



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

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June 15, 2018

Kathryn Mitchell, Environmental Manager  
Intalco Aluminum Corp  
4050 Mountain View Road  
Ferndale, WA 98248

**Re: Notice of Periodic Review Conducted for the Following Site:**

- **Name: Triple Lined Landfill, Intalco Aluminum Corp Ferndale**
- **Address: 4050 Mountain View Road, Ferndale, WA**
- **Ecology Facility/Site ID No.: 16**
- **Ecology Cleanup Site ID No.: 2280**

Dear Ms. Mitchell:

Under the Model Toxics Control Act (MTCA), Chapter 70.105D RCW, which governs the cleanup of hazardous waste sites in Washington State, the Department of Ecology (Ecology) must conduct a periodic review of all sites with institutional controls and environmental covenants every five years. This letter serves to inform you that a periodic review has been conducted for the Triple Lined Landfill at the Intalco Aluminum Corp Ferndale site.

The periodic review process includes the following steps: confirmation that the environmental covenant is still active and recorded with the title to the property, a review of any monitoring data collected since the cleanup was completed or since the last review was conducted, and a site visit to confirm the institutional controls and conditions of the environmental covenant are being followed.

Based on the information collected during this periodic review, the Triple Lined Landfill cleanup appears to meet the requirements of Chapter 173-340 WAC, and the selected remedy continues to be protective of human health and the environment.

Ecology provided notice and an opportunity for public comment on the periodic review from November 9 to December 11, 2017. Ecology received one comment during the comment period. Ecology's response to the comment received has been included in Section 12 of the attached report.

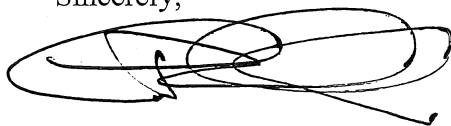


Periodic Review for Intalco Aluminum  
June 14, 2018  
Page 2

A periodic review will continue to be required every five years as long as institutional controls and/or an environmental covenant are required to protect human health and the environment. The next periodic review is planned in October 2022.

If you have any questions regarding this letter or if you would like additional information regarding the cleanup of hazardous waste sites, please call me at 360-407-6999. Thank you for your cooperation.

Sincerely,

A handwritten signature in black ink, appearing to read 'Garin Schrieve', with a large, stylized flourish extending from the end of the signature.

Garin Schrieve, P.E.  
Industrial Section

Enclosure



## **PERIODIC REVIEW**

**Intalco Aluminum Corporation  
Triple Lined Landfill  
Facility Site ID#: 16**

**4050 Mountain View Road  
Ferndale, WA**

**Industrial Section  
Waste 2 Resources Program**

**October 2017**

## Table of Contents

<b>1.0</b>	<b>Introduction.....</b>	<b>5</b>
<b>2.0</b>	<b>Summary of Site Conditions .....</b>	<b>6</b>
2.1	Site Description and History .....	6
2.2	Waste Streams and Volumes.....	6
2.3	Groundwater Monitoring.....	7
<b>3.0</b>	<b>TLL Closure .....</b>	<b>8</b>
3.1	TLL Closure Activities.....	8
3.2	Leak Detection System Investigation.....	8
<b>4.0</b>	<b>TLL Restrictive Covenant and Survey Plat Requirements .....</b>	<b>9</b>
<b>5.0</b>	<b>Periodic Review .....</b>	<b>9</b>
5.1	Effectiveness of Completed Cleanup Actions.....	9
5.2	New Scientific Information for Individual Hazardous Substances for Mixtures Present at the Site.....	9
5.3	New Applicable State and Federal Laws for Hazardous Substances Present at the Site.	9
5.4	Current and Projected Site Use .....	10
5.5	Availability and Practicability of Higher Preference Technologies.....	10
5.6	Availability of Improved Analytical Techniques to Evaluate Compliance with Cleanup Levels	10
<b>6.0</b>	<b>Conclusions.....</b>	<b>10</b>
6.1	Next Review.....	11
<b>7.0</b>	<b>References.....</b>	<b>11</b>
<b>8.0</b>	<b>Figures.....</b>	<b>12</b>
8.1	Vicinity Map .....	12
8.2	Site Map .....	13
8.3	Intalco Monitoring Well Locations .....	14
<b>Section 9.0</b>	<b>Tables.....</b>	<b>15</b>
<b>10.0</b>	<b>Environmental Covenant .....</b>	<b>17</b>
<b>11.0</b>	<b>Photo Log.....</b>	<b>19</b>
	Photo 1: Top of TLL looking north.....	19
	Photo 2: East side TLL anchor trench looking north .....	20
	Photo 3: TLL north side Leak Detection Monitor 1 (LD1).....	21
	Photo 4: TLL south side Leak Detection Monitor 2 (LD2) .....	22



Photo 5: TLL south side anchor trench .....	23
Photo 6: TLL pump station .....	24
Photo 7: TLL Leak Detection Monitor 3 (LD-3) .....	25
<b>12.0 Response to Comments.....</b>	<b>26</b>

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**Special Accommodations**

To request ADA accommodations for disabilities, or printed materials in a format for the visually impaired, call the Department of Ecology at (360) 407-7668. Persons with impaired hearing may call Washington Relay Service at 711. Persons with a speech disability may call TTY at (877) 833-6341.

## 1.0 Introduction

This document is a review by the Washington State Department of Ecology (Ecology) of post-cleanup site conditions and monitoring data to ensure that human health and the environment are being protected at the Intalco Aluminum Corporation Ferndale facility (Site). Remedial action was undertaken at the Triple Lined Landfill (TLL) under Consent Decree No. 07-2-00181-2 between Ecology and Intalco Aluminum Corporation. Remedial action at the TLL was implemented under the Model Toxic Control Act (MTCA) regulations, Chapter 173-340 Washington Administrative Code (WAC). A periodic review of Intalco's Beach I, Beach II, Closed Construction Debris, and Double-Lined Landfills is not included in this report. The review for these landfills was completed in October 2015 and will not be due again until 2020.

The TLL is a limited purpose landfill constructed to receive select solid and dangerous wastes resulting from the aluminum smelting process, including spent potliner (SPL) and sludge from the secondary wastewater treatment system. The TLL was also approved for a one-time use as a disposal facility for soil regulated under the Toxics Substances Control Act generated during the remediation of a historical shoreline waste impoundment. Intalco now transports these wastes off site for disposal.

