PERIODIC REVIEW
FINAL

Bertolini Industries
Facility Site ID#: 1367

1222 46th Avenue East,
Fife, WA 98424

Prepared by
Washington State Department of Ecology
Southwest Regional Office
Toxics Cleanup Program
Lacey, WA

January 2013

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1.0 INTRODUCTION

This document is a review by the Washington State Department of Ecology (Ecology) of post-cleanup conditions and monitoring data at the Bertolini Industries site (Site). The purpose of this periodic review is to determine whether the cleanup remedy at the Site continues to be protective of human health and the environment. Cleanup at this Site was implemented under the Model Toxics Control Act (MTCA) regulations, Chapter 173-340 Washington Administrative Code (WAC).

Cleanup actions at this Site were conducted under the Independent Remedial Action Program (IRAP). The remedy involved the use of MTCA Method C industrial cleanup levels for soil. The MTCA cleanup levels for soil are established under WAC 173-340-745. As a condition of the use of MTCA Method C cleanup levels, institutional controls in the form of a restrictive covenant (RC) were required as part of the remedy for the Site.

WAC 173-340-420 (2) requires that Ecology conduct a periodic review of a site every five years under the following conditions:

(a) Whenever the department conducts a cleanup action.
(b) Whenever the department approves a cleanup action under an order, agreed order or consent decree.
(c) Or, as resources permit, whenever the department issues a no further action (NFA) opinion.
(d) 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 the department's judgment, modifications to the default equations or assumptions using site-specific information would significantly increase the concentration 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 the department shall consider include [WAC 173-340-420(4)]:

- 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.
- New scientific information for individual hazardous substances of mixtures present at the Site.
- New applicable state and federal laws for hazardous substances present at the Site.
- Current and projected Site use.
- Availability and practicability of higher preference technologies.

- The availability of improved analytical techniques to evaluate compliance with cleanup levels.

The department shall 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 History

The Site comprises approximately 6.25 acres of land in Fife, Washington. It is located at 1222 46th Avenue East in a predominantly commercial area approximately one-third of a mile north of lnterstate-5. The Site contains pavement and developed structures on the eastern half and an unpaved working area on the western half. The developed structures are dominated by a large building with two areas for industrial fabrication. Attached to the industrial buildings are smaller storage areas and office space. The western half of the property remains unpaved, with a level gravel driving surface covering the entire area.

12th Street East runs along the northern edge of the Site. A drainage ditch runs along the northern edge of this roadway, with a grass-covered, undeveloped parcel beyond. Various warehouse buildings are located along the southern edge of the Site. 46th Avenue East is located adjacent to the eastern edge of the Site with residential properties developed beyond. Wapato Creek runs along the western edge of the Site. Additional residences are located beyond this edge of the Site. Land-use zoning in the project area is mixed. The Site is zoned for industrial use (M-1), as are adjacent properties located to the south and east. The property located across the Wapato Creek drainage and to the west is zoned for single family residential (R -9. 6). This residential area contains a smaller inset area zoned for industrial use (M-1). The area located to the north is within the Puyallup Indian Reservation boundary.

The former Bertolini property has been used primarily for trucking, leasing, and manufacturing since its initial development around 1979. The property was acquired by Korea Exchange Bank (KEB) through foreclosure in 1994.

2.2 Site Investigations

The project property has been the subject of environmental assessments and remedial actions conducted by numerous parties dating back to 1990. Information contained in Ecology files focused on JD Bertolini's handling, accumulation, and storage of hazardous materials (environmental concerns associated with other businesses operating on the subject property were not identified). Inspections conducted by Ecology personnel in January, February, and April 1990 documented repeated problems and resulted in the issuance of Enforcement Order No. DE 90-S142. JD Bertolini declared bankruptcy in March 1992 before the outstanding environmental issues were resolved.

Environmental investigations at the Site have included:

- **Ecology, 1990**. Conducted repeated Site inspections, noted poor hazardous material handling practice, and issued Enforcement Order against JD Bertolini.

- **Morris Environmental, 1990-91**. Completed initial sampling of property for JD Bertolini in response to the Ecology Enforcement Order. Laboratory data were submitted to Ecology for review in a letter; however, a final report was not prepared.

- **Emcon, 1992**. Completed Phase I and Phase II property environmental assessments for KEB, each documented in a separate report. Phase I documented Site use history and condition of the property at the time JD Bertolini was preparing to vacate. Phase II reported soil quality test results for potentially affected areas identified on the unpaved western portion of the property.

- **Marsh Industrial Research, 1994-95**. Retained by KEB to address housekeeping concerns and remove hot -spot soil contamination areas. Profiled and removed accumulated waste, excavated and disposed of soil from five areas, and identified the presence of slag-like material in the gravel fill of the unpaved western area. Began slag excavation, stopping after 2,000 cubic yards (cy) were removed and stockpiled on the property. Compiled a summary of the completed efforts in a Site assessment and remedial action report.

- **Hart Crowser, 1995-96**. Retained by KEB to complete remedial investigations, resolve outstanding environmental issues, and develop this IRAP report. Conducted soil and groundwater investigations, provided technical oversight for slag removal, and completed two additional soil hot-spot removal actions. Compiled verification data from these efforts with an overview of past activities in developing this combined summary of environmental conditions and remedial actions.

2.3 Cleanup Levels and Points of Compliance

MTCA Method C soil cleanup levels for industrial properties were selected for this Site. The use of MTCA Method C cleanup levels requires the following conditions:

- The area of the Site where industrial property soil cleanup levels are proposed must meet the definition of an industrial property under WAC 173-340-200.
    - WAC 173-340-200 states that industrial properties must either:
        - Zoned for industrial use by a city or county conducting land use planning under chapter 36.70A RCW (Growth Management Act); or
        - For counties not planning under chapter 36.70A RCW (Growth Management Act) and the cities within them, zoned for industrial use and adjacent to properties currently used or designated for industrial purposes.
- The cleanup action provides for *appropriate institutional controls* implemented in accordance with WAC 173-340-440 to limit potential exposure to residual hazardous substances. This shall include, at a minimum, placement of a covenant on the property restricting use of the area of the Site where industrial soil cleanup levels are proposed to industrial property uses;
- Hazardous substances remaining at the property after remedial action would not pose a threat to human health or the environment at the Site or in adjacent non-industrial areas.

In 1991, the MTCA Method C cleanup level for arsenic in soil was 200 milligrams per kilogram (mg/Kg). In 2001, the MTCA Method C cleanup level for carcinogenic risk of arsenic in soil was updated to 88 mg/Kg. For the purposes of this review, the MTCA Method C cleanup level of 200 mg/Kg that was effective when the NFA determination was issued for the Site in 1996 will be used to determine whether the remedy remains protective of human health and the environment.

