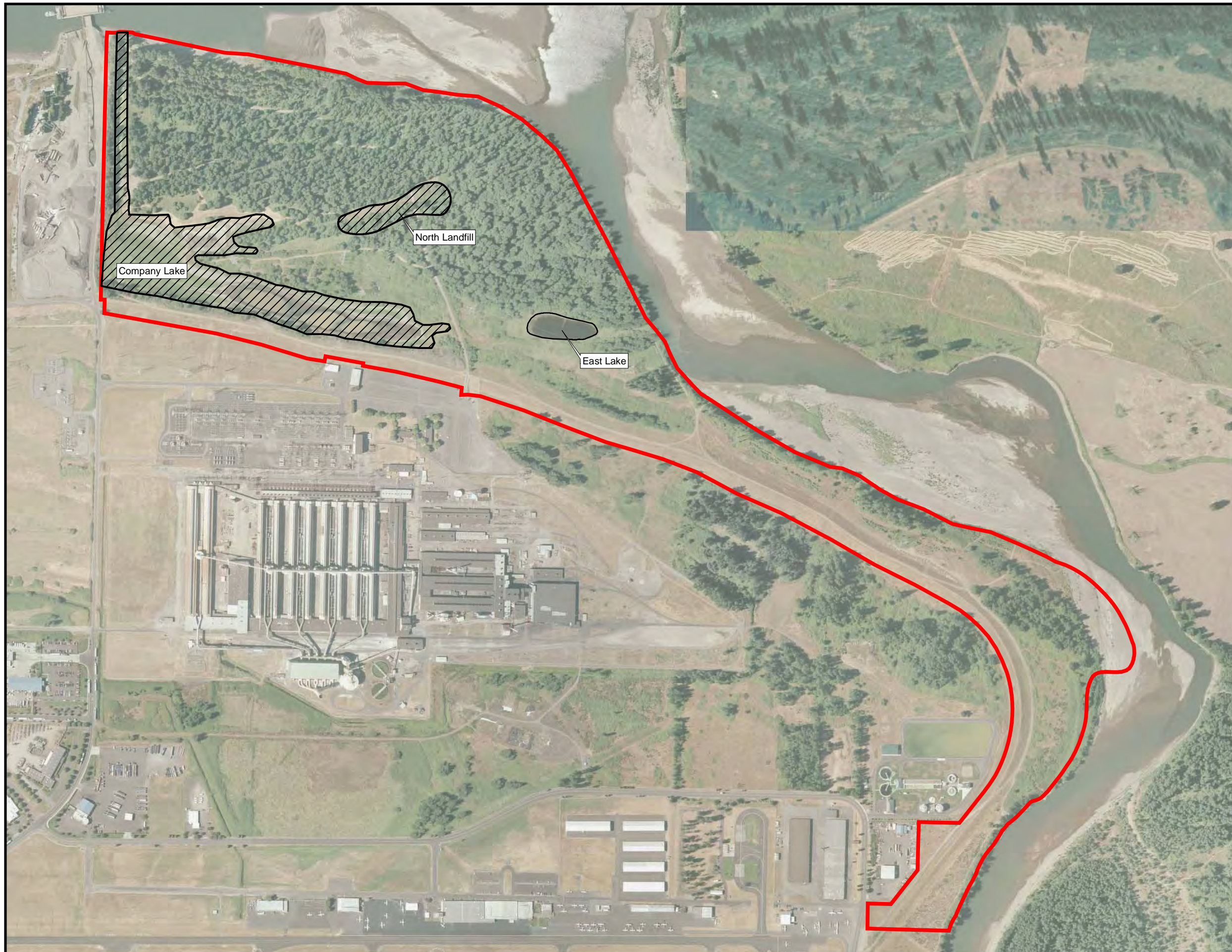
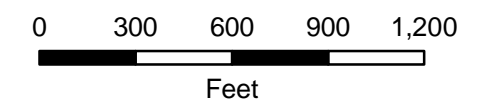
5.2 Current Site Conditions and Status

Cleanup actions taken in the Outside the Dike area have reduced the potential risk to human health and the environment. Representative site information and analytical data have been collected for the Outside the Dike area. This information is adequate to accurately document the risk-based conditions at the Outside the Dike area within the post-demolition RA.

Figure 5-1
Outside the Dike
Investigation and
Remediation Areas
RMC-Troutdale Facility
 Troutdale, Oregon

Legend

-  Investigation Areas
-  Approximate Remediation Areas
-  Outside the Dike Exposure Area



SECTION 6

South Wetlands

The following section summarizes the soil investigations and the resulting removal actions that occurred in the south wetlands area.

6.1 Environmental Activities

Soil investigations and removal actions were conducted in the south wetlands area over the past decade to characterize and reduce risks to human health and the environment. Figure 6-1 shows the location of the south wetlands area relative to the RMC-Troutdale facility, as well as the location of PCB-contaminated process residue within the south wetlands area.

6.1.1 Historical Documentation

Table 6-1 identifies and provides a reference for the historical activities that were undertaken in the south wetlands area prior to or in addition to the post-demolition RI.

Table 6-1 South Wetlands Area Historical Documentation
South Wetlands
<i>Removal Site Assessment Report, Volume 1, Technical Report , and Volume 2, Technical Appendixes</i> (CH2M HILL, January 1995)
<i>Memorandum WP No. 8: South Wetlands Study Area: Supplemental Data Gathering for Decision Analysis</i> (CH2M HILL, July 5, 1995)
<i>Technical Memorandum DS No. 8: South Wetlands Study Area Supplemental Data-Gathering Summary</i> (CH2M HILL, January 3, 1996)
<i>Draft Current Situation Summary</i> (CH2M HILL, April 5, 1996)
<i>Technical Memorandum DS No. 14: Data Summary for the South Wetlands Addendum to the RI/FS Work Plan, Part 1 – Soil, Surface Water, and Groundwater Quality</i> (CH2M HILL, February 12, 1997)
<i>Draft Final Focused Feasibility Study</i> (CH2M HILL, June 2000)
<i>Technical Memorandum No. 8: South Wetlands PCB Area Excavation Final Summary</i> (CH2M HILL, January 14, 2000)

The potential presence of cultural resources at the south wetlands area has been thoroughly evaluated. A literature review, file search at the SHPO, personal communication with the Troutdale Historical Society, and cultural resource surveys have been completed. These activities did not reveal cultural resources at the south wetlands area. No cultural deposits were encountered during site activities.