The TLL was constructed in phases beginning with the original west cell in 1986. The east cell was constructed in 1990. The TLL underwent closure activities between 2005 and 2011 as documented in the Closure Report, Intalco's Triple-Lined Landfill (Anchor QEA 2012).

The MTCA cleanup levels for soil are established under WAC 173-340-740. The MTCA cleanup levels for groundwater are established under WAC 173-340-720. WAC 173-340-420 (2) requires that Ecology conduct a periodic review of a Site every five years under the following conditions:

- (a) Whenever Ecology conducts a cleanup action.
- (b) Whenever Ecology approves a cleanup action under an order, agreed order, or consent decree.
- (c) Or, as resources permit, whenever Ecology issues a no further action opinion, and one of the following conditions exists:
  - 1. Institutional controls or financial assurance are required as part of the cleanup.
  - 2. Where the cleanup level is based on a practical quantitation limit.
  - 3. Where, in Ecology's judgment, modifications to the default equations or assumptions using Site-specific information would significantly increase the concentrations of hazardous substances remaining at the Site after cleanup or the uncertainty in the ecological evaluation or the reliability of the cleanup action is such that additional review is necessary to assure long-term protection of human health and the environment.

When evaluating whether human health and the environment are being protected, the factors Ecology shall consider include [WAC 173-340-420(4)]:

- (a) The effectiveness of ongoing or completed cleanup actions, including the effectiveness of engineered controls and institutional controls in limiting exposure to hazardous substances remaining at the Site.
- (b) New scientific information for individual hazardous substances or mixtures present at the Site.
- (c) New applicable state and federal laws for hazardous substances present at the Site.

- (d) Current and projected Site use.
- (e) Availability and practicability of higher preference technologies.
- (f) The availability of improved analytical techniques to evaluate compliance with cleanup levels.

Ecology will publish a notice of all periodic reviews in the Site Register and provide an opportunity for public comment.

## **2.0 Summary of Site Conditions**

### **2.1 Site Description and History**

Intalco is located at 4050 Mountain View Road in Ferndale, Washington, in Whatcom County. A vicinity map is shown in Figure 6.1 and the location of the TLL is provided in Figure 6.2. The aluminum production facility consists of approximately 320 acres on a 1,200-acre upland tract. The Intalco site location map is shown in Figure 6.2. The Intalco plant has operated continuously at the Ferndale location from May 8, 1966 to the present, with the exception of a temporary curtailment from June to December 2001. The Triple-Lined Landfill (TLL) is a limited purpose landfill constructed to receive select solid and dangerous wastes resulting from the aluminum smelting process, primarily spent potliner (SPL) and sludge from the secondary wastewater treatment system. In 1988, Intalco stopped disposing of SPL in the TLL and began shipping SPL to an off-site facility. During this time, Intalco continued to dispose of secondary wastewater treatment plant sludge in the TLL. Intalco resumed disposing of SPL and began disposing of solid waste in the TLL in 2007.

The TLL was constructed in phases with the original cell constructed in 1986 and a lateral extension constructed in 1990. In 1992, a second cell of the TLL was constructed. The TLL was designed to meet the regulations for Interim Status Hazardous Waste Landfills (40 CFR 265) under the Resource Conservation and Recovery Act (RCRA) and for Dangerous Waste Landfills under WAC 173-303. The TLL is currently regulated under Interim Status per WAC 173-303-805. In June 2011, capacity was reached at the TLL and closure was completed on November 28, 2012 as part of the Intalco Landfill Closure Program.

### **2.2 Waste Streams and Volumes**

The TLL has been used to manage the waste materials listed in Table 1. Intalco disposed of SPL and secondary wastewater treatment plant sludge continuously throughout the life of the landfill, with the exception of a period between 1988 and 2007 when SPL was disposed of off-site. During remediation of historic landfills [Beach I Landfill (BI), Beach II Landfill (BII), Closed Construction Debris Landfill (CCDL), and the Double-Lined Landfill (DLL)], a small volume of remediation waste regulated under the Toxic Substances Control Act (TSCA) was approved by the U.S. Environmental Protection Agency for disposal in the TLL in 2005. In 2007, Intalco began disposing of non-dangerous solid waste in the TLL that would have otherwise been disposed of in the DLL.

**Table 1. TLL Waste Types and Quantities**

<b>Waste Material</b>	<b>Estimated Quantity (cy)</b>	<b>Estimated Quantity (tons)</b>
Spent Potliner (K088) and Secondary Wastewater Treatment Plant Sludge	75,600	98,300
Non-TSCA Remediation Waste from Beach II	14,960	20,200
TSCA Remediation Waste from Beach II	22,660	30,600
General Plant Solid Waste	43,800	52,550

### 2.3 Groundwater Monitoring

Groundwater is monitored from the uppermost aquifer located near the three solid and dangerous waste landfills (CCDL, DLL, and the TLL) at Intalco. Eleven monitoring wells are included in the post-closure groundwater monitoring program. The post-closure plan for the TLL requires monitoring of groundwater quality and reporting on the groundwater flow rate and direction on a quarterly basis once every five years during the 30-year post-closure period, which began in 2012. Post-closure monitoring is conducted during the year prior to the 5, 10, 15, 20, 25, and 30 monitoring years.

The groundwater quality during four rounds of monitoring in 2015 was generally consistent with groundwater data collected from 1988 through 2011, the operational groundwater monitoring period. Four wells met the primary and secondary Maximum Contaminant Level (MCL) for all constituents. In the remaining seven wells, the following parameters exceeded the secondary MCLs for one or more quarterly monitoring events in 2015:

- Chloride (secondary MCL) in well SMW-12.
- The pH levels (secondary GWQS; below the lower limit of 6.5) in wells SMW-06, SMW-10, SMW-12, SMW-14, and SMW-15.
- Specific conductance (secondary MCL) in wells SMW-03- SMW-12, and SMW-13 (background well).

The groundwater flow paths and flow velocities for 2015 were similar to the operational groundwater monitoring period which indicates the monitoring well network is appropriately positioned to detect releases from the landfill to the uppermost aquifer.