2.3.1 Groundwater Point of Compliance

For groundwater, the point of compliance is the point or points where the groundwater cleanup levels must be attained for a site to be in compliance with the cleanup standards. The groundwater standard point of compliance is established throughout this Site from the uppermost levels of the saturated zone extending vertically to the lowest most depth which could potentially be affected by the Site.

2.3.2 Soil Point of Compliance

For soil, the point of compliance is the area where the soil cleanup levels shall be attained. For this Site, the point of compliance is established as soils throughout the Site.

2.4 Environmental Conditions

2.4.1 Soil Quality

In 1996, Hart Crowser analyzed existing data for the Site collected in previous environmental investigations. Based on this analysis, Hart Crowser identified the following potential contaminants of concern:

- Petroleum hydrocarbons
- Metals associated with slag fill
- Volatile organic compounds (VOCs) from paints and solvents

Maximum detected metal and petroleum concentrations exceeded the screening levels by 3 to 70 times. Arsenic and oil-range petroleum hydrocarbons (TPH-O) were the potential constituents of concern identified in these analyses with maximum arsenic concentrations of 710 mg/Kg and maximum TPH-O concentrations of 14,000 mg/Kg. No VOCs detection exceeded the screening level. In semi-volatile organic testing, carcinogenic polycyclic aromatic hydrocarbons (cPAH) concentrations slightly exceeded the screening levels in one sample collected near the former storage building. PAHs are not carried forward as potential constituents of concern because their concentrations barely exceeded the conservative screening level. Soil in the area near this sample was excavated and removed during the final cleanup action.

2.4.2 Groundwater Quality

Three rounds of chemical testing data obtained from the three wells indicate that groundwater quality beneath the former Bertolini property has not likely been adversely impacted by past operations.

A three-well network was used to monitor groundwater quality at the Site. Each monitoring well was located in an area identified as a potential concern from initial Site observations. A solvent still and sandblast area are located adjacent and up gradient of MW-1, a former storage building and petroleum-stained area was located near MW-2, and MW-3 was located in the southwest corner where poor waste material handling was reported. The monitoring well locations and groundwater flow direction including analytical results are included as Appendix 6.4

Monitoring consisted of three sampling events and analysis for VOCs, petroleum hydrocarbons, total metals, and dissolved metals, with the following results:

- Petroleum hydrocarbons were not detected above laboratory detection limits.
- VOCs, chlorinated solvents, and aromatic petroleum hydrocarbons were not detected with the exception of two acetone detections below the Method B cleanup level.
- Total and dissolved metals data were consistently below cleanup levels with the exception of arsenic. Arsenic was measured at 6 micrograms per liter (µg/L) in one well, exceeding the MTCA Method A cleanup level of 5 µg/L. This is not considered significant because this concentration is consistent with local background groundwater concentrations.
- Groundwater quality data reflect general compliance with cleanup levels prior to the final excavation. The final remedial excavation further reduced any on-Site sources of arsenic.
- Local groundwater reference data indicate that shallow groundwater systems in the Fife/Port of Tacoma area have arsenic concentrations with an upper 95th percent confidence limit of 5 µg/L and individual concentrations as high as 7 µg/L. The former Bertolini property groundwater data are consistent with these data.

2.5 Remedial Actions

Remedial actions at the former Bertolini property were completed under KEB's direction in several phases. Initial efforts began in Fall 1994 and work was completed in February 1996. Remediation consisted of hot-spot soil excavation and final slag-fill removal. In each case, contaminated soil and potentially hazardous material was profiled on Site and subsequently transferred to secure disposal facilities.

2.5.1 Hot-Spot Excavation

Hot-spot excavations targeted soil removal from the affected areas identified in the initial environmental reports and Ecology inspections. The following listing identifies in sequence each completed hot-spot excavation.

2.5.1.1 Marsh Industrial Research Excavations

- **Excavation No. 1**. Completed adjacent to the building and sandblast area where petroleum barrels were stored and staining was observed at ground surface. Removed approximately 70 cy of soil with non-detectable petroleum concentrations reported in samples collected following excavation.
- **Excavation No. 2**. Test pit located in the south central area where a cargo-shipping container was placed for auxiliary storage space. Testing consisted of metals, petroleum, and VOCs, and the analyses did not identify constituents above screening levels. Petroleum and VOCs were non-detectable at a depth of 2 feet. No soil was removed.
- **Excavation No. 3**. Located along the western fence line where visible petroleum-stained soil was observed at ground surface. Interpreted as a lube oil spill. Approximately 55 cy of soil were excavated and removed, with non-detectable TPH measured at the excavation base. Stained soil was tested for total halogens with non-detectable results.
- **Excavation No. 4**. Located on the western side of the former storage building where a small diesel fuel spill was observed. Excavated and removed 35 cy of soil and obtained. non-detectable TPH results in samples collected following excavation.
- **Excavation No. 5**. Completed along the western property line where petroleum stains were observed near former above-ground diesel fuel storage tanks. Excavated approximately 60 cy of soil and reported non-detectable TPH from the excavation bottom.
- **Marsh Slag Removal**. Noted the presence of slag-like fragments mixed in the gravel fill while completing the initial hot-spot excavations. Proceeded to excavate approximately 2,000 cy of slag-containing soil and stockpiled it on-Site. Chemical testing from the stockpile and excavation area produced variable metals concentrations and identified arsenic as the constituent exceeding screening levels.

The hot-spot excavations completed by Marsh Industrial Research removed a reported volume of 400 cy of petroleum-contaminated soil from the subject property. The soil was taken to Fife Sand & Gravel for treatment in its bioremediation facility. The stockpiled soil containing slag fragments remained on-Site at the conclusion of the Marsh Industrial Research tasks.

2.5.1.2 Hart Crowser Excavations

- **Sandblast Area**. Completed around the perimeter of the sandblast area structure to remove discolored soil and initial diesel- and oil-range petroleum concentrations as high as 430 mg/Kg. Removed approximately 40 to 50 cy in two efforts. Verification samples collected after the second effort produced non-detectable petroleum concentrations.
- **Former UST Location**. Conducted exploratory excavation in the vicinity of a former UST system, as exhibited by features visible in the area (pump island base, vent pipe, flammable signage). Used the excavation to trace pipes from the pump island base to the location of the former tank. No tank was present and a soil sample collected from that location produced non-detectable TPH concentrations.
- **Southwest Corner**. An area of stained soil was observed during final slag removal operations in the southwest corner of the property. An estimated volume of 25 cy was

excavated and removed following testing. The soil originally contained 2,000 mg/Kg oil-range petroleum with non-detectable metals and VOCs reported in TCLP tests. Chemical analysis of a sample collected after excavation reported non-detectable petroleum and VOCs.

