

**Fourth Five-Year Review Report  
For**

**Allied Plating, Inc  
Superfund Site  
Portland, Oregon**

September 2013

Prepared by EPA Region 10, Seattle, Washington

Approved by:

Date:

*Cami Grandinetti*

9/17/13

Cami Grandinetti  
Environmental Cleanup Office  
EPA Region 10

Next Review

The next FYR for this site will be conducted five years from the signature date of this FYR in September 2018 if it is still required. This review concluded that restrictions are not required on the groundwater, and that the site is safe for unrestricted use and unlimited exposure. EPA plans to issue an Explanation of Significant Differences or other decision document to document these conclusions. If this occurs prior to the next review, this will be the final Five-Year Review for this site.

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Date:					

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## Executive Summary

The Allied Plating, Inc., chrome plating facility operated in Northeast Portland from 1957 until 1984 when the company declared bankruptcy and ceased operations. Discharge of liquid wastes from the plating process was the main source of environmental contamination, with the most serious problem resulting from plating wastes discharged to a pond on site. The metals in the plating wastewater precipitated out, forming a layer of chemicals on the bottom of a surface impoundment (an artificial pond created when land filling cut off drainage.) The site was proposed for inclusion on the National Priorities List January 22, 1987, and was listed February 2, 1990.

EPA conducted a Remedial Investigation (RI) at the Allied Plating Superfund Site between January 1990 and April 1992. The RI determined that the contamination of the site was mainly limited to the layer of plating waste formed in the surface of the impoundment area. At the end of the RI, the site was evaluated for a potential Removal Action as part of the Superfund Accelerated Cleanup Model (SACM) Program. The site met the criteria for remediation by a Removal Action and between October 20, and November 10, 1992, the plating waste in the impoundment area was excavated and shipped off site for disposal.

A risk assessment conducted after the Removal was completed concluded that the site no longer posed an unacceptable risk under an industrial scenario and very nearly met the criteria for unrestricted use and unlimited exposure. A no further action Record of Decision was signed in 1993. The site was deleted from the National Priorities List on November 11, 1994.

This is the fourth Five-Year Review for the Allied Plating Site. This review concluded that the remedy remains protective of human health and the environment. This conclusion is the result of re-evaluating the residual risks at the site both at the end of the Removal Action, and under the current site conditions. The review concluded that soils at the site are safe for unlimited use and unrestricted exposure. The review also concluded that no restrictions were needed for site groundwater, although EPA believed that it was prudent to keep the restrictions on the aquifer in place. Because this review concluded that restrictions are not required on the groundwater, and that the site is safe for unrestricted use and unlimited exposure, once an Explanation of Significant Differences or other decision document that removes the requirement for restrictions on the groundwater, no additional Five-Year Reviews are required for this site.

The **Human Exposure Environmental Indicator** Status for the Site remains “Under Control”. Exposures that posed unacceptable risk were addressed by the removal action plus an Institutional Control to prevent use of shallow groundwater for drinking.

The **Groundwater Migration Environmental Indicator** Status for the Site remains “Not Applicable”. No contaminated groundwater migration was found at the site and conditions did not warrant groundwater remediation.

**Cross Program Revitalization Measure Status:** The Site has been considered “protective for people under current conditions” because the Institutional Controls had not been reviewed and verified. Now that the review has taken place, the site qualifies for a change in status to “Ready for Anticipated Use”.

**Five-Year Review Summary Form**

<b>SITE IDENTIFICATION</b>		
<b>Site Name:</b> Allied Plating Inc.		
<b>EPA ID:</b> ORD009051442		
<b>Region:</b> 10	<b>State:</b> OR	<b>City/County:</b> Portland, Multnomah
<b>SITE STATUS</b>		
<b>NPL Status:</b> Deleted		
<b>Multiple OUs?</b> No	<b>Has the site achieved construction completion?</b> Yes	
<b>REVIEW STATUS</b>		
<b>Lead agency:</b> EPA If "Other Federal Agency" was selected above, enter Agency name: Click here to enter text.		
<b>Author name (Federal or State Project Manager):</b> Kevin Rochlin		
<b>Author affiliation:</b> EPA		
<b>Review period:</b> 05/06/2013 – 08/30/2013		
<b>Date of site inspection:</b> 7/3/2013		
<b>Type of review:</b> Statutory		
<b>Review number:</b> 4		
<b>Triggering action date:</b> 09/08/2008		
<b>Due date (five years after triggering action date):</b> 09/08/2013		
<b>Issues/Recommendations</b>		
<b>OU(s) without Issues/Recommendations Identified in the Five-Year Review:</b>		
01		
<b>Sitewide Protectiveness Statement (if applicable)</b>		
<i>Protectiveness Determination:</i> Protective		<i>Addendum Due Date (if applicable):</i> Click here to enter date.
<i>Protectiveness Statement:</i>		

The remedy remains protective of human health and the environment.

## **I. Introduction**

### **A. Purpose of the Five-Year Review**

Region 10 of the Environmental Protection Agency (EPA) has conducted a fourth Five-Year Review of the Allied Plating, Inc (Allied Plating or Site), and prepared this report consistent with the requirements of Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended in Section 300.430(f)(4)(ii) of the National Contingency Plan (NCP).