6.1.2 Post-Demolition Activities

A portion of the railroad fill/embankment within the south wetlands area was investigated as part of post-demolition activities. Sampling was conducted on September 17, 2004, to document current conditions and to confirm that the embankment was not adversely affected by the inclusion of plant material in the fill. The sampling results are documented in *Technical Memorandum No. 21: Data Report – South Plant RR Fill Embankment Investigation, Post-Demolition RI/RA, RMC-Troutdale Facility* (CH2M HILL, January 10, 2005), which can be found in the Appendix (bound separately).

6.1.3 Summary of Investigation and Remediation Activities

Table 6-2 provides a summary of the investigations and removal actions in the south wetlands area to supplement information provided in Section 2. Figure 6-1 shows the location of the investigations and removal actions.

Area	Investigation Date	Action Date	Quantity of Material Removed (Tons)	Quantity of Fluoride Removed (Tons)	Conclusion
South Wetlands (PCB Area)	1994, 1995, 1996	1999	90	1	No Further Action Necessary
Railroad Fill/Embankment*	2004	No Action Required	--	--	No Further Action Necessary

* Includes central and eastern portion of railroad embankment within the south wetlands boundary. The western portion of the railroad embankment is within the East Area.

Remediation actions were undertaken in locations where COPCs were detected at concentrations exceeding risk-based screening thresholds. Approximately 90 tons of soil were removed from an area known to be contaminated with PCBs. Cleanup goals were met and the excavation was backfilled with clean fill. The south wetlands area has been thoroughly investigated and remediated over the last decade under the review of and approval from EPA and DEQ. No further investigation or action is deemed necessary in this area.




6.2 Current Site Conditions and Status

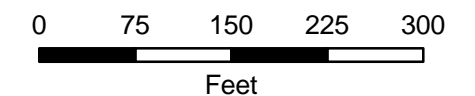
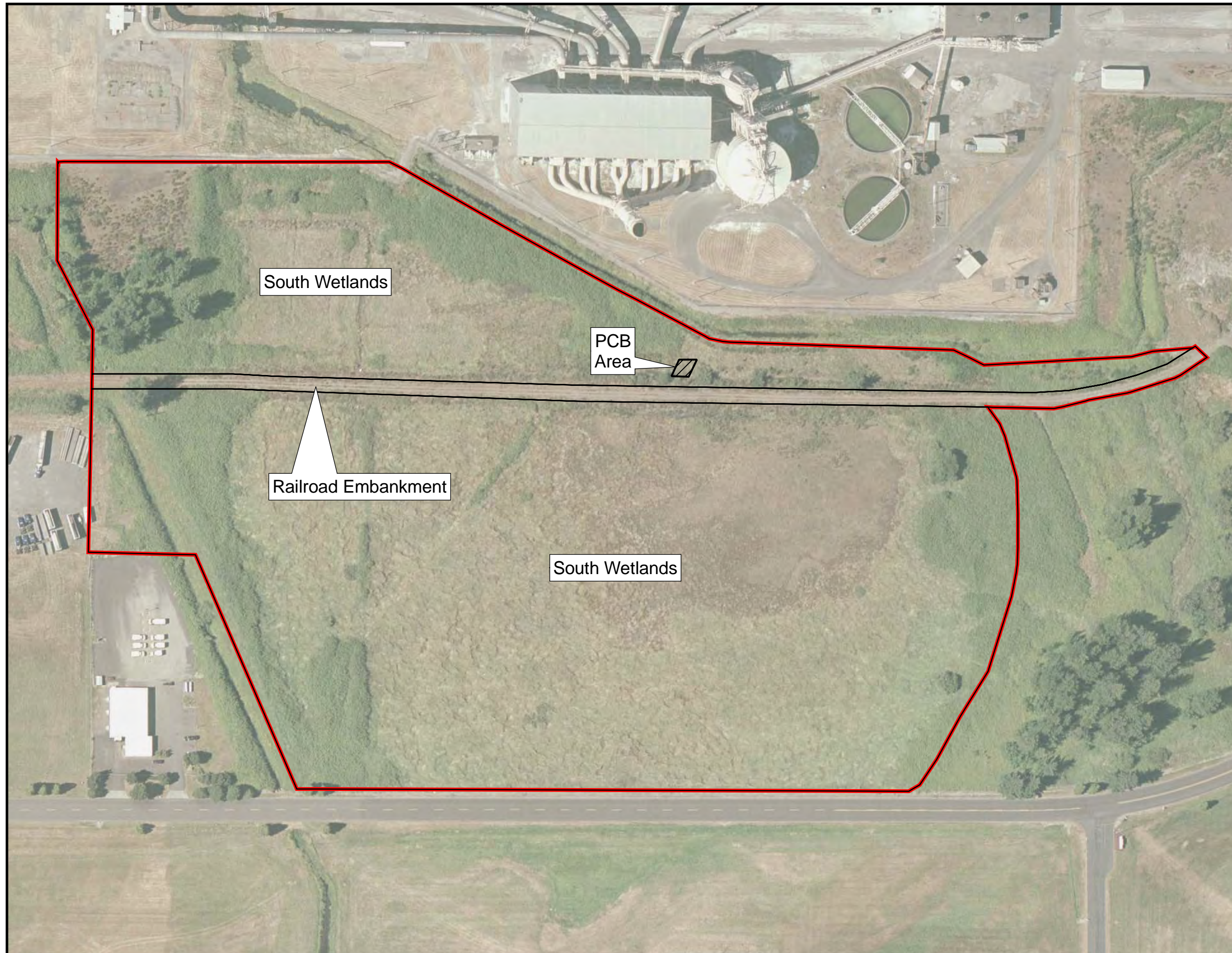
Removal action taken in the south wetlands area has reduced the potential risk to human health and the environment. Representative site information and analytical data have been collected for the south wetlands area. This information is adequate to accurately document the risk-based conditions at south wetlands within the post-demolition RA.

Figure 6-1
South Wetlands
Investigation and
Remediation Areas
RMC-Troutdale Facility

Troutdale, Oregon

Legend

-  Investigation Areas
-  Approximate Remediation Areas
-  South Wetlands Exposure Area



East Area

This section summarizes the site investigation activities and removal, remedial, and owner-initiated actions for soil in the East Area of the RMC-Troutdale site. Between 1993 and 2006, RMC conducted soil investigations and cleanup activities that have significantly reduced the risk to human health and the environment.