Hart Crowser was involved in the excavation and disposal of approximately 65 to 75 cy of affected soil. Soil was transported to the Regional Disposal Company's Seattle transfer station in two separate operations.

2.5.1.3 Final Slag Removal

Slag-containing soil was removed from the property by excavating several inches to 2 feet of soil from the entire unpaved portion of the property. The work was completed under Asarco's direction following negotiations with KEB. Asarco concurred that the slag likely originated from its North Tacoma smelter and agreed to excavate the slag and slag-affected soil, remove it from the property, and return it to the smelter site. EPA approved placement at the smelter site and Asarco directed Hydrometrics, Inc. to complete the operation.

Hydrometrics developed an excavation plan for identification and removal of slag-containing soil from the western portion of the property. A Work Plan dated October 1995 details the approach used for excavation and sampling during slag removal. The plan called for removal of about 4,300 cy of soil from the Site, including the Marsh Industrial Research stockpile. The plan consisted of the following:

- Developing a grid system for the unpaved portion of the property to define sub-areas for excavation and sampling. Each grid was approximately 100 feet by 100 feet.
- Controlling surface water runoff and dust emissions during operations through the use of perimeter silt fencing, wheel wash-down upon exiting the Site, and frequent street sweeping.
- Monitoring slag removal effectiveness within each grid by testing total arsenic concentration in soil. Samples were collected from the exposed surface in each grid once slag was no longer visible. Submitted samples for X-ray fluorescence detector (XRF) analysis to determine if the cleanup goal of 200 mg/Kg was attained. If not, an additional 6-inch layer of soil was removed and testing was repeated.
- Completing an independent quality assurance check of the XRF data by submitting a subset of samples to Sound Analytical Systems for testing using EPA methods.
- Backfilling the subject property with clean gravel fill upon completion of slag removal.

The slag excavation and backfill operations were completed between January 8 and February 14, 1996. Reports provided by Hydrometrics indicate that 7,600 tons of slag-containing soil were removed during this period (estimated at a volume of about 5,000 cy based on a mass of 1.5 tons/cy). Excavation depths ranged from about 4 to 24 inches. An equivalent volume of backfill material was used to restore the Site grade. Hart Crowser visited the Site periodically to observe operations and collect independent verification samples.

2.5.2 Post-Remediation Confirmation Sampling

Confirmation soil samples were collected to demonstrate that soil remaining following remedial excavations no longer posed a threat to human health and the environment.

2.5.2.1 Initial Areas of Concern

Hart Crowser collected the verification samples from within areas of potential concern identified during the screening process. Sample analysis indicated that soils remaining at the Site were below MTCA Method C industrial cleanup levels for the constituents of potential concern with the exception of arsenic. Arsenic was detected in two of five confirmation samples in the initial areas of concern ***at a maximum concentration of 40 mg/Kg***, which is well below the 1991 MTCA Method C cleanup level for arsenic of 200 mg/Kg. Arsenic concentrations in the slag removal areas are discussed below.

2.5.2.2 Slag Removal Effectiveness

Effectiveness of the slag removal process was monitored by testing total arsenic concentrations in soil as work progressed. An XRF was used to analyze samples from within each excavation grid. Sixteen confirmation samples were also analyzed by laboratory for quality control. No samples exceeded the 1991 MTCA Method C cleanup level for arsenic of 200 mg/Kg. The ***maximum concentration of arsenic detected in confirmation samples was 130 mg/Kg***.

2.5.2.3 Comparison with Current MTCA Cleanup Levels.

Statistical analysis of confirmation samples indicates that the cleanup also complies with the current MTCA Method C industrial cleanup level for arsenic (88 mg/Kg), as demonstrated by the following:

- When confirmation samples from the initial areas of concern and the slag removal are combined, two of 21 total confirmation samples exceed MTCA Method C cleanup levels. Fewer than 10 percent of the samples exceed the cleanup level.
- No single sample exceeded the cleanup level by two times. The maximum concentration of arsenic detected in confirmation samples was 130 mg/Kg.
- The upper 95th percent confidence limit (UCL) on the mean is lower than the cleanup level (UCLs of 58 to 78 mg/Kg were estimated using the XRF and laboratory data, respectively).

The statistical evaluation was completed using Ecology's program titled MTCAStat. The statistical summary of the arsenic data demonstrates that the slag-fill removal efforts were successful. A table containing concentrations of contaminants of concern remaining on the Site is available as Appendix 6.3.

2.6 Institutional Controls

Institutional controls are required at the Site as a result of the use of MTCA Method C Industrial cleanup levels for soil. These institutional controls include:

- Site Fencing and Security.
- Maintenance of compacted backfill in the slag area.
- Restriction of Site use to industrial only.

Institutional controls were documented in the form of a RC. The RC was recorded with Pierce County on July 15, 1996. Once the RC was filed and the institutional controls were implemented, Ecology issued a NFA determination. The restrictions in the RC are detailed below:

1. The Site may be used only for industrial purposes as defined under the City of Fife's Zoning Regulations codified in the Fife City Code as of the date of this RC.
2. Fencing around the perimeter of the unpaved western area of the Site shall be maintained.
3. The unpaved area and the compacted backfill for the slag removal area shall be maintained.
4. The owner, or a successor owner of the property must give written notice to Ecology, or to its successor agency, of the owner's or the successor owner's intent to convey any interest in the property.
5. The owner must notify and obtain approval from Ecology, or its Successor agency, prior to any use of the property that is inconsistent with the terms of this RC. Ecology or its successor agency may approve any inconsistent use only after appropriate public notice and comment.
6. The owner of successor shall allow authorized representatives of Ecology, or its successor agency, the right to enter the property at reasonable times for the purpose of carrying out its duties under RCW 70.105D, including the right to take samples, inspect remedial actions conducted at the property relating to the contamination identified in the above referenced reports, and to inspect records that are related to the Cleanup Action.
7. The owner of the Site and the owner's assigns and successors in interest reserve the right under WAC 173-340-440 and WAC 173-340-730 to record an instrument which provides that this RC shall no longer be of any further force or effect. However, such an instrument may be recorded only with the consent of Ecology, or its successor agency. Ecology, or its successor agency, may consent to the recording of such an instrument only after appropriate public notice and comment.

A copy of the RC is available as Appendix 6.5.

3.0 PERIODIC REVIEW

3.1 Effectiveness of completed cleanup actions

Based upon the Site visit conducted on October 29, 2012, the Site remains in industrial land use as required by the use of MTCA Method C industrial cleanup levels and the RC recorded for the Site. The compacted Site surfaces continue to eliminate direct exposure pathways (ingestion, contact) to contaminated soils. No repair, maintenance, or contingency actions have been required. A photo log is available as Appendix 6.6.