The United States Environmental Protection Agency - Region 10 (EPA) is preparing this fourth Five-Year Review pursuant to the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) § 121 and the National Contingency Plan (NCP). CERCLA § 121 states:

*If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

EPA has interpreted this requirement further in the National Contingency Plan (NCP); 40 CFR §300.430(f)(4)(ii), which states:

*If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

A review is required by statute due to the fact that some of the remedial actions at the Site have resulted in contaminants remaining on the site above levels allowing unlimited use. The purpose of this fourth Five-Year Review is to determine whether the remedy at the site is protective of human health and the environment. Methods, findings, and conclusions of this review are documented in this report.

This fourth Five-Year Review of the remedial actions implemented at the Allied Plating Site in Portland Oregon was conducted pursuant to the Office of Solid Waste and Emergency Response Directives 9355.7-03B-P. This report documents the results of the review. The review took place between May 2013 and August 2013. It was conducted by the EPA site manager for the site who has been managing the site since 1990.

The Allied Plating Superfund Site was remediated by a Removal Action (Removal) in 1992. A risk assessment conducted after the Removal was completed concluded that the site did not pose an unacceptable risk under an industrial scenario. A no further action Record of Decision (ROD) was signed in 1993. The site was deleted from the National Priorities List on November 11, 1994. Five years have elapsed since the last 5-Year Review on 09/08/2008, thus triggering this Five-Year Review.

## I. Site Chronology

**Table 1. Chronology of Site Events**

<b>Event</b>	<b>Date</b>
Final listing on the National Priorities List (NPL)	February 2, 1990
Remedial Investigation field work begins	November 1990
Action memorandum signed	October 16, 1992
Removal Action	October- November 1992
No further action Record of Decision (ROD) signed	June, 29, 1993
Construction Completion achieved	June 29, 1993
Site deleted from the NPL	November 14, 1994
First Five-Year Review	July 1, 1998
Second Five-Year Review	September 8, 2003
Third Five-Year Review	September 30, 2008

## II. Site History, Location and Description

### A. Location, Description, and Physical Site Characteristics

The Allied Plating site is located at 8135 Martin Luther King, Jr. (MLK) Boulevard in an industrial and commercial district of northeastern Portland, Multnomah County, Oregon (Figure 1). It is approximately 1,000 feet north of the intersection of MLK Boulevard and N.E. Columbia Boulevard, and 1,000 feet south of the Columbia Slough (Slough), a local drainage channel that merges with the Willamette River and then the Columbia River. The site operated as a chrome plating company from 1957 until 1984. Wastewater from plating operations was discharged to a swale draining to the Columbia Slough. Filling activities between the property and the slough cut off this drainage. The company continued its discharge which formed a surface impoundment on the property.

The site covers approximately 12 acres, and for the site investigation and cleanup was divided into three areas based on their historical usage (Figure 2). The southernmost section contained the administrative and storage building for the former Allied Plating business. This area was across the street from the location where plating activities occurred, and was not considered to be contaminated from operations.

The "layout area" contained the building housing the former plating operation and a storage yard. This area is presently occupied by Basic Fire Protection, a company making and installing fire prevention sprinkler systems. The "impoundment area" is the northern, low lying area of the property. This is the area where plating wastewater ponded as described below. As of this review the area continues to be used for storage of heavy equipment and other large items.

Prior to 1969, the property drained overland to the north, into a swale that led directly into the Slough. Wastewater from the plating facility was discharged to this natural drainage. In 1969, extensive backfilling with dirt and construction debris north of the site partially covered the swale, cut off the natural drainage, and left the northern end of the site 20 to 30 feet lower than the surrounding off-site areas. Wastewater discharged from the facility began to collect in this low lying area (the impoundment area) forming a 1.5 acre pond. Surface runoff from the Allied Plating site and surface water draining from the adjacent area contributed to the pond.

A combined sewer overflow (CSO) pipeline runs northerly under the impoundment area to an outfall in the Slough. The CSO line is a 36-inch square pipe constructed in 1928. During the 1992 Removal, a remote control video camera was used to inspect the pipeline. The pipeline was still in good condition, and not acting as a conduit for drainage from the pond.

## **B. Adjacent Land Uses**

The site is located in an area of light industry.

## **C. Groundwater**

A single unconfined aquifer, the Troutdale aquifer, was identified beneath the site. The aquifer was located 10 feet below ground surface in the impoundment area (equating to 10 feet above mean sea level.) The predominant groundwater flow direction was northwest.

A localized shallow perched groundwater aquifer was found in the vicinity of the impoundment area. This zone was located 5 feet below the surface (equating to 15 feet above mean sea level.). Following the draining of the pond, backfilling and paving (activities described below in IV and V), it can be surmised that this perched aquifer is no longer there or is significantly smaller. EPA has not, however, investigated to determine its current conditions.

## **D. Site History and Activities Leading to Contamination**

Available data indicate that prior to 1947, the site was vacant land most likely utilized as pasture. In 1947, the site was leased for use as a wrecking yard. In 1957, the building was leased by Mr. Ernest Stierly as the site for the Allied Plating, Inc., chrome plating facility which operated from that year until 1984 when the company declared bankruptcy and ceased operations.