7.1 Environmental Activities

Multiple individual assessment areas were identified throughout the East Area as suspected or known sources of soil contamination. These areas are as follows:

- Building 30
- Building 32
- Building 32A
- Building 32C
- Building 34
- Building 36
- Building 37A
- Building 41A
- Building 52/52B
- Building 52A
- Building 54
- Building 54A
- Building 54A-62 Trench
- Buildings 55, 58, and 60
- Building 55A, 58C, 66A Basements
- Building 56
- Building 60 (ESP)
- Building 62
- Building 62A
- Building 64
- Building 66
- Building 71
- Building 83 Complex
- Building 97 Subarea
- Building 98 Area
- Buildings 44, 46, and 53
- Cryolite Ponds
- Diesel Spill
- East Field
- East Parking Lot
- East Potliner
- Former Cryolite Plant
- Mineral Oil Spill
- North Field
- North Parking Lot
- North Property
- Old West Ditch
- Old West Ditch Forebay
- Potline 1-5 and Courtyard
- Railroad Fill/Embankment (West)
- Railroad (Center, East, West)
- Rectifier Building – Filter Room
- Rectifier Yard
- Scrap Yard
- Scrap Yard Road
- South Landfill
- South Property
- Storage Area 1
- Storage Area 2
- Storage Area 3
- Storage Area 4
- Storage Area 5/Bunker C
- Storage Area 6
- Storage Area 7
- West of Potline 5
- West South Ditch

Table 7-1 provides a reference to assessment area locations on Figure 7-1; area numbers and descriptions are provided in Table 7-1 and shown on Figure 7-1. Table 7-1 provides information listed both numerically from area 1 through 49 and alphabetically by area description. These areas compose the entire East Area. The majority of the investigation work for the post-demolition RI was conducted in the East Area because many areas could not be accessed for testing or excavation until after plant structures were removed.

7.1.1 Historical Documentation

A number of historical investigation and removal activities were completed throughout the East Area before the plant was demolished, beginning with owner-initiated actions in 1993 and continuing through 2005. Table 7-2 identifies and provides a reference for the historical activities that were undertaken in the East Area prior to the post-demolition RI.

The potential presence of cultural resources in the East Area has been thoroughly evaluated. A literature review, file search at the SHPO, personal communication with the Troutdale Historical Society, and cultural resource surveys have been completed. These activities did not reveal cultural resources in the East Area. Targeted cultural resource surveys were performed at the scrap yard and south landfill areas, in compliance with the Historic Preservation Act, to determine whether planned removal actions would have any effect on cultural resources. These surveys showed no evidence of buried cultural deposits, and further cultural resource work was not recommended. No cultural deposits were encountered during site demolition activities.

7.1.2 Post-Demolition Activities

The RMC-Troutdale facility was demolished following the program described in the Demolition Plan. This plan required the demolition contractor to collect soil samples after removal of site structures, foundations, and surface soils to confirm attainment of cleanup goals. Areas of the RMC-Troutdale site that were not addressed under the demolition contract were sampled independently by RMC, with EPA oversight. The purpose of the sampling was to characterize post-demolition conditions and/or to demonstrate attainment of cleanup goals. This sampling is further addressed in the Work Plan.

7.1.2.1 Characterization and Confirmation Soil Sampling Activities

Soil sampling activities conducted as part of the post-demolition remedial investigations are reported in a series of technical memorandums included in the post-demolition RI. Each technical memorandum is a data report that presents a summary of the area's sampling and removal history and the results of these most recent investigations. Some areas within the East Area required excavation to attain acceptable risk levels. A summary list of the technical memorandums documenting recent work within the East Area is presented in Table 7-3. The technical memorandums are included in the Appendix (bound separately).

**Table 7-1
Assessment Area Reference for Figure 7-1**

Numerical Order by Area Number		Alphabetical Order by Assessment Area	
Area Number	Assessment Area	Assessment Area	Area Number
1	Bldg 97 Subarea	Bldg 30	14
2	Carbon Bake Area	Bldg 32, 32A, 32C Area	9
2A	Bldgs 55, 58, & 60	Bldg 32	9A
2B	Bldg 55A, 58C Basements	Bldg 32A	9B
3	Bldg 62 & 54A Area	Bldg 32C	9C
3A	Bldg 62-54A Trench	Bldg 34	8
3B	Bldg 62 – Compressor Bldg	Bldg 36	10
4	Bldg 66 & 66A Area	Bldg 37A	29
4A	Bldg 66	Bldg 41A	30
4B	Bldg 66A Basement	Bldgs 44/46/53	31
5	Rectifier Yard	Bldg 52, 52A, 52B Area	11
5A	Rectifier Filter Room	Bldg 52	11A
6	ESP/Bldg 60 Area	Bldg 52A	11B
6A	Bldg 64	Bldg 52B	11C
7	Cryolite Ponds	Bldg 54 & 54A Area	12
8	Bldg 34	Bldg 54	12A
9	Bldg 32, 32A, 32C Area	Bldg 54A	12B
9A	Bldg 32	Bldg 56	32
9B	Bldg 32A	Bldg 60 Area	6
9C	Bldg 32C	Bldg 64	6A
10	Bldg 36	Bldg 62 & 54A Area	3
11	Bldg 52, 52A, 52B Area	Bldg 62-54A Trench	3A
11A	Bldg 52	Bldg 62	3B
11B	Bldg 52A	Bldg 62A	44
11C	Bldg 52B	Bldg 66 & 66A Area	4
12	Bldg 54 & 54A Area	Bldg 66	4A
12A	Bldg 54	Bldg 66A Basement	4B
12B	Bldg 54A	Bldg 71	16
13	East Potliner	Bldg 83 Complex	17
14	Bldg 30	Bldg 97 Subarea	1
15	Railroad - West	Bldg 98 Area	20
16	Bldg 71	Carbon Bake Area	2
17	Bldg, 83 Complex	Bldgs 55, 58, & 60	2A
18	Railroad - Center	Bldg 55A, 58C Basements	2B
19	Railroad - East	Cryolite Ponds	7
20	Bldg 98 Area	Diesel Spill	46
21	Old West Ditch Forebay	East Field	28
22	Potlines 1-4 & Courtyards	East Parking Lot	25
23	Potline 5 and Adjacent Courtyard	East Potliner	13
23A	Old West Ditch	Former Cryolite Plant	40
24	North Parking Lot	Mineral Oil Spill	49
25	East Parking Lot	North Field	27
26	West of Potline 5	North Parking Lot	24
27	North Field	North Property	47
28	East Field	Old West Ditch Forebay	21
29	Bldg 37A	Potline 5 and Adjacent Courtyard	23
30	Lab	Old West Ditch	23A
31	Bldgs 44/46/53	Potlines 1-4 & Courtyards	22
32	Bldg 56	Railroad Fill/Embankment (West)	41
33	Storage Area 1	Railroad - Center	18
34	Storage Area 2	Railroad - East	19
35	Storage Area 3	Railroad - West	15
36	Storage Area 4	Rectifier Yard	5
37	Storage Area 5/Bunker C	Rectifier Filter Room	5A
38	Storage Area 6	Scrap Yard	45
39	Storage Area 7	Scrap Yard Road	45A
40	Former Cryolite Plant	South Landfill	43
41	West Railroad Fill/Embankment	South Property	48
42	West South Ditch	Storage Area 1	33
43	South Landfill	Storage Area 2	34
44	Bldg 62A	Storage Area 3	35
45	Scrap Yard	Storage Area 4	36
45A	Scrap Yard Road	Storage Area 5/Bunker C	37
46	Diesel Spill	Storage Area 6	38
47	North Property	Storage Area 7	39
48	South Property	West of Potline 5	26
49	Mineral Oil Spill	West South Ditch	42