The RC for the Site was recorded and remains active according to the Pierce County Auditor's Office. No other documents have been recorded that limit the restrictions imposed by the covenant. This RC limits property use to industrial activities, requires Site fencing, and requires the maintenance of the compacted Site surfaces. The RC serves to assure the long term property use and integrity of the property surface.

The remedy at the former Bertolini Site can be considered protective of human health and the environment with respect to arsenic contamination in soil and groundwater quality protection.

The presence of engineered controls in the form of fencing and a clean soil cover, combined with institutional controls documented in the RC serve to protect human health and the environment from soil contamination remaining at the Site.

3.2 New scientific information for individual hazardous substances for mixtures present at the Site

Cleanup levels at the Site were based on regulatory standards rather than calculated risk for chemicals and/or media. These standards were sufficient to be protective of Site-specific conditions.

3.3 New applicable state and federal laws for hazardous substances present at the Site

MTCA Method C industrial cleanup levels for soil have changed since the NFA determination was issued for the Site by Ecology in 1996. However, the Site meets the updated cleanup levels of 1991. A comparison of historical and current cleanup levels for arsenic in soil is available in the table below.

Arsenic Cleanup Levels in Soil

	Non-Carcinogenic Arsenic (mg/Kg)	Carcinogenic Arsenic (mg/Kg)
1991 MTCA Method A Soil Cleanup Level	20	20
2001 MTCA Method A Soil Cleanup Level	20	20

1991 MTCA Method C Soil Cleanup Level	200	2620
2001 MTCA Method C Soil Cleanup Level	87.5	1050

3.4 Current and projected site use

The Site is currently occupied by Omega-Morgan, a packaging and transport company. The portions of the property containing arsenic at concentrations exceeding MTCA Method A and B cleanup levels are used for heavy vehicle parking and equipment storage. These uses are not likely to have a negative impact on the risk posed by hazardous substances contained at the Site.

3.5 Availability and practicability of higher preference technologies

The remedy implemented included 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 practicable at this Site.

3.6 Availability of improved analytical techniques to evaluate compliance with cleanup levels

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

4.0 CONCLUSIONS

- The cleanup actions completed at the Site appear to be protective of human health and the environment.

- Soils at the Site have met MTCA Method C cleanup levels, which require industrial land use and zoning, and the implementation of institutional controls which have been documented in a RC. A RC has been recorded for the Site, and the current Site use and zoning are industrial.

Based on this review, Ecology has determined that the remedial actions conducted are protective of human health and the environment. The requirements of the RC are being satisfactorily met and no additional remedial actions are necessary at this time. It is the property owner's responsibility to continue to inspect the Site to assure that the integrity of the Site surface cover is maintained.

4.1 Next Review

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

5.0 REFERENCES

Marsh Industrial Research. *Bertolini Site Assessment and Remedial Action.* December 1994.

Hart Crowser. *Independent Remedial Action Report.* February 23, 1996.

Hart Crowser. *Submittal of Additional Independent Remedial Action Report Information.* May 16, 1996.

Ecology. *Restrictive Covenant.* July 15, 1996.

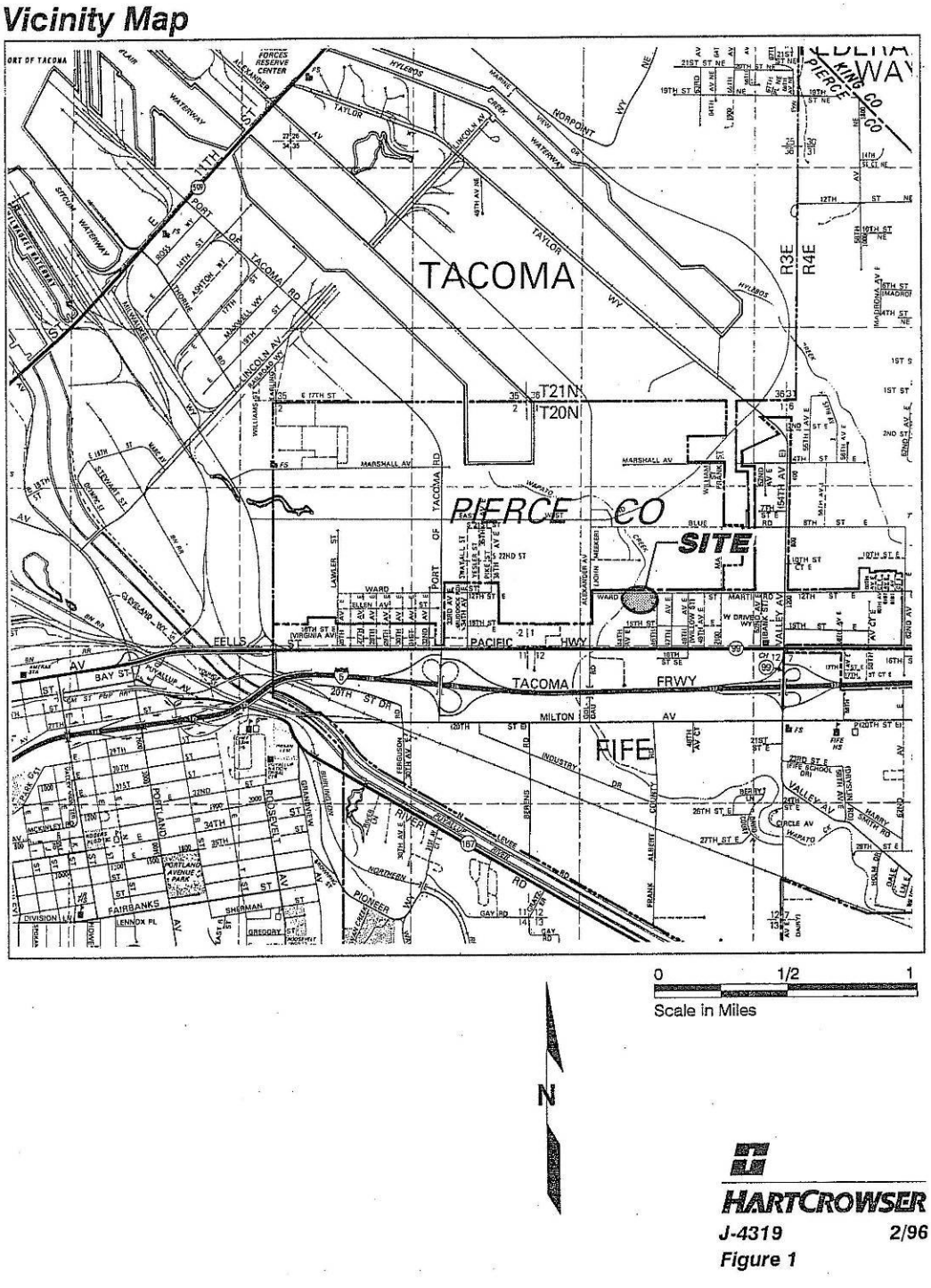
Ecology. *No Further Action Determination Letter.* July 17, 1996.