Prior to 1969, wastewater from the facility was discharged to a swale leading to the Columbia Slough. After 1969, backfilling between the site and the slough cut off property drainage. The liquid waste discharged from the plating process continued, forming a surface impoundment (artificial pond) on the site. The metals in the plating wastewater precipitated out, forming a layer of plating waste on the

bottom of the impoundment.

In 1978, as a result of the discharge of wastewater to the pond, Oregon Department of Environmental Quality (ODEQ) required a compliance schedule for the installation of an onsite wastewater treatment system.

In 1980, ODEQ required the facility to get an Oregon Water Pollution Control Facility (WPCF) permit, and as a result of the wastewater discharge, EPA required Allied Plating to submit a Resource Conservation and Recovery Act (RCRA) Part A (hazardous waste permit) application. In 1981, the facility received interim status as a treatment, storage and disposal facility under RCRA, and in 1982 a WPCF permit was issued.

Mr. Stierly contracted with Sweet-Edward & Associates to install three groundwater monitoring wells. These wells were required under Allied Plating's RCRA Part A interim status. After Allied Plating ceased operations in 1984, the company did not conduct any additional groundwater monitoring or sampling, and the wastewater treatment system required by ODEQ was never installed. After the company stopped discharging liquid waste, the pond receded leaving a dry area covered with plating waste.

In September 1984, the U.S. EPA and ODEQ jointly requested closure and post closure plans from Mr. Stanley Hodes (the current site owner) as part of a requirement of a RCRA Part B permit.

In January, 1985, the Oregon Department of Transportation (ODOT) was informed that the pond encroached on the right-of-way of State Highway 99E (MLK Boulevard) and that ODOT shared the responsibility for site cleanup. Riedel Environmental Services (Riedel) was hired by the ODOT to prepare a closure plan for the site. Riedel installed 10 monitoring wells, hand-augered for soil samples at five locations, and collected two Slough sediment samples and five pond sediment samples. Results from the two studies showed that the groundwater in the vicinity of the site was contaminated with lead, nickel and chromium, and that there were high concentrations of metals in the impoundment area soils.

The next two years consisted of submissions of plans and other communications from the property owner and ODOT to the U.S. EPA and ODEQ, and reviews, comments and requests for further information from the agencies to ODOT and the property owner. In November 1986, when the closure plans were not accepted and actions under RCRA were not able to obtain site cleanup, EPA and ODEQ reached an agreement transferring program jurisdiction from RCRA to Superfund.

The site was proposed for inclusion on the National Priorities List January 22, 1987, and was listed February 2, 1990.

## **II. Response Actions**

### **A. Remedial Investigation**

In November 1990 EPA began field work for a Remedial Investigation (RI) of the site. The RI investigated contamination resulting from the direct discharge of wastewater or dumping of wastes, and the dispersal of these contaminants through the groundwater. The RI determined that site contamination was primarily limited to the impoundment area, and a Risk Assessment determined that the impoundment area was responsible for the majority of the risks associated with the site.

During pre-listing investigations both the shallow and Troutdale aquifers were found to be contaminated with nickel, chromium, and lead. However, results of the RI groundwater investigation showed that contamination related to site activities was no longer present. This was attributed to the fact that discharges from plating operations had ceased. The RI also found manganese in the groundwater up-gradient and down-gradient of the site. This was an area wide problem and so manganese was not addressed in risk management decisions made for the site (although it was included in the risk assessment for the RI).

During the RI, only one site well, which was located in the shallow perched groundwater aquifer beneath the impoundment area, was found to exceed drinking water standards for site contaminants. The well exceeded the standard for nickel. The risk assessment for the site concluded that it was unlikely that someone would drink water from this perched aquifer, and so it was not included in the future residential risk assessment for the site (only manganese found in the Troutdale aquifer was included in the risk assessment).

Based on the limited area of contamination, lack of evidence of contaminant migration since operations ceased, and plans to remove the remaining contaminant source, EPA concluded that no groundwater cleanup or further monitoring was necessary. Therefore, the last groundwater monitoring took place during the RI. The MCL and MCLG for nickel were remanded on February 9, 1995. This means that while many water suppliers continue to monitor nickel levels in their water, there is currently no EPA legal limit on the amount of nickel in drinking water. (Note that at the time of each subsequent review, including this review, there was still no drinking water standard for nickel.)

No action was required for the nearby laydown area, defined as the part of the property housing the plating building, parking lot, and back storage lot. The RI found this area to be well below the industrial remediation standards set for the site. For the residential scenario using conservative assumptions, hazard quotients were less than 1 and carcinogenic risk was less than  $1 \times 10^{-4}$ .

The layer of plating waste covering the impoundment area was found to pose a potential health threat such that it met the criteria for CERCLA action. The rest of the site was within EPA's acceptable risk range using the industrial scenario. The site was evaluated for a potential Removal Action as part of the Superfund Accelerated Cleanup Model (SACM) Program. After consideration of this and other potential cleanup options, EPA determined that remediating the impoundment area as a pre-Record of Decision Removal Action was the preferred option.

The Removal Action took place between October 20, and November 10, 1992.