**Table 7-2
East Area Historical Documentation**

East Area - General

Memorandum: Cultural Resource Investigations at the RMC Troutdale Facility (CH2M HILL, September 23, 1996)

Bldgs 55, 58, 60

*Data Summary: Bakehouse Sumps Additional Data Gathering for Decision Analysis (CH2M HILL, October 16, 1995)
Abandonment of Bakehouse Sump No. 1 (Amendment to Memorandum WP No. 18) (CH2M HILL, December 30, 1996)
Final Report: Bakehouse Sumps Area Removal Action (CH2M HILL, April 27, 1998)
Carbon Bake Pit Foundation Investigation Report, RMC-Troutdale (CH2M HILL, January 2003)*

Bldg 60

*Abandonment of Bakehouse Sump No. 1 (Amendment to Memorandum WP No. 18) (CH2M HILL, December 30, 1996)
Final Report: Bakehouse Sumps Area Removal Action (CH2M HILL, April 27, 1998)*

Bldg 97 Subarea

Technical Memorandum DS No. 8: South Wetlands Study Area Supplemental Data-Gathering Summary (CH2M HILL, January 3, 1996)

West of Potline 5

Removal Site Assessment Report, Volume 1, Technical Report, and Volume 2 Technical Appendixes (CH2M HILL, January 1995)

West South Ditch

*Final Site Inspection Prioritization Report (PRC Environmental Management, October 19, 1993)
Draft Current Situation Summary (CH2M HILL, April 5, 1996)
Final Report: East Potliner Area Removal Action (CH2M HILL, April 3, 1997)
Technical Memorandum No. 17: Data Summary for the Wastewater Discharge Areas Addendum to the RI/FS Work Plan, Part 1 (CH2M HILL, December 12, 1997)
Technical Memorandum: RMC South Ditch Maintenance Dredging Final Report (CH2M HILL, November 2, 2000)*

Casthouse Bldg 34

Final Report: Casthouse Remediation Area Removal Action (CH2M HILL, 1998)

Cryolite Ponds

*Final Site Inspection Prioritization Report (PRC Environmental Management, October 19, 1993)
Final Report: Cryolite Pond Area Removal Action (CH2M HILL, April 11, 1996)*

Diesel Oil Spill Area

Final Report: Diesel Area Removal Action (CH2M HILL, May 2000)

East Potliner

*Removal Site Assessment Report, Volume 1, Technical Report, and Volume 2 Technical Appendixes (CH2M HILL, January 1995)
Technical Memorandum DS No. 3: East Potliner Area: Supplemental Data-Gathering Summary (CH2M HILL, June 15, 1995)
Final Report: East Potliner Area Removal Action (CH2M HILL, April 3, 1997)
Draft Groundwater Remedial Investigation Report, Appendix B (CH2M HILL, June 1999)*

Scrap Yard

*Final Site Inspection Prioritization Report (PRC Environmental Management, October 19, 1993)
Removal Site Assessment Report, Volume 1, Technical Report, and Volume 2, Technical Appendixes (CH2M HILL, January 1995)
Technical Memorandum DS No. 6: Scrap Yard: Supplemental Data-Gathering Summary (CH2M HILL, November 27, 1995)
Draft Current Situation Summary (CH2M HILL, April 5, 1996)
Technical Memorandum No. 4: Interlaboratory Data Comparison for RMC - Troutdale (CH2M HILL, September 16, 1997)
Technical Memorandum DS No. 16: Data Summary for the Soils and Debris Areas Addendum to the RI/FS Work Plan - 1997 Sampling at North Landfill, South Landfill, and Scrap Yard (CH2M HILL, December 15, 1997)
Draft Groundwater Remedial Investigation Report, Appendix B (CH2M HILL, June 1999)
Draft Nongroundwater Remedial Investigation Report (CH2M HILL, August 1999)
Final Report: Scrap Yard Removal Action (CH2M HILL, April 2003)*

South Landfill

*Final Site Inspection Prioritization Report (PRC Environmental Management, October 19, 1993)
Removal Site Assessment Report, Volume 1, Technical Report, and Volume 2 Technical Appendixes (CH2M HILL, January 1995)
Technical Memorandum DS No. 16: Data Summary for the Soils and Debris Areas Addendum to the RI/FS Work Plan - 1997 Sampling at North Landfill, South Landfill, and Scrap Yard (CH2M HILL, December 15, 1997)
Draft Groundwater Remedial Investigation Report, Appendix B (CH2M HILL, June 1999)
Interim Report: South Landfill Early Remedial Action (CH2M HILL, April 2004)*

Mineral Oil Spill

*Addendum No. 1 of the Draft Current Situation Summary: Mineral Oil Spill Area (November 13, 1996)
Draft Soil and Debris Areas Addendum to the RI/FS Work Plan (CH2M HILL, February 18, 1997)*