Figure 8.3 in Section 8.0 of this report, indicates monitoring well locations at Intalco. The groundwater monitoring plan includes the following groundwater quality parameters with associated MCLs.

**Table 2. Groundwater Quality Parameters**

<b>Parameter</b>	<b>Limit</b>
Temperature	--
pH	6.5 to 8.5 (Secondary GWQS)
Specific Conductance	700 micromhos per cm

Parameter	Limit
Total Aluminum	--
Total Calcium	--
Chloride	250 mg/L
Total Cyanide	0.2 mg/L
Total Fluoride	4.0 mg/L
Total Potassium	--
Total Sodium	--
Sulfate	250 mg/L

Groundwater quality data from four rounds of monitoring during 2015 are shown in Appendix A, Section 9.0.

### 3.0 TLL Closure

#### 3.1 TLL Closure Activities

As described in the 2012 Closure Report for the Intalco Triple-Lined Landfill, closure activities at the TLL were completed following closure of the four historic landfills. The four historic landfills (BI, BII, CCDL, and DLL) had previously undergone closure under the Intalco Landfill Closure Program and Ecology Consent Decree No. 07-2-00181-2. The TLL reached its design capacity in July 2011 and Intalco submitted a request to Ecology to modify its 1992 RCRA Part B Permit Application. This was done to incorporate final landfill cover design changes, and to modify the post-closure groundwater monitoring program. Ecology approved the permit modifications and provided written notice to Intalco on July 11, 2011 that the TLL final closure construction could begin.

TLL design documents and plans were written for the closure and served as stand-alone documents for Ecology review and contractor bidding. The 2011 Supplemental Operations Plan and Final Closure/Post-Closure Plan for the Intalco TLL were followed during closure activities. Closure activities included a final cover, surface water management, landfill gas considerations, leachate management, leak detection system, filing a deed restriction, financial assurance, cover maintenance, inspections, groundwater monitoring, and security.

#### 3.2 Leak Detection System Investigation

Intalco staff observed water flowing from one of the Leak Detection System (LDS) monitoring points in spring 2012. A subsequent investigation found that the source was stormwater runoff. The investigation found that the LDS geonet in the east cell anchor trench was in direct contact with the primary high density polyethylene (HDPE) geomembrane liner and secondary HDPE geomembrane liner which created a hydraulic connection to the LDS. The selected solution included extrusion-welding the primary liner to the secondary liner within the east cell anchor trench, thereby eliminating the water intrusion pathway into the LDS. The LDS solution also provided for sealing the west cell in the event the water intrusion into the LDS was still occurring following repairs to the east cell.

While a video survey did not indicate any leak in the LDS lateral piping, a different source still appeared to allow a small volume of surface water to infiltrate. Intalco discovered that stormwater was still flowing into the LDS after fixing the anchor trench in the east cell. Intalco ended up extrusion-welding the primary to the secondary liners in the west cell anchor trench as well. Repairs were deemed successful in reducing the volume of water infiltrating the LDS.

#### **4.0 TLL Restrictive Covenant and Survey Plat Requirements**

In accordance with MTCA and the Consent Decree, Intalco recorded a restrictive covenant (WAC 173-340-440) for the TLL. Because contamination remains on site, a restrictive covenant was recorded for the property to prohibit activities that may interfere with the cleanup action or monitoring, and to describe other measures necessary to assure the integrity of the cleanup action and continued protection of human health and the environment. The covenant states that the land has been used to manage dangerous wastes and is restricted under the regulations (see Section 8.0)

In accordance with WAC 173-303 and the Consent Decree, Intalco filed a survey plat indicating the location and dimensions of the landfill along with a note stating the owner's or operator's obligations to restrict disturbance of the landfill unit in accordance with requirements. The plat was prepared and certified by a professional land surveyor and filed at the Whatcom County Auditor's Office.

#### **5.0 Periodic Review**

##### **5.1 Effectiveness of Completed Cleanup Actions**

Cleanup activities for the TLL were completed by successfully capping and implementing other closure requirements at the landfill. The TLL was properly closed and groundwater is monitored per the post-closure plan. A Restrictive Covenant for the TLL was recorded and is in place (Section 10.0). The Restrictive Covenant prohibits activities that would result in the release of contaminants at the TLL without Ecology's approval, and prohibits any use of the property that is inconsistent with the Covenant. The Restrictive Covenant serves to ensure the long term integrity of the remedy.

Based on the Site visit conducted on July 13, 2017, the landfill cap at the TLL continues to prevent exposure to waste and contaminated soils through ingestion and direct contact. The landfill cap appears to be in satisfactory condition and the leak detection repairs and cap maintenance have been effective. No other contingency actions have been required. A photo log is presented in Section 11.0. These photos were taken on July 13, 2017.

##### **5.2 New Scientific Information for Individual Hazardous Substances for Mixtures Present at the Site**

There is no new scientific information for the contaminants related to the Site.

##### **5.3 New Applicable State and Federal Laws for Hazardous Substances Present at the Site**

The cleanup at the Site was governed by WAC 173-340-702(12)(c)[2001 ed.]. This regulation states that:

“A release cleaned up under the cleanup levels determined in (a) or (b) of this subsection shall not be subject to further cleanup action due solely to subsequent amendments to the provision in this chapter on cleanup levels, unless Ecology determines, on a case-by-case basis, that the previous cleanup action is no longer sufficiently protective of human health and the environment.”

Although cleanup levels for fluoride in groundwater and surface water have changed as a result of modifications to MTCA, the contamination remaining at the Site above the new MTCA Method A and B cleanup levels does not pose a threat to human health or the environment. The cleanup action is still considered protective of human health and the environment.

#### **5.4 Current and Projected Site Use**

The Site is currently used for industrial purposes. There have been no changes in current or projected future Site or resources uses.

#### **5.5 Availability and Practicability of Higher Preference Technologies**

The remedy implemented at this Site included removal and containment of hazardous substances, and it continues to be protective of human health and the environment. While higher preference cleanup technologies may be available, they are still not considered practicable at this Site.

#### **5.6 Availability of Improved Analytical Techniques to Evaluate Compliance with Cleanup Levels**

The analytical methods used at the time of the remedial action were capable of detection below selected Site cleanup levels. The presence of improved analytical techniques would not affect decisions or recommendations made for this Site.