## **B. Removal Action and Post Removal Risk Assessment**

EPA signed an Action Memorandum in October 1992 and the impoundment area was remediated by a Removal Action (Removal) (see Figure 2 for the area covered by the Removal). The selected goal of the Removal was to clean the site so that the Hazard Index would be less than or equal to 1, and the excess cancer risk would be less than or equal to  $1 \times 10^{-4}$  for the industrial scenario.

The cleanup levels were set at 1/4 the individual contaminant values equal to a Hazard Index of 1 (these values were lower than those corresponding to the acceptable cancer risk). The rationale for this approach is that the cleanup would result in a Hazard Index that at most would be 1 (4 x 1/4), this assumes an additive effect from the chemicals. Excavation continued until concentrations were below the following:

Antimony 200 mg/kg  
Arsenic 150 mg/kg  
Copper 20,000 mg/kg  
Nickel 10,000 mg/kg

EPA determined that the use of the industrial scenario was appropriate based on the fact that the site and vicinity historically were, and currently are used for industrial purposes, and would likely stay that way in the future. In addition, future use of the property for building residences would require filling the impoundment area to the grade of the layout area or the grade of MLK Boulevard (between 5 and 30 feet of fill). Thus, there would not be contact with any residual contamination.

During the Removal, the pond was drained, and approximately 900 tons of contaminated sediments and site soil were excavated, taken off-site and disposed of at Envirosafe Services, Inc., in Grandview, Idaho (a hazardous waste landfill.) The impoundment area (including the former pond) was then backfilled with one foot of quarry spalls (broken angular rock used to help stabilize muddy areas). The rock was leveled and graded with a bulldozer to leave a level, compacted surface. Approximately 5600 tons of rocks were placed as backfill. Following the Removal, the site monitoring wells were abandoned in accordance with Oregon Department of Environmental Quality regulations.

Following the completion of the Removal Action, EPA conducted a risk assessment on the contaminant concentrations remaining in the surface soils of the impoundment area. The contaminants of potential concern identified in the risk assessment included the following: for soils, antimony, arsenic, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, and cyanide; for groundwater, manganese. As noted earlier, because manganese was an area-wide problem it was included in the risk assessment, while nickel found in the shallow aquifer was not. The analysis assumed a lifetime exposure to the remaining residual contaminant concentrations. Under the industrial scenario, the impoundment area posed a risk of  $8 \times 10^{-6}$  and a Hazard Index of 0.35. For the residential scenario, the impoundment area posed a risk of  $8 \times 10^{-5}$  and a Hazard Index of 2.5. Those estimates were considered extremely conservative and were calculated to provide a worst case scenario. The actual risk likely would be much lower based on the facts that 1) future exposure would occur over the entire property, not just the impoundment area, thus the impoundment concentrations would be included with other areas of the property and have less impact on calculated risk; 2) the remaining contamination was then under one or more feet of rock, thus preventing any direct exposure to it; and 3) the area fills with water, and is below the surrounding grade, and so future residential or industrial use would require additional backfilling, resulting in covering the residual contamination by an additional 5 or more feet of backfill. Risks for the entire property are presented in Section IV. The 2008 site inspection noted that additional rock and fill have been added to this area.

Although shallow aquifer use was unlikely, following the Removal Action EPA had the site owner place a deed restriction on the property to prevent screening wells in or using the shallow aquifer for drinking water purposes, and to require testing of the deeper Troutdale aquifer beneath the site prior to use for

drinking. A copy of the restriction placed on the deed is in the Administrative Record for the site. The deed restriction contains the following language:

“The undersigned as owners of said tracts agree to burden the above described real property with a restriction prohibiting the use of a well for drinking water unless the top of the screened interval is deeper than 20' below mean sea level, and the water from the well is tested to ensure that it meets drinking water standards before use.”

### **C. Remedy Selection and Record of Decision**

Following completion of the removal action, EPA issued a Proposed Plan and then a Record of Decision which selected No Further Action as the remedy at the Allied Plating site. No further action was justified because:

- the contaminated areas of the site were remediated by a Removal Action which took place from October 20, to November 10, 1992;
- during the Removal Action, all site contamination above EPA's selected health based cleanup levels was excavated and disposed of in the hazardous waste disposal facility, Envirosafe Services, Inc., in Grandview, Idaho;
- The Removal had remediated the site to concentrations well below the industrial cleanup standards that were applied.
- Site related groundwater contamination above federal drinking water standards was present in only one well, which was contaminated with nickel. (Note: The MCL and MCLG for nickel were remanded on February 9, 1995.) The well was in the shallow aquifer in the vicinity of the pond. The concentration of nickel is expected to drop now that the source of contamination has been removed (the plating waste). No one is currently drinking the water, and the deed restriction should prevent future use of the groundwater.
- As a precaution, the Deed Restriction placed on the site was cited as an Institutional Control that would remain and preclude use of formerly contaminated groundwater. The presence of this deed restriction serves to provide notice to future purchasers of the property that the property was subject to an EPA cleanup and the shallow aquifer should not be utilized.

### **D. Remedy Implementation Status**

No site activities have been conducted since the last review. The site had been deleted prior to the last review. Although the remediation goal for the Removal Action was to remediate the site to industrial standards, the residual risk at the site is barely above residential Regional Screening Levels for the contaminants of concern.