**Table 7-3
East Area Recent Documentation**

<p>Bldg 30</p> <p><i>Technical Memorandum No. 36: Data Report—Buildings 30, 32C, 56, 62, and 64 Geoprobe Investigation, Former Maintenance Activity Area, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, June 6, 2005)</i></p> <p><i>Technical Memorandum No. 121: Data Report - Building 30 PCB Impacted Soils (Reynolds Metals Company, March 2006)</i></p> <p><i>Technical Memorandum No. 122: Data Report - Building 30 Soils and Dry Well (Reynolds Metals Company, March 2006)</i></p>
<p>Bldg 32</p> <p><i>Technical Memorandum No. 28: Data Report—Underneath Building 32 Foundation Geoprobe Investigation, Former Maintenance Activity, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, February 17, 2005)</i></p> <p><i>Technical Memorandum No. 29: Data Report—Outside Building 32 Area Geoprobe Investigation, Former Maintenance Activity, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, February 7, 2006)</i></p> <p><i>Technical Memorandum No. 117: Data Report - Building 32 Transformer Pad (Reynolds Metals Company, March 2006)</i></p> <p><i>Technical Memorandum No. 118: Data Report - Building 32 Soils (Reynolds Metals Company, March 2006)</i></p>
<p>Bldg 32A</p> <p><i>Technical Memorandum No. 116: Data Report - Building 32A Soils (Reynolds Metals Company, March 2006)</i></p>
<p>Bldg 32C</p> <p><i>Technical Memorandum No. 36: Data Report—Buildings 30, 32C, 56, 62, and 64 Geoprobe Investigation, Former Maintenance Activity Area, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, June 6, 2005)</i></p>
<p>Bldg 37A</p> <p><i>Technical Memorandum No. 22: Data Report—Building 37A Geoprobe Investigation, Former Maintenance Activity Area, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, January 10, 2005)</i></p>
<p>Bldg 41A</p> <p><i>Technical Memorandum No. 23: Data Report—Building 41A (Laboratory) Geoprobe Investigation, Former Maintenance Activity Area, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, January 6, 2005)</i></p>
<p>Bldgs 55, 58, 60</p> <p><i>Technical Memorandum No. 39: Data Report—Carbon Bakehouse Buildings 55, 58, 60 Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, January 24, 2006)</i></p> <p><i>Technical Memorandum No. 103: Data Report - Carbon Plant Sumps 16, 17, and 18 (Reynolds Metals Company, March 2006)</i></p> <p><i>Technical Memorandum No. 104: Data Report - PCB Impacted Soils North of Building 55 and South of Building 60 (Reynolds Metals Company, March 2006)</i></p> <p><i>Technical Memorandum No. 105: Data Report - Soils North of Building 55 and South of Building 60 (Reynolds Metals Company, March 2006)</i></p> <p><i>Technical Memorandum No. 106: Data Report - Carbon Bake Furnace UST #1 Between Buildings 55 and 58 (Reynolds Metals Company, March 2006)</i></p> <p><i>Technical Memorandum No. 108: Data Report - Carbon Bake Fume Control Tanks (Reynolds Metals Company, March 2006)</i></p> <p><i>Technical Memorandum No. 109: Data Report - Carbon Bake Furnace UST #2 Between Building 55 and 58 (Reynolds Metals Company, March 2006)</i></p> <p><i>Technical Memorandum No. 110: Data Report - Carbon Bake Furnace USTs #3, 4, 5, and 6 Between Buildings 58 and 60 (Reynolds Metals Company, March 2006)</i></p>
<p>Bldg 56</p> <p><i>Technical Memorandum No. 25: Data Report—Building 56 Geoprobe Investigation, Former Maintenance Activity Area, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, January 10, 2005)</i></p> <p><i>Technical Memorandum No. 36: Data Report—Buildings 30, 32C, 56, 62, and 64 Geoprobe Investigation, Former Maintenance Activity Area, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, June 6, 2005)</i></p>
<p>Bldg 60</p> <p><i>Technical Memorandum No. 41: Data Report - Former Building 60 Geoprobe Investigation, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, February 7, 2006)</i></p> <p><i>Technical Memorandum No. 104: Data Report - PCB Impacted Soils North of Building 55 and South of Building 60 (Reynolds Metals Company, March 2006)</i></p> <p><i>Technical Memorandum No. 105: Data Report - Soils North of Building 55 and South of Building 60 (Reynolds Metals Company, March 2006)</i></p>
<p>Bldg 62</p> <p><i>Technical Memorandum No. 36: Data Report—Buildings 30, 32C, 56, 62, and 64 Geoprobe Investigation, Former Maintenance Activity Area, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, June 6, 2005)</i></p>
<p>Bldg 62A</p> <p><i>Technical Memorandum No. 26: Data Report—Building 62A Geoprobe Investigation, Former Maintenance Activity Area, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, January 10, 2005)</i></p>
<p>Bldg 64</p> <p><i>Technical Memorandum No. 36: Data Report—Buildings 30, 32C, 56, 62, and 64 Geoprobe Investigation, Former Maintenance Activity Area, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, June 6, 2005)</i></p>
<p>Bldg 83</p> <p><i>Technical Memorandum No. 38: Data Report—Former Potline 5 and Courtyard, Former Building 83 Complex, and Old West Ditch Investigations, Post-Demolition RI/RA, RMC-Troutdale Facility (January 19, 2006)</i></p>
<p>Bldg 97 Subarea</p> <p><i>Technical Memorandum No. 40: Removal Action Report - Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, March 2006)</i></p> <p><i>Technical Memorandum No. 101: Data Report - Building 97 Dry Well (Reynolds Metals Company, March 2006)</i></p>
<p>Bldg 98 Area</p> <p><i>Technical Memorandum No. 40: Removal Action Report - Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, March 2006)</i></p> <p><i>RCRA Closure Report for the RMC-Troutdale Facility (Reynolds Metals Company, June 2006)</i></p>
<p>Bldgs 44, 46, 53</p> <p><i>Technical Memorandum No. 24: Data Report—Buildings 44/46/53 Geoprobe Investigation, Former Maintenance Activity Area, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, January 10, 2005)</i></p>
<p>East Field</p> <p><i>Technical Memorandum No. 12: Data Report—East Field Electromagnetic Survey, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, November 30, 2004)</i></p>
<p>East Parking Lot</p> <p><i>Technical Memorandum No. 13: Data Report—East Parking Lot Electromagnetic Survey, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, November 20, 2004)</i></p>