### **6.0 Conclusions**

The following conclusions have been made as a result of this periodic review:

- The cleanup actions completed at the TLL still appear to be protective of human health and the environment.
- Site cleanup levels have been met at the standard point of compliance for the TLL since the landfill was capped, groundwater monitoring and inspections continue, and institutional controls are in place. The cleanup actions have been determined to comply with cleanup standards since the long-term integrity of the containment system is ensured, and the requirements for containment technologies are being met.
- It appears that the repairs to the anchor trench in the east and west cells have substantially addressed the source of stormwater in the LDS.
- Groundwater is monitored on a quarterly basis once every 5 years under an approved groundwater monitoring program at the CCDL, the closed DLL, and the TLL in compliance with the facility post closure monitoring plans. The groundwater monitoring program is composed of eleven monitoring wells and requires testing for eleven analytes as defined in the post closure plan.
- The Restrictive Covenant for the property is in place and continues to be effective in protecting public health and the environment from exposure to hazardous substances and in protecting the integrity of the cleanup action.



Based on this periodic review, Ecology has determined that the requirements of the Restrictive Covenant continue to be met. No additional cleanup actions are required by the property owner. It is the property owner's responsibility to continue to monitor groundwater and inspect the cap and the leak detection system at the TLL to ensure that the integrity of the remedy is maintained.

#### **6.1 Next Review**

The next review of the cleanup actions for the TLL will be scheduled five years from the date of this periodic review. In the event that additional cleanup actions or institutional controls are required at the TLL, the next periodic review will be scheduled five years from the completion of those activities.

### **7.0 References**

*Dangerous Waste Landfill Closure Report*, Anchor QEA, LLC, January 2012

*Intalco Landfill Closure Program – Year 5 Annual Monitoring Report*, Anchor QEA, December 14, 2011

*Construction Completion Report Intalco Triple-Lined Landfill Leak Detection System Modification*, Anchor QEA, LLC, November 2016

*Post-Closure Groundwater Monitoring 2015 Annual Report*, CH2M Hill Engineers, Inc., March 2015

Site Visit, Ecology, July 2017

Consent Decree No. 07-2-00181-2, February 2, 2007

## 8.0 Figures

### 8.1 Vicinity Map

Source: Project Completion Report, Anchor, October 2009

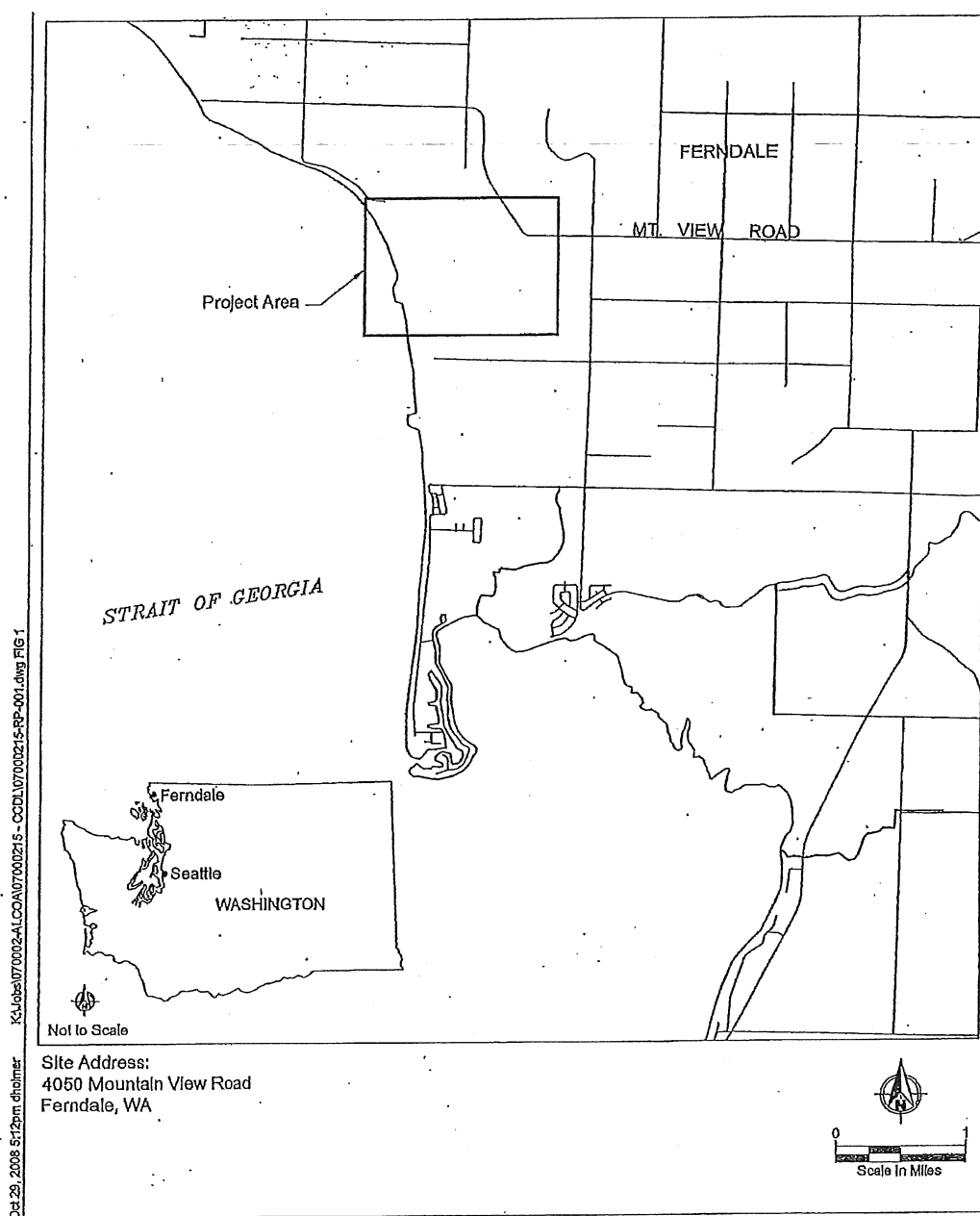
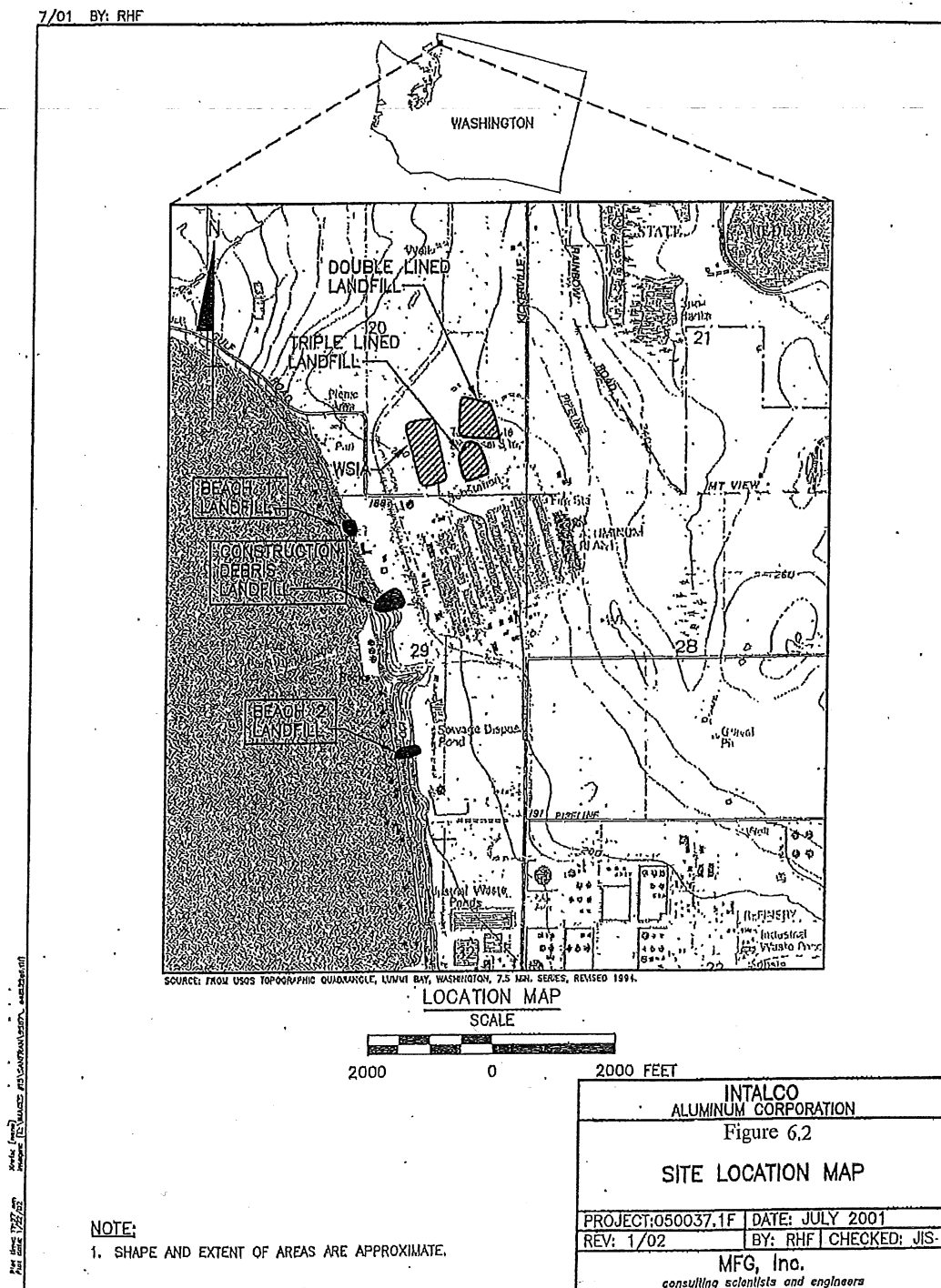