**Institutional Controls:** As a precaution in the Record of Decision, the Deed Restriction placed on the site post-removal was cited as an Institutional Control that would remain and preclude use of formerly contaminated groundwater. The objective of the IC was to ensure that wells would not be screened in the shallow aquifer zone and if any wells are established and screened in the deeper Troutdale aquifer the water would be tested to ensure it meets drinking water standards. Due to the limited nature of the

perched aquifer, the extent of the restriction was appropriately limited to the former Impoundment Area on the site (Tracts H&L in Figure 3). In 2008 a Title Search was conducted by an EPA contractor which confirmed that the Deed Restriction recorded in May, 1993 was recorded properly and remains on the property records. The search report identified two prior encumbrances (one for power poles/maintenance and the other for streets), but neither is such that they would compromise the functioning of this Institutional Control or the remedy. EPA also confirmed that the property and surrounding properties remain zoned for industrial or commercial use, consistent with the cleanup goals used to guide the removal action. The 2008 review concluded that given the post-removal risk assessment results and elimination of the MCL for nickel in 1995 there is some question whether any restriction on use of the site remains necessary. See Figure 2 for a detail photo with site features and Figure 3 for property and institutional control boundaries from the title search.

### **III. Progress Since the Last Review**

The following statements are from the 1998 and 2008 review for the site they are still applicable for this fourth 5-Year Review:

No additional activities are required for this site. The site was remediated in 1992. In the fifteen years since the site was remediated, site inspections have noted that the area was filled with an additional 5 to 10 feet of additional fill preventing any incidental contact with the residual site contamination.

No CERCLA actions have taken place on the site since the last review.

The 2008 review left the following to be answered:

- Since use of the shallow aquifer is unlikely, does a control need to be placed on this aquifer?
- Is there a need to restrict the use of the Troutdale aquifer when the restriction was placed as a result of groundwater contamination that was not seen in the RI?
- There remains a concern that in an industrial area, the Troutdale aquifer may be contaminated from offsite areas. Should EPA continue to have a restriction on the property based for protection from non site related sources?

These questions raised in the last review, were considered and answered during this review.

- Because the only site contaminant found in the shallow aquifer of the site was nickel, which currently does not have a drinking water standard, and because the shallow aquifer is actually a perched zone recharged by surface run-off, EPA does not consider that the perched aquifer poses a risk which requires controls.
- Because site contaminants were not found in the Troutdale aquifer during the RI, EPA does not consider that this aquifer poses a risk that must be controlled.
- Although EPA does not believe that there is a risk posed to the aquifers in the site vicinity by the Allied Plating Site, because contamination was previously found in the Troutdale aquifer, EPA

considers it prudent to keep the control on the aquifer in place. However, because the contaminants are not related to site contaminants of concern, EPA will no longer be requiring these remain in place as a condition of remedy protectiveness, nor will EPA continue to ensure that the restrictions remain.

#### **IV. Fourth Five-Year Review Process**

##### **A. Activities**

The fourth Five-Year Review was conducted between May 6 and August 30 2013. The review consisted of a site inspection conducted on July 3, 2013, and qualitative re-evaluation of site risks. There has been no community interest for this site. Therefore there was no community interviews conducted. A newspaper notice was placed in the Oregonian to announce the review on May 17, 2013. Comments were requested by June 31, 2013. No comments were received.

##### **B. Site Visit**

EPA inspected the site on July 3, 2013. The site and surrounding properties are still used for industrial purposes. The impoundment area and the former laydown area have now been filled/graded to the same level, and the entire site is paved. The site is occupied by Pacific Coast Truck and Trailer LLC. The current filling activities have buried the former site surface under at least 5 to 10 feet of additional fill, in addition to the layer of pavement (Figure 4). Thus, there is no longer any direct exposure to the residual contamination.

##### **C. Evaluation of Site Risks**

This Five-Year Review evaluated the risks remaining at the site in order to determine whether additional reviews were warranted.

The laydown area was discussed in the last Five-Year Review with respect to its highest concentration. This discussion is repeated below.

The highest concentrations found in the laydown area are compared with with Regional Screening Levels in Table 2. These screening levels equate to a risk of  $1 \times 10^{-6}$  and a Hazard Quotient of 1. This comparison is extremely conservative as risk assessments rely on data for an entire area not just the highest values. As shown in Table 1, the only potential soil COC which exceeded levels that would allow the contaminant to be eliminated from further evaluation was nickel, which had a hazard quotient of 1.2. The risk for the reasonable maximum exposure industrial scenario is well below  $1 \times 10^{-6}$  and a Hazard Quotient of 1. The risk assessment conducted for the RI used all surface and shallow soil results to calculate risk. This equated to a risk of  $6 \times 10^{-5}$  and a Hazard Index of 0.5.

**Table 2: Comparison of the highest metal concentrations measured in the laydown area<sup>1</sup> during the RI to Regional Screening Levels**

Contaminant	Highest Site Concentration (ppm)	PRG for $1 \times 10^{-6}$ or HQ = 1 (ppm)
Chrome, assuming 1:6 ratio of chrome III to chrome IV	165	210
Copper	794	3,100
Nickel	1,930	1,600

<sup>1</sup> The laydown area consists of the part of the property housing the plating building, parking lot, and back storage lot. This area was not remediated.