**Table 7-3
East Area Recent Documentation**

Former Cryolite Plant <i>Technical Memorandum No. 40: Removal Action Report - Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, March 2006)</i>
North Field <i>Technical Memorandum No. 40: Removal Action Report - Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, March 2006)</i>
North Parking Lot <i>Technical Memorandum No. 14: Data Report—North Parking Lot Electromagnetic Survey, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, November 20, 2004)</i>
Old West Ditch <i>Technical Memorandum No. 38: Data Report—Former Potline 5 and Courtyard, Former Building 83 Complex, and Old West Ditch Investigations, Post-Demolition RI/RA, RMC-Troutdale Facility (January 19, 2006)</i>
Old West Ditch Forebay <i>Technical Memorandum No. 15: Data Report—Old West Ditch Forebay Geoprobe Investigation, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, November 23, 2004)</i>
Potline 5 and Adjacent Courtyard <i>Technical Memorandum No. 38: Data Report—Former Potline 5 and Courtyard, Former Building 83 Complex, and Old West Ditch Investigations, Post-Demolition RI/RA, RMC-Troutdale Facility (January 19, 2006)</i>
Potlines 1–4 & Courtyards <i>Technical Memorandum No. 27: Data Report—Former Potlines 1 Through 4 and Courtyards Geoprobe Investigation, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, February 24, 2005)</i>
Scrap Yard Road No data report generated. Visual removal. See Section 7.1.2.2.
Storage Area 1 <i>Technical Memorandum No. 16: Data Report—Storage Area 1 (East and South Sides of Building 39) Investigation, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, January 10, 2005)</i>
Storage Area 2 <i>Technical Memorandum No. 12: Data Report—East Field Electromagnetic Survey, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, November 30, 2004)</i> <i>Technical Memorandum No. 17: Data Report—Storage Area 2 (Building 47 Sandblast Area) Investigation, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, January 10, 2005)</i> <i>Technical Memorandum No. 40: Removal Action Report - Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, March 2006)</i>
Storage Area 3 <i>Technical Memorandum No. 18: Data Report—Storage Area 3 (East of Building 98) Investigation, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, January 10, 2005)</i> <i>Technical Memorandum No. 40: Removal Action Report - Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, March 2006)</i>
Storage Area 4 <i>Technical Memorandum No. 40: Removal Action Report - Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, March 2006)</i>
Storage Area 5/Bunker C <i>Technical Memorandum No. 19: Data Report—Storage Area 5 (East Plant, Inside Fence) Investigation, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, January 10, 2005)</i> <i>Technical Memorandum No. 40: Removal Action Report - Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, March 2006)</i>
Storage Area 6 <i>Technical Memorandum No. 40: Removal Action Report - Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, March 2006)</i>
Storage Area 7 <i>Technical Memorandum No. 40: Removal Action Report - Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, March 2006)</i>
West of Potline 5 <i>Technical Memorandum No. 40: Removal Action Report - Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, March 2006)</i>
West South Ditch <i>Technical Memorandum No. 40: Removal Action Report - Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, March 2006)</i>
Bldg 34 <i>Technical Memorandum No. 119: Data Report - Building 34 Induction Furnace Pit (Reynolds Metals Company, March 2006)</i> <i>Technical Memorandum No. 123: Data Report - Building 34 PCB Soils (Reynolds Metals Company, March 2006)</i>
Bldg 36 <i>Technical Memorandum No. 114: Data Report - Building 36 Soils (Reynolds Metals Company, March 2006)</i>
Bldg 52/52B <i>Technical Memorandum No. 124: Data Report - Building 52 Soils (Reynolds Metals Company, March 2006)</i>
Bldg 52A <i>Technical Memorandum No. 125: Data Report - Demolition Plan Confirmation Samples (Reynolds Metals Company, March 2006)</i>
Bldg 54 <i>Technical Memorandum No. 107: Data Report - Building 54 Soils (Reynolds Metals Company, March 2006)</i>
Bldg 54A <i>Technical Memorandum No. 125: Data Report - Demolition Plan Confirmation Samples (Reynolds Metals Company, March 2006)</i>
Bldg 54A-62 Trench <i>Technical Memorandum No. 111: Data Report - Building 54A and 62 Trench (Reynolds Metals Company, March 2006)</i>
Bldgs 55A, 58C, 66A Basements <i>Technical Memorandum No. 106: Data Report - Carbon Bake Furnace UST #1 Between Buildings 55 and 58 (Reynolds Metals Company, March 2006)</i> <i>Technical Memorandum No. 109: Data Report - Carbon Bake Furnace UST #2 Between Building 55 and 58 (Reynolds Metals Company, March 2006)</i> <i>Technical Memorandum No. 110: Data Report - Carbon Bake Furnace USTs #3, 4, 5, and 6 Between Buildings 58 and 60 (Reynolds Metals Company, March 2006)</i> <i>Technical Memorandum No. 102: Data Report - Building 66 USTs (Reynolds Metals Company, March 2006)</i>

Table 7-3
East Area Recent Documentation

Bldg 66

Technical Memorandum No. 102: Data Report - Building 66 USTs (Reynolds Metals Company, March 2006)

Bldg 71

Technical Memorandum No. 40: Removal Action Report - Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, March 2006)

Railroad (Center, East, West)

Technical Memorandum No. 125: Data Report - Demolition Plan Confirmation Samples (Reynolds Metals Company, March 2006)

Rectifier Building Filter Room

Technical Memorandum No. 113: Data Report - Building 1 Mercury Filter Room (Reynolds Metals Company, March 2006)

Rectifier Yard

Technical Memorandum No. 34: Data Report—Rectifier Yard, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, April 14, 2005)

Technical Memorandum No. 112: Data Report - Rectifier Yard (Reynolds Metals Company, March 2006)

Technical Memorandum No. 127: Data Report - Line 5 Rectifier Yard and North Transformer Pad (Reynolds Metals Company, March 2006)

West Railroad Fill/Embankment

Technical Memorandum No. 21: Data Report—South Plant RR Fill Embankment Investigation, Post-Demolition RI/RA, RMC-Troutdale Facility (CH2M HILL, January 10, 2005)

7.1.2.2 Other Activities

RMC elected to excavate several trenches in two areas of the plant to confirm the absence of plant waste materials. Specifically, two trenches were excavated in the north parking lot, which revealed only clean backfill containing brick. Also, three trenches were excavated in an area northwest of the diesel spill area, because interpretation of historical aerial photographs was not clear whether debris piles or vegetation once existed in this area. No plant wastes were discovered.

During RMC-Troutdale facility demolition, approximately 185,000 tons of brick and concrete were crushed for reuse onsite. *Technical Memorandum No. 126: Crushed Concrete* (Reynolds Metals Company, March 2006) (see Appendix, bound separately) provides further details on this activity. All of this material met onsite reuse goals, as described in the Demolition Plan, except for a slight exceedance in four of the stockpiles. With the approval of DEQ and EPA, these four stockpiles were placed in the carbon bake such that they were covered by a minimum of 4 feet of acceptable crushed concrete and brick. In addition to backfilling the carbon bakes, crushed concrete was used to make an 18-inch-thick pad that covers the southern half of the potrooms and casthouse. The pad's northern extent is the center of the potrooms, and the pad extends southward to the northern edge of the rail road tracks. The crushed concrete was also used as backfill in the remediated south landfill and west South Ditch areas. Additionally, crushed concrete was used to reconstruct access roads within the facility.

Three sections of historical wooden pipeline were removed in the northern field between the site entrance road and the Sandy Drainage District Dike. This wooden pipe was a historical connection between plant wastewater discharge and Company Lake. The pipeline was abandoned many years earlier, but these small sections had not been removed. The pipe was removed and approximately 28 tons of material was disposed of offsite at the Wasco County Landfill.