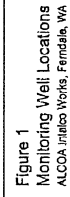
Figure 6.1  
Vicinity Map  
Project Completion Report  
Intalco Landfill Closure Program  
Ferndale, Washington

## 8.2 Site Map

Source: RI/FS Report, MFG, July 2001



Source: Post-Closure Groundwater Monitoring 2015 Annual Report, CH2M, March 2015



## Section 9.0 Tables

### Post-Closure Groundwater Monitoring 2015 Annual Report

Appendix A

ITALCO QUARTERLY GROUNDWATER MONITORING RESULTS

1st Through 4th Quarter 2015

Monitoring Well	Date Sampled	Temperature (°C)	Total Aluminum (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Total Cyanide (mg/L)	Total Fluoride (mg/L)	pH (Std. Units)	Potassium (mg/L)	Sodium (mg/L)	Specific Conductance (µmhos/cm)	Sulfate (mg/L)
Maximum					250	0.2	4	6.5-8.5			700	250
MW002	3/24/2015	15.1	0.01	44.2	55	0.0019 U	0.14	6.76	3.7	15.6	457	11
MW002	6/25/2015	17.9	0.01	42.3	56	0.019 U	0.12	7.93	3.3	14.5	497	10.9
MW002	9/24/2015	19	0.02	48.4	77.4	0.049 U	0.18	6.61	4.7	16.5	538	11.5
MW002	12/2/2015	18.9	0.015	43.1	78.5	0.004 U	0.21	7.64	3.3	14.7	491	10.6
MW003	3/30/2015	11.1	0.02	67.9	110	0.009	0.28	7.15	5.7	36.1	807	9
MW003	6/30/2015	13.3	0.02	60	81.6	0.003 J	0.17	7.96	3.6	27.1	789	8.5
MW003	9/30/2015	12.5	0.02	76.9	161	0.007	0.19	6.9	5.97	42.4	951	9.4
MW003	12/4/2015	10.8	0.02	53.1	94.1	0.0049 U	0.2	7.82	3.1	26.4	588	8.6
MW006	3/25/2015	12	0.02	58.8	20	0.0019 U	0.1	6.33	2.1	16.3	555	17
MW006	6/26/2015	14.9	0.02	59.9	19.9	0.0019 U	0.83	6.83	2.3	16.7	629	16.8
MW006	9/25/2015	16.7	0.06	58	18.7	0.0049 U	1.15	6.63	2.4	16.4	567	17.6
MW006	12/2/2015	12.1	0.02	55.7	20.5	0.005	1.11	7.29	2	15.7	508	17.7
MW008	3/28/2015	13.3	0.02	32.1	33.1	0.0019 U	0.25	7.23	3.6	16.3	400	30.7
MW008	6/24/2015	14.5	0.01	32.7	32.6	0.004 J	0.16	6.54	2.1	15	419	30.5
MW008	9/24/2015	13.7	0.05	31.5	29.5	0.005	0.11	6.53	2.6	15.3	409	30
MW008	12/3/2015	13.5	0.02	30	33.1	0.008	0.4	6.57	2	14.4	328	30.9
MW009	3/31/2015	12.7	0.01	43.6	16	0.034	0.06 U	6.83	2.8	15.5	491	86
MW009	6/24/2015	15.5	0.01	45.1	15.3	0.045	0.06 U	6.56	1.8	15	543	85.4
MW009	9/24/2015	12.5	0.07	42.9	14.8	0.047	0.13	6.54	2.2	14.6	503	80.9
MW009	11/20/2015	11.2	0.02	42.2	15	0.048	0.06 U	6.79	2.1	16.9	452	77
MW010	3/26/2015	13.4	0.02	38.7	22	0.058	0.09	6.17	1.9	26.6	431	93
MW010	6/27/2015	16.4	0.01	33.3	17.1	0.073	0.43	6.37	1.7	30	470	93.8
MW010	9/18/2015	15.9	0.1	29.2	15.7	0.058	0.14	6.85	8.2	76.9	543	95.3
MW010	12/2/2015	10.8	0.02	46.4	31.9	0.038	0.06 U	6.79	1.7	22.4	482	111
MW012	3/26/2015	16.9	0.02	68	167.3	0.0118	0.06 U	6.07	2.2	38.2	850	58.5
MW012	6/25/2015	13.4	0.01	49.6	107.9	0.079	0.06 U	6.21	1.7	32.2	737	52.1
MW012	9/25/2015	13.3	0.02	76.4	183	0.132	0.06 U	6.3	2.7	39.7	987	62.7
MW012	12/1/2015	12.5	0.02	96	273	0.175	0.06 U	6.66	2.4	44.8	1177	64

INTALCO QUARTERLY GROUNDWATER MONITORING RESULTS  
1st Through 4th Quarter 2015

Monitoring Well	Date Sampled	Temperature (oC)	Total Aluminum (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Total Cyanide (mg/L)	Total Fluoride (mg/L)	pH (Std. Units)	Potassium (mg/L)	Sodium (mg/L)	Specific Conductance (umhos/cm)	Sulfate (mg/L)
Maximum					250 <sup>1</sup>	0.2	1	6.5 - 8.5 <sup>2</sup>			700 <sup>2</sup>	250 <sup>2</sup>
SMW014	3/26/2015	13.3	0.01	29	7.5	0.0019 U	0.06 U	6.29	3.4	11	325	32
SMW014	6/25/2015	10.9	0.01	30.1	8.2	0.003 J	0.06 U	6.53	3.1	11	322	35.8
SMW014	9/25/2015	11	0.01	30.6	8	0.009	0.06 U	6.62	3.5	11.4	306	36.9
SMW014	12/1/2015	10.8	0.01	27.7	8.2	0.0049 U	0.06 U	6.43	2.9	10.6	272	35.9
SMW015	3/27/2015	20.4	0.02	29.1	15	0.0019 U	0.16	8.02	2.6	15.2	329	96
SMW015	6/27/2015	21.8	0.02	28.7	14.5	0.0019 U	0.02	7.68	1.7	14.8	347	93.2
SMW015	9/30/2015	21.7	0.02	28.5	13.5	0.006	0.10	7.33	1.7	15	332	92.5
SMW015	12/10/2015	18.8	0.016	25.6	14.5	0.0049 U	0.06 U	6.98	1.4	13.1	377	92.8
SMW019	3/25/2015	10.3	0.06	25.1	7.7	0.0019 U	0.06 U	7.2	4.7	11	312	40
SMW019	6/24/2015	13.5	0.01	23.2	7.5	0.003 J	0.06 U	8.03	4.6	11.1	311	34.8
SMW019	9/18/2015	10.9	0.04	21.8	7.1	0.004	0.06 U	6.82	8.8	35.9	310	36.5
SMW019	11/19/2015	9.8	0.015	22.9	7.8	0.0049 U	0.06 U	7.27	4.6	12.1	252	39
USMW013	3/26/2015	15.9	0.02	78.7	8.9	0.005	0.06 U	6.52	3.6	19.5	744	19
USMW013	6/24/2015	13.1	0.01	74.5	8.8	0.0019 U	0.06 U	6.89	3.3	18.6	738	17.2
USMW013	9/29/2015	12.6	0.01	76.8	8.3	0.0049 U	0.06	6.56	3.7	19.5	688	16.4
USMW013	12/1/2015	11.8	0.02	70.8	8.8	0.008	0.06 U	7.02	3.1	17.8	628	17.4

Notes:

<sup>1</sup> Primary MCL

<sup>2</sup> Secondary MCL

The drinking water standards per WAC 246-290-310 and groundwater quality standards per WAC 173-200.

U - Analyte was not detected above the laboratory practical quantitation limit (PQL) or not above the Method Detection Limit (MDL).

The result is the method detection or other reporting limit

Shade/Bold = detected result exceeds MCL. For pH, detected results is outside of the secondary MCL limits between 6.5 to 8.5

J - Indicates an estimated concentration. This occurs when an analyte concentration is below the calibration curve but is above the method detection limit.

## **10.0 Environmental Covenant**

### **Restrictive Covenant**

#### **Intalco Triple Lined Dangerous Waste Landfill**

This Declaration of Restrictive Covenant is made under the Uniform Environmental Covenant Act (2007 Wash. Laws Ch. 104), RCW 70.105D.030(1)(f), RCW 70.105D.030(1)(g), and WAC 173-340-440 by Intalco Aluminum Corporation (Hereafter "Intalco"), its successors and assigns, and the State of Washington Department of Ecology, its successors and assigns (hereafter "Ecology")

#### **Declaration of Restriction and Covenants**

Intalco makes the following declaration as to limitation, restrictions, and uses to which the Restricted Sites may be put and specifies that such declarations shall constitute covenant to run with the land, as provided by law and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Restricted Sites (hereafter "Owner").