Environmental Associates, Inc. *Phase I Environmental Assessment.* May 24, 2006.

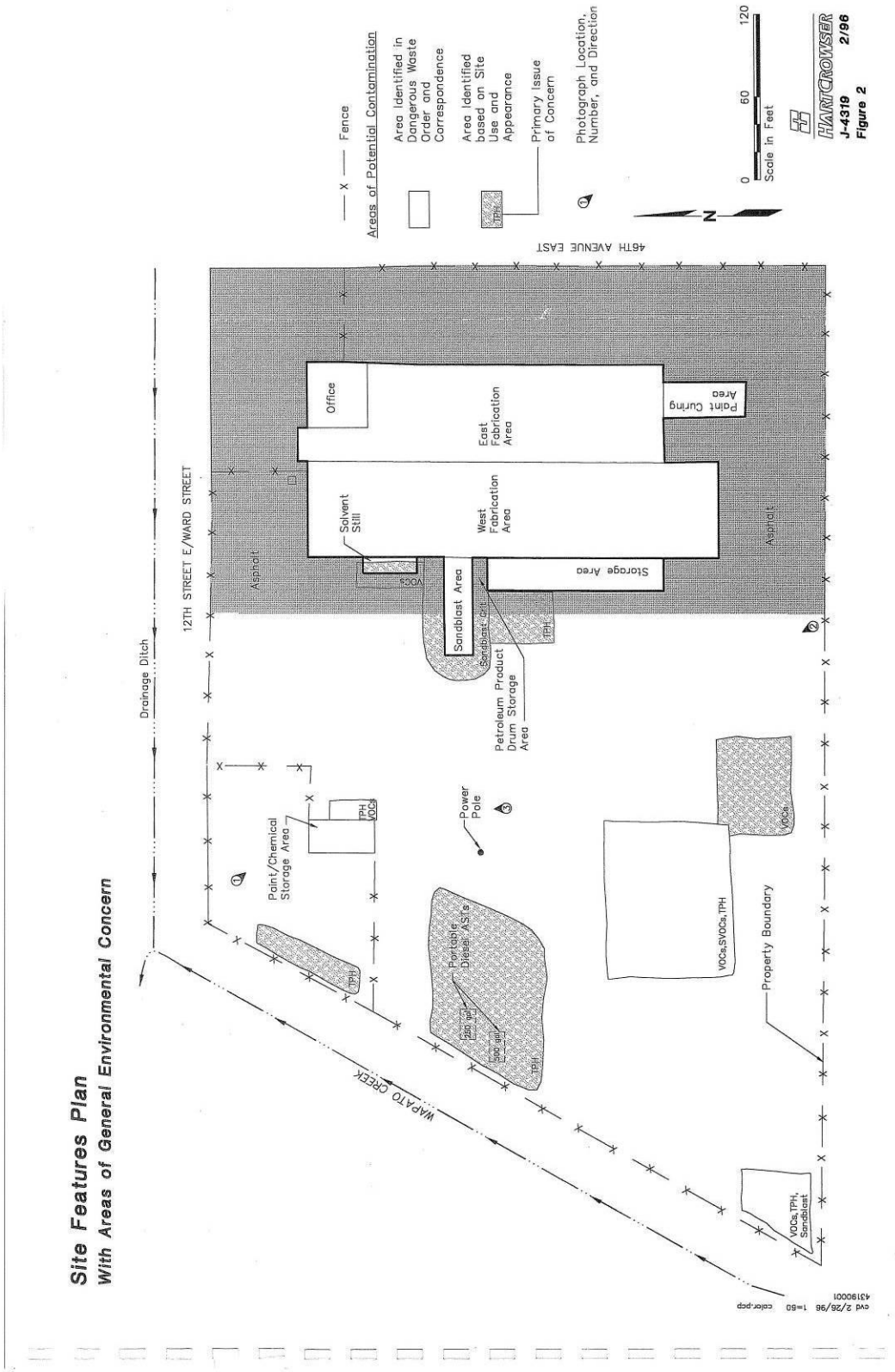
Ecology. *Site Visit. October 29*, 2012.

6.0 APPENDICES

6.1 Vicinity Map



6.2 Site Plan


Site Features Plan
With Areas of General Environmental Concern
— X — Fence
Areas of Potential Contamination
Area Identified in Dangerous Waste Order and Correspondence
Area Identified based on Site Use and Appearance
Primary Issue of Concern
Photograph Location, Number, and Direction
N
0
60
120
Scale in Feet
HARTCROWSER
J-4319
2/96
Figure 2
46TH AVENUE EAST
12TH STREET E/WARD STREET
Drainage Ditch
Office
East Fabrication Area
Paint Curing Area
Solvent Still
West Fabrication Area
Storage Area
Asphalt
Sandblast Area
Sandblast Grit
Petroleum Product Drum Storage Area
Paint/Chemical Storage Area
TPH VOCs
Power Pole
Portable Diesel ASTs
200 gal
100 gal
TPH
VOCs,SVOCs,TPH
VOCs
Property Boundary
VOCs,TPH, Sandblast
WAPATO CREEK
cad 2/26/96 t=60 color.pcp
4319001

6.3 Confirmation Soil Samples

Hart Crowser
J-4319

Table 4 - Chemical Data Summary III
Final Conditions (see Plan III on Figure 6)

Analyte	HC-1001 1/17/96	HC-1002 1/22/96	HC-1003 1/22/96	HC-1004 1/22/96	HC-1005 1/22/96	HC-101 11/20/95	HC-102 11/20/95	UST-1 12/8/95	Maximum Detect	Method C Industrial	Method C Commercial	Method B Residential
Total Petroleum Hydrocarbons in mg/kg												
Gasoline	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	10 U	10 U	10 U	0.1 U	100 (a)	100 (a)	100 (a)
Diesel	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U	20 U	20 U	0.2 U	200 (a)	200 (a)	200 (a)
Oil	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	50 U	50 U	50 U	0.5 U	200 (a)	200 (a)	200 (a)
Total Metals in mg/kg												
Arsenic	25	10 U	10 U	10 U	40	--	--	--	40	200 (a)	57	20 (a)
Barium	32	16	30	40	42	--	--	--	42	245,000	22,400	5,600
Cadmium	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	--	--	--	0.25 U	21.5	7	2 (a)
Chromium	14	7.9	10	14	14	--	--	--	14	17,500	1,600	400 (b)
Lead	28	10 U	10 U	10 U	50	--	--	--	50	1,000 (a)	--	250 (a)
Mercury	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	0.05 U	1,050	96	24
Selenium	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	--	--	--	7.5 U	17,500	1,600	400
Silver	1.3	1 U	1 U	1 U	1 U	--	--	--	1.3	17,500	1,600	400
Detected Volatile Organics in mg/kg												
	ND	ND	ND	ND	ND	--	--	--	NA	--	--	--