A facility road that was placed between the north and south scrap yards was removed. The material base for the road was similar to the material found in the north and south scrap yards. The removal was based upon visual observations. Approximately 3,403 tons of material was removed from this location and disposed of in the Wasco County Landfill.

7.1.3 Summary of Cleanup Activities

Significant effort was invested to thoroughly investigate and remediate the East Area. Facilities located within the East Area have been fully demolished, and areas of relevant soil contamination have been removed. Reports documenting the cleanup actions are located in the Appendix (bound separately). All areas were remediated by excavation and disposal of materials at appropriate offsite landfills. The carbon bake area, which contained COPCs at depth (8 feet below ground surface [bgs]) at concentrations slightly above cleanup goals, was backfilled and regraded with clean crushed brick and concrete (above 4 feet bgs) that meet onsite reuse goals specified in the Demolition Plan.

Table 7-4 summarizes the investigation and cleanup action dates, removal quantities, and final conclusions. Figure 7-2 illustrates the location of soil cleanup actions conducted in the East Area.

**Table 7-4
East Area Summary of Environmental Remediation Activities**

Item	Action Location	Removal Type	Investigation Date	Action Date	Quantity of Material Removed (Tons)	Conclusion
1	Diesel Spill Area	Early Removal Action	1993-1995	1994-1995	2,650	NFA
2	East Potliner Area - Spent Potliner	Early Removal Action	1994-1996	1995-1996	8,017	NFA
3	East Potliner Area - Disposal Soil	Early Removal Action	1994-1996	1995-1996	3,525	NFA
4	Cryolite Ponds	Early Removal Action	1993-1995	1995-1996	13,900	NFA
5	Bakehouse Sumps	Early Removal Action	1995	1997	283	NFA
6	Wet Electrostatic Precipitator (ESP)	Maintenance Activity	1996-1997	1997	1,193	NFA
7	Casthouse/PCB Spill Area	Early Removal Action and Maintenance Activity	1995-1996	1997	515	NFA
8	South Ditch	Maintenance Activity	1993, 1995-1996	1995, 1998-1999	8,775	NFA
9	Scrap Yard	Early Removal Action	1993-1995, 1997-1998, 2002	2002	11,590	NFA
10	South Landfill	Early Remedial Action	1993-1995, 1997-1998, 2002	2003	47,666	NFA
11	South Landfill *	Early Remedial Action	1993-1995, 1997-1998, 2002	2004	18,372	NFA
12	Scrap Yard - South	Early Remedial Action Supplement	1993-1995, 1997-1998, 2002	2004	11,328	NFA
13	East Plant Area - Plant Demolition Surface Soil **	Demolition Soil Removal	2002-2003	2004	7,276	NFA
14	East Plant Area - Plant Demolition Surface Soil **	Demolition Soil Removal	2002-2005	2005	23,112	NFA
15	Casthouse/PCB Spill Area	Demolition/Post-Demolition Soil Removal	1995-1996, 2005	2005	233	NFA
16	Building 97 Area	Post-Demolition Soil Removal	1995, 2004	2005	3,546	NFA
17	Building 98 Area	Post-Demolition Soil Removal	1994, 1995, 2004-2005	2005	3,295	NFA
18	Bunker C Area	Post-Demolition Soil Removal	None	2005	3,217	NFA
19	Cryolite Plant Area	Post-Demolition Soil Removal	2005	2005	7,341	NFA
20	North Field Area	Post-Demolition Soil Removal	2004-2005	2005	7,287	NFA
21	Rectifier Yard Volatile Organic Carbon Area	Post-Demolition Soil Removal	2004-2005	2005	391	NFA
22	Sample 12 Area (East of Building 36)	Post-Demolition Soil Removal	2005	2005	699	NFA
23	Sample Add 3 Area (East of Building 56)	Post-Demolition Soil Removal	2005	2005	1,321	NFA
24	South Bldg 34 Area	Post-Demolition Soil Removal	2005	2005	1,746	NFA
25	South Ditch (including North Bank)	Post-Demolition Soil Removal	2005	2005	10,017	NFA
26	Storage Area 2	Post-Demolition Soil Removal	2004	2005-2006	3,318	NFA
27	Storage Area 3	Post-Demolition Soil Removal	2004	2005-2006	4,714	NFA
28	Storage Area 4	Post-Demolition Soil Removal	None	2005-2006	7,844	NFA
29	Storage Area 5	Post-Demolition Soil Removal	2004	2005	1,763	NFA
30	Storage Area 6	Post-Demolition Soil Removal	2004-2005	2005-2006	1,791	NFA
31	Storage Area 7	Post-Demolition Soil Removal	2005	2005	1,868	NFA

**Table 7-4
East Area Summary of Environmental Remediation Activities**

Item	Action Location	Removal Type	Investigation Date	Action Date	Quantity of Material Removed (Tons)	Conclusion
32	Field West of Potline 5	Post-Demolition Soil Removal	1994, 2004-2005	2005-2006	17,282	NFA
33	Scrapyard Area Road	Post-Demolition Soil Removal	None	2005-2006	3,403	NFA
34	West Railroad Fill/Embankment	Post-Demolition Soil Removal	2004	2006	2,961	NFA
35	East of Bldg 52	Post-Demolition Soil Removal	None	2006	1,356	NFA
36	Mineral Spill Area	Removal Assessment	1995	No Action Required	0	NFA
37	East Parking Lot	Post-Demolition Assessment	2004	No Action Required	0	NFA
38	East Field	Post-Demolition Assessment	2004	No Action Required	0	NFA
39	Old West Ditch	Post-Demolition Assessment	2004	No Action Required	0	NFA
40	Old West Ditch Forebay	Post-Demolition Assessment	2004	No Action Required	0	NFA
41	Storage Area 1	Post-Demolition Assessment	2004	No Action Required	0	NFA
42	Maintenance Activity Areas ***	Post-Demolition Assessment	2004-2005	No Action Required	0	NFA
43	North Parking Lot	Post-Demolition Assessment	2004-2005	No Action Required	0	NFA
44	Potlines 1-5 and adjacent Courtyard	Post-Demolition Assessment	2004-2005	No Action Required	0	NFA
EAST AREA TOTAL					243,594	

Notes:

NFA = no further action necessary.

PCB = polychlorinated biphenyl

* Adjusted for Fairview Farms debris piles, west South Ditch, and south wetlands PCB spill, all of which are counted elsewhere.