Section 1. The Restricted Site contains dangerous wastes which contain PAH's, PCB's, fluoride, cyanide, and metals. The Restricted Site is capped to prevent human, plant, or wildlife exposure to the dangerous waste. The Owner shall not alter, modify, or remove the existing structure in any manner that may result in the release or exposure to the environment of that dangerous waste or create a new exposure pathway without prior written approval from Ecology. Any activity on the Restricted Site that may result in the release or exposure to the environment of the dangerous waste that was contained as part of the Remedial Action, or create a new exposure pathway, is prohibited. Some examples of activities that are prohibited in the Restricted Site include: drilling, digging, placement of any objects, or use of any equipment which deforms or stresses the surface beyond its load bearing capability, piercing the surface with a rod, spike or similar item, bulldozing or earthwork.

Section 2. Withdrawal of groundwater at the Restricted Site is prohibited.

Section 3. Any activity at the Restricted Site that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited.

Section 4. Any activity on the Restricted Site that may result in the release or exposure to the environment of a hazardous substance that remains on the Restricted Sites as part of the Remedial Action, or create a new exposure pathway, is prohibited without prior approval from Ecology.

Section 5. The Owner of the Restricted Site must give fifteen (15) day advance written notice to Ecology of the Owner's interest to convey any interest in the Restricted Site. No conveyance of title, easement, lease, or other interest in the Restricted Sites shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action in accordance with the Consent Decree and Cleanup Action Plan.

Section 6. The Owner must restrict leases to uses and activities consistent with the Restrictive Covenant and notify all leases of the restrictions on the use of the Restricted Site. The Owner must include any instrument conveying any interest in any portion of the Restricted Site with the notice of this Restrictive Covenant.

Section 7. The Owner must notify and obtain approval from Ecology prior to any use of the Restricted Site that is inconsistent with the terms of this Restrictive Covenant. Ecology may approve any inconsistent use only after public notice and comment. If Ecology approves an inconsistent use, the Restrictive Covenant must be amended to reflect the change.

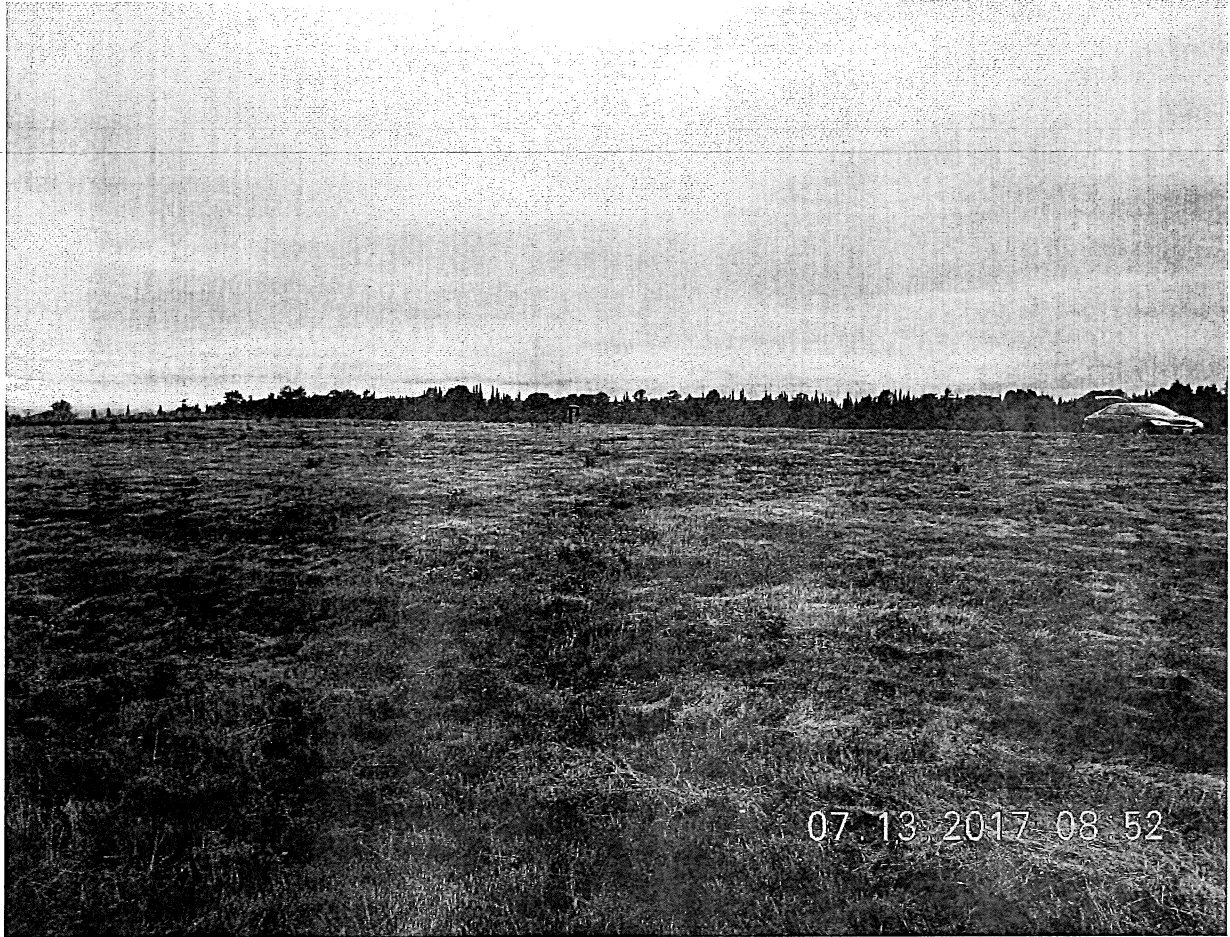
Section 8. The Owner shall allow authorized representatives of Ecology the right to enter the Restricted Site at reasonable times for the purpose of evaluating the Remedial Action, to take samples, to inspect remedial actions conducted at the Restricted Sites, and to inspect records that are related to the Remedial Action.

Section 9. If the conditions at the Restricted Site which require a restrictive covenant no longer exist, the Owner may submit a request to Ecology that this Restrictive Covenant be removed. This Restrictive Covenant shall be removed only if Ecology, after public notice and comment, concurs.