The Record of Decision presented the post-Removal risks for the impoundment area. Assuming that 100% of the time was spent in the impoundment area, the risk was  $8 \times 10^{-5}$  and a Hazard Index of 2.5. Then using the assumptions in the risk assessment that 50% of the time would be spent in each part of the site, the calculated site risks are  $6 \times 10^{-5}$  with a Hazard Index of 1.5. This current evaluation excludes risk from drinking from the Troutdale aquifer (which were used in the ROD) since risks from groundwater were not from site contaminants, but rather were from contaminants found up-gradient and down-gradient of the site.

This is still extremely conservative as the site has been backfilled with rock and fill, and has been partially paved, leaving the residual 5 to 10 feet above the post removal surface.

## V. Technical Assessment

### A. Question A: Is the remedy functioning as intended by the decision documents? Yes.

The site was remediated successfully during the Removal. Following the Removal (and prior to the Record of Decision), the deed restriction limiting groundwater use was placed on the property. The EPA remedy called for no further action. This remedy decision is still valid.

- Institutional Controls were assessed as part of the previous review. As a precaution in the Record of Decision, the Deed Restriction placed on the site post-Removal was cited as an Institutional Control that would remain and preclude use of formerly contaminated groundwater. The presence of the Institutional Control required for this site was last verified in 2008 by a Title Search to ensure that the control remains in effect at the property and was properly recorded. This deed restriction serves to provide notice to future purchasers of the property that the property was subject to an EPA cleanup and the shallow aquifer should not be utilized.

The area subjected to the groundwater use restriction consists of two parcels (H & L) of the former Allied Plating property where the impoundment area and pond were located and the Removal took place. The nature and location of the site, availability of City water, and the limited nature of the shallow aquifer make use of the shallow aquifer very unlikely. This conclusion was also reached in the risk assessment for the site. The fill material at the site and the industrial/commercial zoning and nature of the area around the site seem sufficient to preclude further disturbance of the site or potential exposure

to any residual contamination, and the estimated risks even if exposure occurred are so that no additional controls appear warranted.

Conclusion: The remedy is functioning as intended by the decision documents.

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

There have been no changes in the physical conditions of or land use at or near the site that would affect the protectiveness of the remedy. As part of this review, EPA confirmed that the current land use remains industrial/ commercial and has determined the reasonably anticipated future land use at the site for the foreseeable future remains industrial or commercial.

For the industrial scenario, the conservative risk assessments done before the ROD found the impoundment area post-removal and the laydown area without remediation to be in or below the  $10^{-6}$  risk range and well below the Hazard Index of 1.

Using the residential scenario assuming contact with post-Removal residual site soil only in the impoundment area, risk was estimated to potentially be up to  $8 \times 10^{-5}$ , and above the Hazard Index of 2.5. However, this area was then covered with rock and an additional 5 to 10 feet of fill and partially paved, making contact virtually impossible, the residential risk exposure assumptions and risk estimates thus are extremely conservative.

In the laydown area, the highest concentration of nickel exceeded the residential Regional Screening Levels, resulting in an estimated Hazard Quotient of about 1.2 (given the uncertainty in these numbers, the difference between hazard quotients of 1 and 1.2 is not significant.) Its use here is appropriate to show that even the highest contaminant concentrations found are not significant. Using the risk calculated in the risk assessment, the Hazard Index for this area was 0.5. The current residential overall risk for the site is  $6 \times 10^{-5}$  with a Hazard Index of 1.5.

Based on the information considered in this review, EPA has determined that conditions at the site allow for unrestricted use of and unlimited exposure to the soils at the site. As a result, no Institutional Controls are required to limit the site to industrial use.

As to standards and/or toxicity values, the MCL and MCLG for nickel were remanded on February 9, 1995. This means that while many water suppliers continue to monitor nickel levels in their water, there is currently no EPA legal limit on the amount of nickel in drinking water. EPA had institutional controls placed on the site to prevent drinking contaminated water in the shallow aquifer, and to ensure that drinking the Troutdale aquifer was safe. During site discovery, elevated levels of lead, chromium and nickel were found in both the shallow and Troutdale aquifers. However, at the time of the remedial investigation, the only contaminant found above the MCL was nickel, which was found in the shallow aquifer. Because water in this shallow aquifer exceeded the nickel MCL, EPA placed a restriction on the property prohibiting its use. The area has city water, as well as a large aquifer flowing beneath the site (the Troutdale aquifer). The recharge to the shallow aquifer at the site is mainly street runoff from the adjacent Martin Luther King, Jr. Avenue and thus yield would be low, making use of the shallow aquifer unlikely given the other options.

lthough RI sampling did not find contamination in the Troutdale aquifer, because this aquifer had been contaminated, EPA required the restriction on the deed calling for water sampling in the deep Troutdale aquifer before use. Because the area is industrial, and there is a potential for the aquifer to be contaminated from other sources, EPA believes that testing of the Troutdale aquifer before use is important. However, this should be done regardless and not required based on this CERCLA action or previous contamination concentrations.