** East Plant Area - Plant Demolition Surface Soil including the following (tonnage was not individually tracked):

- Soils adjacent to RPM-sided buildings from Buildings 30, 32, 32A, 36, 52, 52A, 52B, 54, 54A, 55, 55A, 56, 58C, 60, 66, and 66A.
- Process material tracked from Buildings 32A, 52, 52B, 54, 54A 55, 56, 60, 64, 66, 71, and 83 Complex.
- Process materials spilled along the railroad tracks including ballast.
- TPH soils from the Rectifier Yard, Building 30, and Building 54A Trench.
- Carbon Bake underdrain tile system and surrounding soils.

*** Maintenance Activity Areas including focused investigation of Buildings 30, 32C, 37, 37A 41A, 44, 53, 46, 56, 56B, 62, 62A, and 64.

More than 243,000 tons of soil, debris, and brick were removed from these areas in 1994–2006 and disposed of offsite. This tonnage includes more than 30,000 tons removed as part of the plant demolition activities and more than 85,000 tons removed as part of the post-demolition remedial investigation. Remediation was guided by the cleanup goals established for the project. Actions were conducted under the review of and approval from EPA and DEQ. No further investigation or action is considered necessary in this area.




7.2 Current Site Condition and Status

The East Area is currently flat, with no structures or aboveground improvements except multiple groundwater monitoring and extraction wellheads and one small building near the fence in the northeast corner of the area. This building (Building 70) houses the equipment needed to operate the onsite focused extraction/production well optimization (FE/PWO) groundwater remediation system and is connected to multiple groundwater extraction wells via buried pipelines.

All other facility structures, paved areas, and most foundations to approximately 8 feet bgs have been demolished and removed from the site in accordance with the Demolition Plan. The East Area was thoroughly sampled during and following plant demolition. As a result of extensive investigations and removal, remedial, and owner-initiated actions conducted throughout the East Area from 1993 to 2006, a sufficient amount of site information and analytical data is available to accurately document risk-based conditions at the East Area within the post-demolition RA.

Figure 7-1
East Area
Investigation Areas
RMC-Troutdale Facility
 Troutdale, Oregon

Legend

-  Investigation Areas
-  Property Owned by Others
-  East Exposure Area

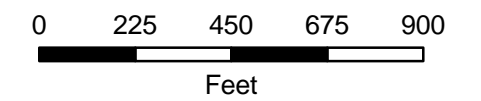
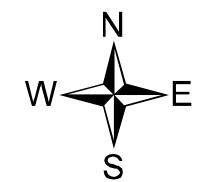
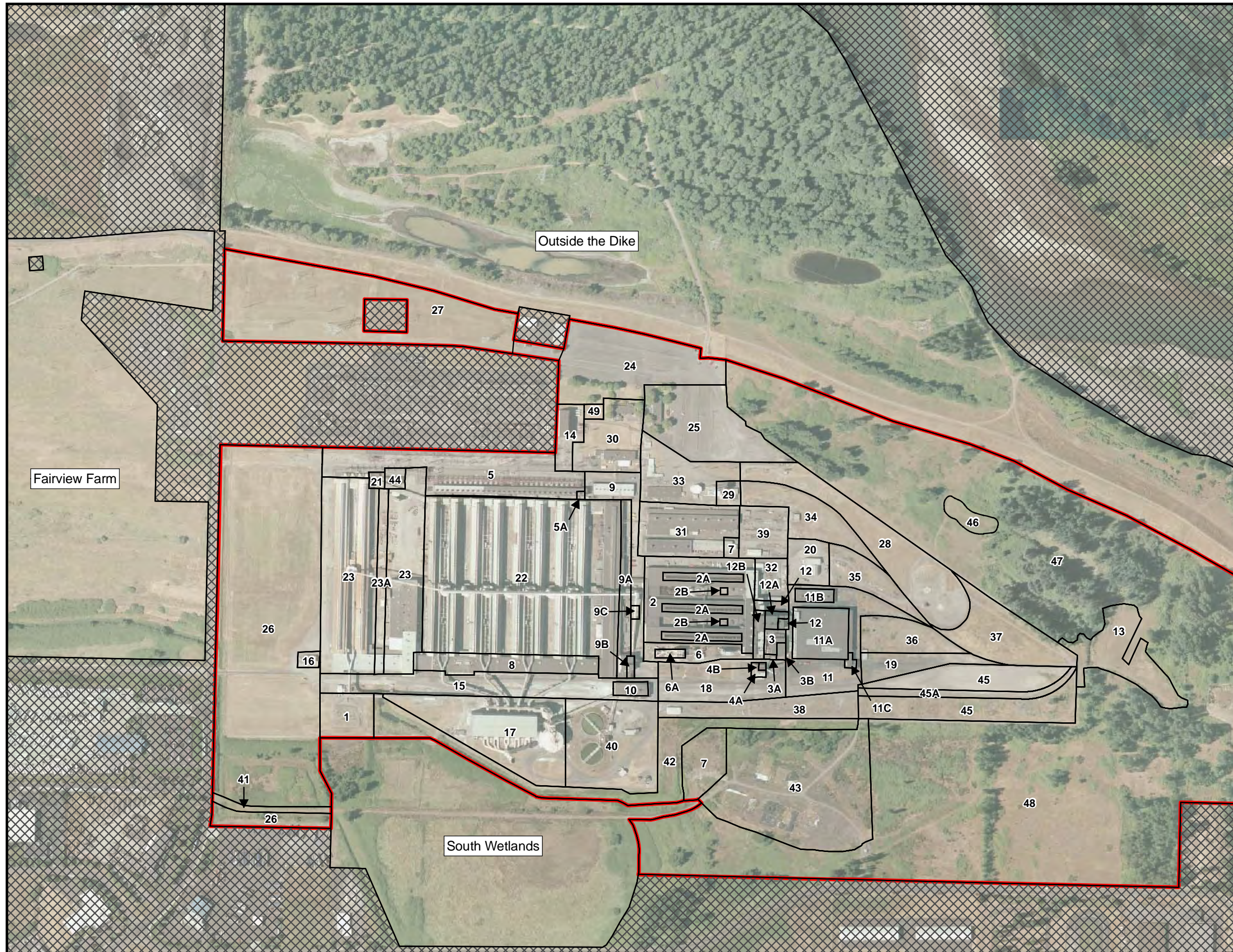




Figure 7-2
East Area
Remediation Areas
RMC-Troutdale Facility
 Troutdale, Oregon

Legend

-  Approximate Other Remediation Areas
-  Demolition Remediation Areas

NOTES:

- 1) PLANT STRUCTURES SHOWN IN THIS PHOTOGRAPH ARE FOR REFERENCE ONLY.
- 2) AERIAL PHOTOGRAPHS WERE TAKEN IN 2003.
- 3) PLANT DEMOLITION IS COMPLETE. MOST ALL STRUCTURES HAVE BEEN REMOVED.