U Analyte not detected above detection limit.
ND Not detected.
(a) Based on MTCA Method A.
(b) Based on Cr+6

4319TBL-3.XLS

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Hart Crowser
J-4319

Table 5 - Slag Removal Verification Sample Analytical Results
Final Conditions (see Plan III on Figure 6)

Post-Excavation Slag Removal Verification Samples	Grid No.	Total Arsenic in mg/kg: Hydrometrics XRF (1)	Hydrometrics/ Sound Analytical Lab Confirmation (2)	Hart Crowser/ North Creek Lab Confirmation (2)
ASBT-PST-1-001	1	17	-	-
ASBT-PST-1-002	1	21	-	-
HC-1002	1	-	-	10 U
ASBT-PST-2-005	2	67	-	10
ASBT-PST-2-006	2	58	-	-
ASBT-PST-3-019	3	88	32	-
ASBT-PST-3-020	3	68	-	-
HC-1005	3	-	-	40
ASBT-PST-4-024	4	73	-	29
ASBT-PST-4-025	4	65	-	-
ASBT-PST-4A-033	4A	52	-	-
ASBT-PST-4A-034	4A	22	-	-
ASBT-PST-5-035	5	16	-	-
ASBT-PST-6-003	6	8	-	-
ASBT-PST-6-004	6	8	-	-
ASBT-PST-7-009	7	10	6.1	-
ASBT-PST-7-010	7	16	-	-
HC-1004	7	-	-	10 U
ASBT-PST-8-018	8	333 (3)	-	100 (3)
ASBT-PST-8-022	8	11	-	-
ASBT-PST-8-023	8	10	-	-
ASBT-PST-9-032	9	69	-	-
HC-1001	13	-	-	25
ASBT-PST-10-021	10	11	-	-
ASBT-PST-11-026	11	27	8.2	-
ASBT-PST-11-027	11	20	-	-
ASBT-PST-12-030	12	138	93	-
ASBT-PST-12-031	12	119	-	-
ASBT-PST-13-013	13	6	ND	-
ASBT-PST-13-014	13	13	-	-
ASBT-PST-14-015	14	61	-	23
ASBT-PST-14-016	14	60	-	-
HC-1003	14	-	-	10 U
ASBT-PST-15-011	15	55	-	10 U
ASBT-PST-15-012	15	42	-	-
ASBT-PST-16-017	16	125	130	-
ASBT-PST-17-028	17	18	-	-
ASBT-PST-17-029	17	15	-	-

Statistical Summary	XRF Data	Lab. Conf. Data	All Data
Number of Analyses	33	16	49
Minimum Value	6	6.1	6
Mean Value	43	30	39
Maximum Value	138	130	138
Upper 95% Conf. Limit	67	78	58

U Analyte not detected above detection limit.
ND Not detected.
(1) XRF used for screening purposes during excavation.
(2) Lab confirmation completed using EPA method 6010.
(3) Soil subsequently excavated and grid resampled. This data was not included in statistical summary.
Note: Hydrometrics soil sampling locations within each grid are presented with their test data in Appendix E.

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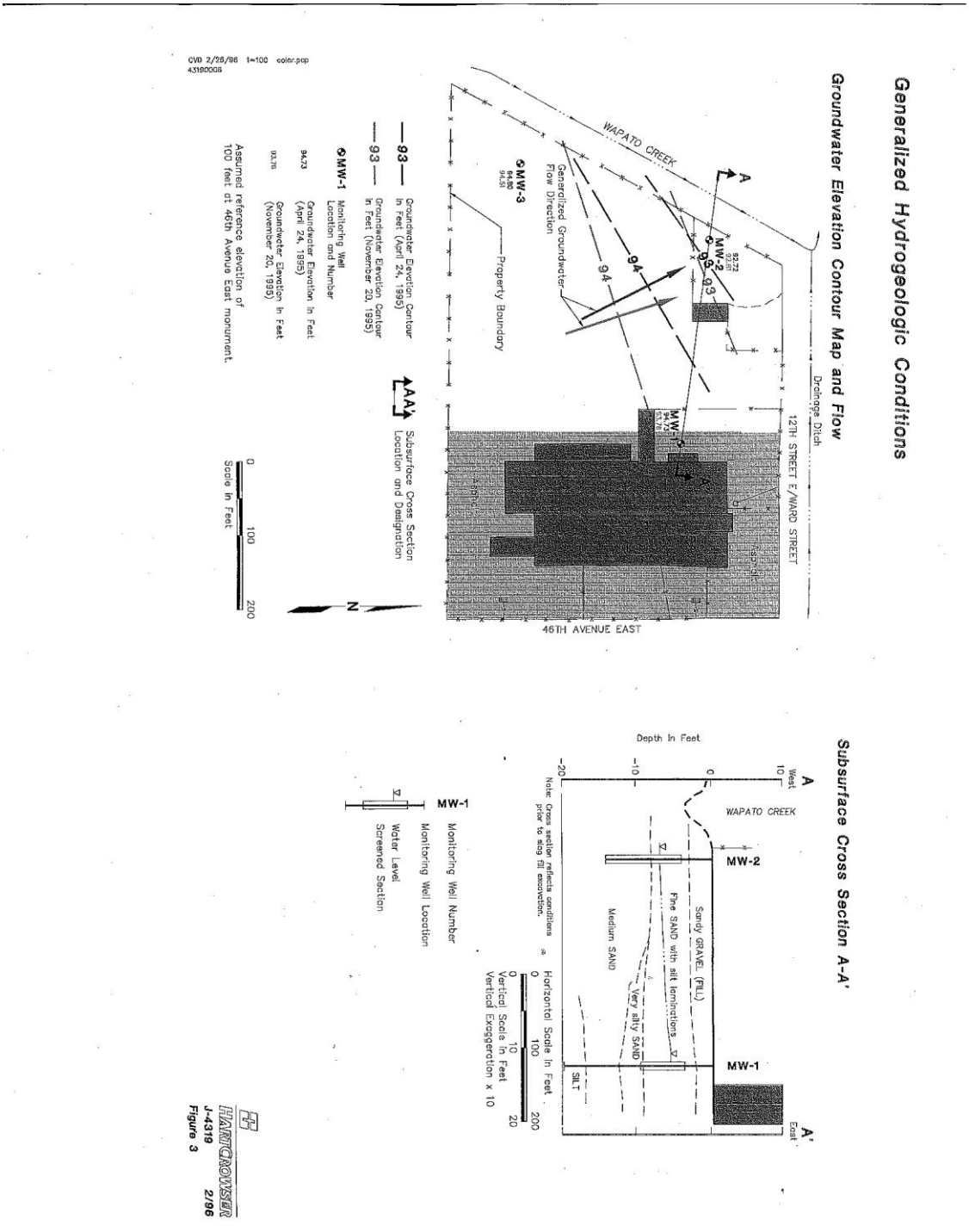
6.4 Groundwater Monitoring Well Locations and Monitoring Results