**C. Question C: Has any information come to light that could question the protectiveness of this remedy?**

There have been no changes in land use since the remedy was implemented. The area remains zoned and the site and surrounding areas are still used for industrial and/or commercial uses, and the remedy was so successful that the residual risk would be extremely low even in the unlikely event of residential use. Given the success of the remedy the Site meets the EPA requirements for designation as “Ready for Anticipated Use”.

There are no new ecological risks that have come to light since remedy implementation, no natural disasters have impacted the remedy, and there is no additional information which raises questions about the remedy. Based on current information, no information calls into question the protectiveness of the remedy.

**D. Technical Assessment Summary**

According to the data reviewed and the site inspection, the remedy is functioning as intended by the decision documents. There have been no changes to the physical conditions of the site that would affect the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

This review concluded that restrictions are not required on the groundwater, and that the site is safe for unrestricted use and unlimited exposure, EPA plans to issue an Explanation of Significant Difference or other decision document to document these conclusions. If this occurs prior to the next review, this will be the final Five-Year Review for this site.

**VI. Issues**

This review identified no new issues which affect protectiveness. On the contrary, the review again concluded that the risk assessment relied upon in the remedy decisions were conservative and even under the conservative parameters, site conditions allow for unrestricted use and unlimited exposure to soils.

In addition, this review again raised the question of whether the Groundwater Institutional Control placed on the Site post-Removal and adopted in the No Further Action ROD remains necessary. The control placed on the Troutdale aquifer requiring sampling was based on contamination found prior to the RI, and not during the RI.

This review concluded that restrictions are not required on the groundwater, and that the site is safe for unrestricted use and unlimited exposure, EPA plans to issue an Explanation of Significant Difference or other decision document to document these conclusions. If this occurs prior to the next review, this will be the final Five-Year Review for this site.

## **VII. Recommendations and Follow-up Actions**

There are no recommendations or follow-up actions which affect protectiveness.

## **VIII. Protectiveness Statement**

The remedy remains protective of human health and the environment.

## **IX. Next Review**

The next FYR for this site if required, will be conducted five years from the signature date of this FYR in September 2018. This review concluded that restrictions are not required on the groundwater, and that the site is safe for unrestricted use and unlimited exposure, EPA plans to issue an Explanation of Significant Difference or other decision document to document these conclusions. If this occurs prior to the next review, this will be the final Five-Year Review for this site.