## 11.0 Photo Log

**Photo 1: Top of TLL looking north**



**Photo 2: East side TLL anchor trench looking north**



**Photo 3: TLL north side Leak Detection Monitor 1 (LD1)**





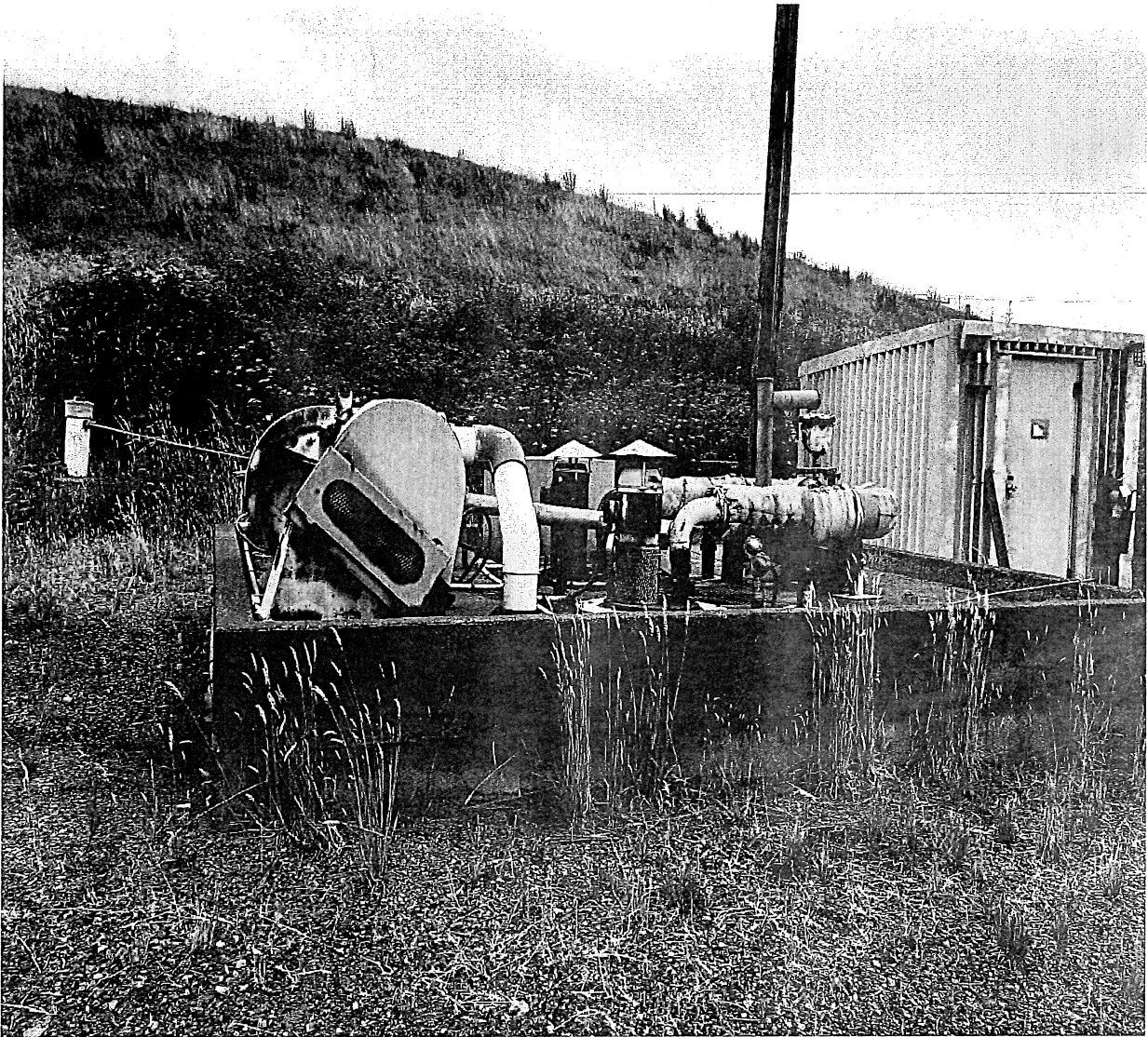
**Photo 4: TLL south side Leak Detection Monitor 2 (LD2)**



**Photo 5: TLL south side anchor trench**



Photo 6: TLL pump station





**Photo 7: TLL Leak Detection Monitor 3 (LD-3)**



## 12.0 Response to Comments

Ecology advertised notice of opportunity to comment on this Periodic Review on Ecology's webpage for the site, in the *Site Register* and in the agency's online public involvement and events calendar. We also sent notices to everyone who expressed interest in this site. The comment period took place November 9 – December 11, 2017.

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### Comments and Responses

#### Comment

I am writing in reference to the Intalco Triple Lined Landfill. In viewing the report, I see that some of the testing results are above the desired levels, including specific conductance. If the water is being effected, what is the plan to correct this from occurring?

Also, in Photo #24, it looks like the equipment is degrading with multiple areas of rust. Does this have an influence on how the gauges operate?

Thank you for the long term monitoring of this toxic waste.

#### Ecology Response

Ecology appreciates the commenter's questions and interest in this cleanup project.

While groundwater monitoring data from some wells exceeded "Secondary Maximum Contaminant Levels (MCLs)", the concentrations observed are within measured historical ranges and do not suggest increasing trends or a failure of the remedial actions taken at the site. Ecology attributes the measured levels of chloride, pH and Specific Conductance in these wells to past waste and materials handling practices in the vicinity. Ecology will continue to review data from all the wells at the site to ensure that any potential trends are identified.

It's also important to note that Secondary MCLs are not health-based criteria. The Environmental Protection Agency establishes secondary MCLs as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color and odor. While these parameters are monitored and tracked as part of the cleanup, they do not pose a health risk at the levels observed. Further, a restrictive covenant prevents the extraction and use of groundwater at the site.

With regard to the appearance of the equipment in Photo #24, Intalco inspects the pumping station on a weekly basis. Lab technicians inspect the equipment at the same time they collect weekly grab samples of effluent. In addition, the pumping activity is logged both electronically and manually. While some piping and gauges may show signs of natural aging, weekly inspection of the system and monitoring of pumping activity ensures that any malfunctions are detected and repaired promptly.