Hart Crowser
J-4319

Table 2 - Screening Chemical Data in Groundwater

Analyte	MW-1 4/24/95	MW-1 11/20/95	MW-2 4/24/95	MW-2 11/20/95	MW-3 4/24/95	MW-3 11/20/95	Local GW Reference (1)	Screening Level (2)	Enrichment Factor
Field Parameters									
Groundwater Elevation (3)	94.73	93.76	92.72	92.81	94.8	94.51	--	--	--
Temperature in ° C	12	13.4	12	14.8	13	15.9	--	--	--
pH	7.1	6.5	7.1	6.5	6.8	6.9	--	--	--
Conductivity in µS	550	360	370	350	670	880	--	--	--
Total Petroleum Hydrocarbons in mg/L									
Gasoline	0.10 U	0.10	0.10 U	0.10	0.10 U	0.10 U	--	1	0.0
Diesel	0.25 U	0.25	0.25 U	0.25	0.25 U	0.25 U	--	1	0.0
Oil	0.75 U	0.75	0.75 U	0.75	0.75 U	0.75 U	--	1	0.0
Aromatic Volatiles in µg/L									
Benzene	1 U	1 U	1 U	1 U	1 U	1 U	--	5	0.0
Toluene	1 U	1 U	1 U	1 U	1 U	1 U	--	40	0.0
Ethylbenzene	1 U	1 U	1 U	1 U	1 U	1 U	--	30	0.0
Xylene	1 U	1 U	1 U	1 U	1 U	1 U	--	20	0.0
Dissolved Metals in mg/L									
Arsenic	0.005	0.004	0.006	0.004	0.003	0.004	0.005	0.005	1.2
Copper	0.002 U	0.003	0.003	0.01	0.005	0.002 U	0.019	0.6 (4)	0.0
Lead	0.001 U	0.001	0.001 U	0.001	0.001 U	0.001 U	0.0015	0.005	0.0
Zinc	0.004 U	0.004	0.004	0.004	0.009	0.004 U	0.06	5 (4)	0.0
Total Metals in mg/L									
Arsenic	0.005	0.003	0.006	0.006	0.002	0.004	--	0.005	1.2
Copper	0.005	0.007	0.006	0.024	0.005	0.004	--	1.3 (4)	0.0
Lead	0.001	0.001	0.001 U	0.004	0.001 U	0.001 U	--	0.005	0.0
Zinc	0.015	0.005	0.01	0.026	0.011	0.004 U	--	5 (4)	0.0
Total Suspended Solids in mg/L									
	63	12	58	24	44	11	--	--	--
Detected Volatile Organics in ug/L									
Acetone	14	ND	9.7	ND	ND	ND	--	800 (4)	0.0

U Analyte not detected above detection limit.
ND Not detected.
(1) Upper 95th Confidence limit of the mean calculated from ten shallow monitoring wells located in the Port of Tacoma area.
(2) Screening level based on MTCA Method A unless indicated otherwise.
(3) Relative to assumed reference of 100 ft at monument located on 46th Ave East.
(4) Based on MTCA Method B.

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6.5 Restrictive Covenant

CATHY PEARSALL-STIPEK, PIERCE COUNTY AUDITOR

9607150463 JUL 15 1996

RESTRICTIVE COVENANT

On the former Bertolini Property located at 1222 46th Avenue East, City of Fife, Washington.

The property that is the subject of this Restrictive Covenant has been the subject of an independent remedial action under Chapter 70.105D RCW and is legally described as below:

PARCEL A:

LOTS 1 AND 2 OF PIERCE COUNTY SHORT PLAT RECORDED JANUARY 5, 1984 UNDER RECORDING NO. 8401050179, RECORDS OF PIERCE COUNTY;

PARCEL B:

BEGINNING AT THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 1 TOWNSHIP 20 NORTH, RANGE 3 EAST, WILLAMETTE MERIDIAN;
THENCE WEST ALONG THE NORTH LINE OF SAID SUBDIVISION 93.677 FEET;
THENCE SOUTH PARALLEL WITH THE EAST LINE OF SAID SUBDIVISION 480 FEET;
THENCE EAST PARALLEL WITH THE NORTH LINE OF SAID SUBDIVISION 93.677 FEET TO THE EAST LINE THEREOF;
THENCE NORTH ALONG THE EAST LINE OF SAID SUBDIVISION 480 FEET TO THE POINT OF BEGINNING, RECORDS OF PIERCE COUNTY;
EXCEPT WARD ROAD (MARTI STREET);
ALSO EXCEPT THAT PORTION CONVEYED TO THE CITY OF FIFE, BY INSTRUMENT RECORDED UNDER AUDITORS FILE NO. 2574922;

PARCEL C:

COMMENCING AT THE NORTHEAST CORNER OF SOUTHEAST QUARTER OF SOUTHWEST QUARTER OF SECTION 1 TOWNSHIP 20 NORTH, RANGE 3 EAST, WILLAMETTE MERIDIAN;
THENCE WEST ALONG THE NORTH LINE OF SAID SUBDIVISION 93.677 FEET TO THE TRUE POINT OF BEGINNING;
THENCE CONTINUE WEST ON SAID LINE 187.357 FEET;
THENCE SOUTH PARALLEL WITH THE EAST LINE OF SAID SUBDIVISION 480 FEET;
THENCE EAST PARALLEL WITH THE NORTH LINE OF SAID SUBDIVISION 187.357 FEET;
THENCE NORTH PARALLEL WITH THE EAST LINE OF SAID SUBDIVISION 480 FEET TO THE POINT OF BEGINNING, RECORDS OF PIERCE COUNTY;
EXCEPT WARD ROAD (MARTI STREET);

ALL SITUATE IN THE COUNTY OF PIERCE, STATE OF WASHINGTON.