Figure 2: Allied Plating Site Areas

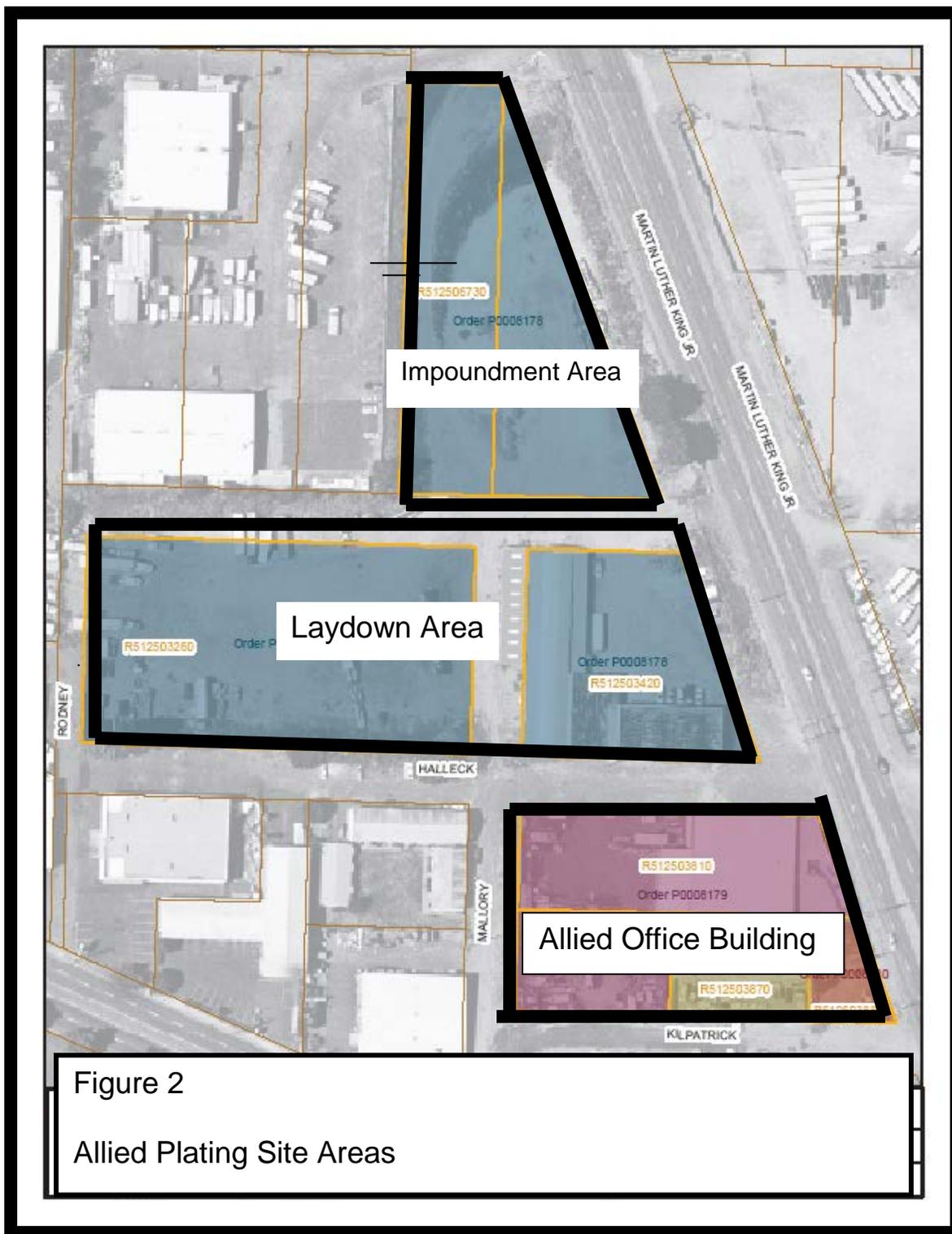
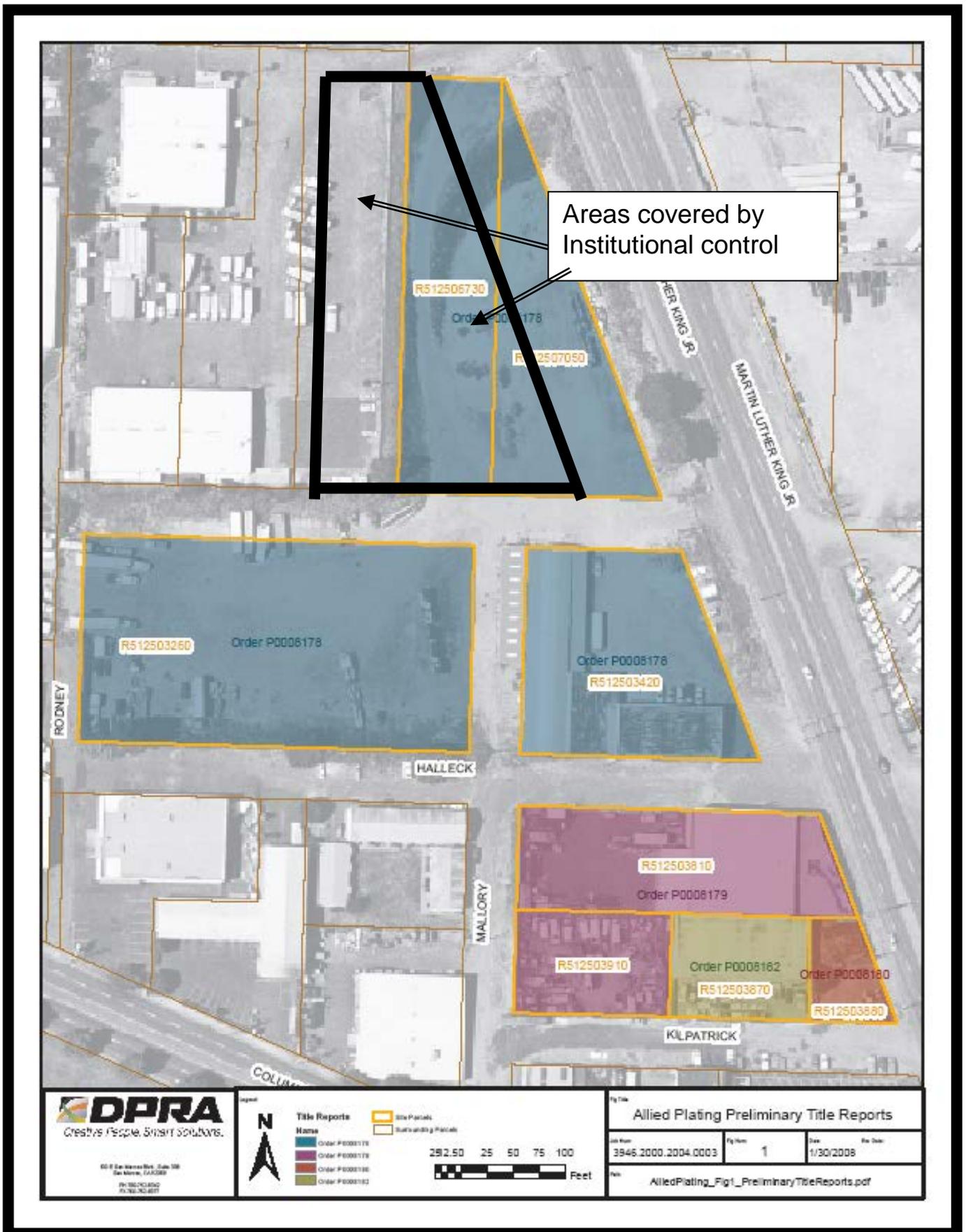


Figure 3: Property and Institutional Control Boundary



**Figure 4: Photo of Current Site Conditions**



View of the site looking south. Picture shows the former impoundment area and extent of filling. Darker cover is compacted rock, and lighter cover is paving. There is no longer an elevation difference between the laydown area and the former impoundment area. The road on the left of the picture is Martin Luther King Jr. Boulevard.