The remedial actions undertaken to clean up the property (hereafter the "Cleanup Actions") are described in the following reports:

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EMCON Northwest, Inc., Phase I Environmental Assessment, 1222 46th Avenue East, Fife, Washington, April 10, 1992.

EMCON Northwest, Inc., Phase II Environmental Assessment, 1222 46th Avenue East, Fife, Washington, August, 1992.

Marsh Industrial Research, Bertolini Site Assessment and Remedial Action, undated (received at Ecology January 30, 1995).

Hart Crowser, Inc., Independent Remedial Action Report, former Bertolini Property, Fife Washington, February 23, 1996.

Korea Exchange Bank, Seattle Branch, documentation regarding disposition of drummed waste, May 6, 1996.

Hart Crowser, Inc., Submittal of Additional Independent Remedial Action Information, Former Bertolini Property, Fife, Washington, May 6, 1996.

These documents are on file at the State of Washington Department of Ecology ("Ecology") Southwest Regional Office.

This Restrictive Covenant is required by Ecology as defined in WAC 173-340-440 because the Cleanup Action resulted in residual concentrations of arsenic which exceed Model Toxics Control Act Method A cleanup levels for soil established under WAC 173-340-720(2).

The cleanup action meets the Model Toxics Control Act Method C cleanup levels for industrial soil established under WAC 173-340-700(3)(c) and 720(4) in conformity with the site criteria established in WAC 173-340-745. The soil containing arsenic concentrations between the residential and industrial cleanup levels is now isolated from contact by a clean layer of gravel backfill. The contamination that is the subject of this Restrictive Covenant is described in the above referenced reports.

The undersigned, Korea Exchange Bank, Seattle Branch, is the fee owner of the real property described above and located in the County of Pierce, State of Washington, (herein referred to as the "site"), hereby, makes the following declarations as to limitations, restrictions, and uses to which the Site may be put, and specifies that such declarations shall constitute covenants 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 Site.

Section 1: The Site may be used only for industrial purposes as defined under the City of Fife's Zoning Regulations codified in the Fife City Code as of the date of this restrictive covenant.

Section 2: Fencing around the perimeter of the unpaved western area of the Site shall be maintained.

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Section 3: The unpaved area and the compacted backfill for the slag removal area shall be maintained.

Section 4: The owner, or a successor owner of the property must give written notice to Ecology, or to its successor agency, of the owner's or the successor owner's intent to convey any interest in the property.

Section 5: The owner must notify and obtain approval from Ecology, or its Successor agency, prior to any use of the property that is inconsistent with the terms of this Restrictive Covenant. Ecology or its successor agency may approve any inconsistent use only after appropriate public notice and comment.

Section 6: The owner of successor shall allow authorized representatives of Ecology, or its successor agency, the right to enter the property at reasonable times for the purpose of carrying out its duties under RCW 70.105D, including the right to take samples, inspect remedial actions conducted at the property relating to the contamination identified in the above referenced reports, and to inspect records that are related to the Cleanup Action.

Section 7: The owner of the Site and the owner's assigns and successors in interest reserve the right under WAC 173-340-440 and WAC 173-340-730 to record an instrument which provides that this Restrictive Covenant shall no longer be of any further force or effect. However, such an instrument may be recorded only with the consent of Ecology, or its successor agency. Ecology, or its successor agency, may consent to the recording of such an instrument only after appropriate public notice and comment.

The Korea Exchange Bank, Seattle Branch, agrees to file this restrictive covenant with the Pierce County Auditor and provide Ecology with a filed copy.

Dated this 15 day of July, 1996

Korea Exchange Bank,
Seattle Branch

By: YUN HUH

Title: General Manager

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6.6 Photo log

Photo 1: Bertolini Slag Excavation Area – from the north

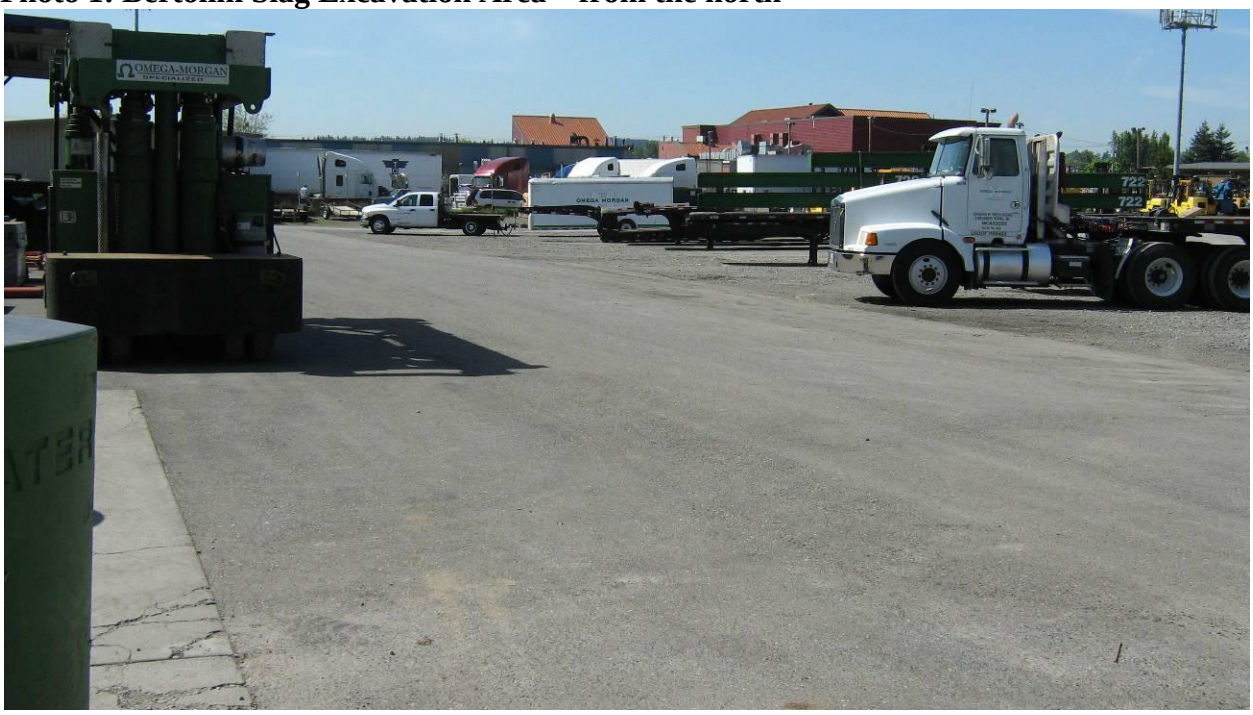

Photo 2: Bertolini Excavation Area – from the west

Photo 3: Slag Excavation Area Surface Cover – from the west

Photo 4: Typical Site Fencing on West Side of Property – from the east