Electronic Copy

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Southwest Region Office
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December 19, 2022

Mike Zirkle and Glenn Zirkle
WSCO Petroleum
1459 Hudson St
Longview, WA 98632
mikez@wscocorp.com
glennz@wscocorp.com

Re: Notice of Third Periodic Review conducted at the following Hazardous Waste Site:

- **Site name:** Astro Quick Mart
- **Site address:** 1459 Hudson St, Longview, Cowlitz County, WA 98632
- **Facility/Site ID:** 3353662
- **Cleanup Site ID:** 5317

Dear Mike Zirkle and Glenn Zirkle:

This letter serves to inform you that the Department of Ecology (Ecology) conducted the Third Periodic Review at the above Site. The Model Toxics Control Act (MTCA),[1] chapter 70A.305[2] Revised Code of Washington (RCW), which governs the cleanup of hazardous waste sites in Washington State, requires a periodic review of all sites with institutional controls and environmental covenants be conducted every five years.

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.
- A Site visit to confirm the institutional controls and conditions of the environmental covenant are being followed.

[1] https://apps.ecology.wa.gov/publications/SummaryPages/9406.html
[2] https://app.leg.wa.gov/RCW/default.aspx?cite=70A.305

- A 30-day public comment period on the draft periodic review report.

Based on the information collected during this Third periodic review, the Astro Quick Mart Site appears to meet the requirements of chapter 173-340 Washington Administrative Code (WAC), and the selected remedy continues to be protective of human health and the environment.

The 30-day public comment period on the draft periodic review report ended on March 27, 2022. We received no public comments on the draft periodic review report. Enclosed is the final periodic review report for your information.

A periodic review is performed 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 will be due in March 2027.

If you have any questions or if you would like additional information on the cleanup of hazardous waste sites, please contact me at 360-485-3987 or andrew.smith@ecy.wa.gov. Thank you for your cooperation.

Sincerely,

Andrew Smith, P.E.
Toxics Cleanup Program
Southwest Region Office

Enclosure: Third Periodic Review Report

By certified mail: 9489 0090 0027 6382 0420 23

cc: Ecology Site File

Enclosure

Third Periodic Review Report

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THIRD PERIODIC REVIEW REPORT
FINAL

Astro Quick Mart – Longview
Facility Site ID#: 3353662
Cleanup Site ID#: 5317

1459 Hudson Street
Longview, Washington 98632

Southwest Regional Office
TOXICS CLEANUP PROGRAM

March 2022

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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 Astro Quick Mart site (Site). Cleanup at this Site was implemented under the Model Toxics Control Act (MTCA) regulations, Chapter 173-340 Washington Administrative Code (WAC). The second periodic review was conducted in June 2015. This third periodic review evaluates the period from July 2015 through August 2021.

Cleanup activities at this Site were completed under the Voluntary Cleanup Program (VCP). The cleanup actions resulted in concentrations of petroleum hydrocarbons remaining at the Site in soil that exceeds MTCA Method A cleanup levels. The MTCA Method A cleanup levels for soil are established under WAC 173-340-740(2). WAC 173-340-420 (2) requires that Ecology conduct a periodic review of a site every five years under the following conditions:

- Whenever the department conducts a cleanup action.
- Whenever the department approves a cleanup action under an order, agreed order or consent decree.
- Or, as resources permit, whenever the department issues a No Further Action (NFA) opinion.
- And one of the following conditions exists:
    (a) Institutional controls or financial assurance are required as part of the cleanup.
    (b) Where the cleanup level is based on a practical quantitation limit.
    (c) 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)]:

(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 of 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.

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 Astro Quick Mart Site is located on the northeast corner of 15th Avenue and Hudson Street in Longview, Washington. The Site is located on the edge of a retail district and is surrounded by commercial retail properties. The Site is currently occupied by an active retail gasoline fueling station with four Underground Storage Tanks (USTs), two fuel islands, and a convenience store (Vicinity Map - Appendix 6.1). The Site has been operating as a service station since the late 1950s and consisted of one steel 12,000-gallon diesel and three 12,000-gallon gasoline USTs. A Site Plan is available as Appendix 6.2. Following remedial activities at the Site from 1994 through 1999, a Restrictive Covenant (RC) was recorded for the property and an NFA determination was issued by Ecology in 1999.

2.2 Cleanup Levels

MTCA Method A cleanup levels for unrestricted land use were used for the Site. Current MTCA Method A cleanup levels have changed since remedial activities began in 1995. However, WAC 173-340-702(12) (c) [2001 ed.] provides 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."

A No Further Action (NFA) determination was issued for the Site prior to 2001, so MTCA Method A cleanup levels prior to 2001 will be used to determine whether the remedial activities at the Site have been effective in protecting human health and the environment.

2.3 Site Investigations and Remedial Activities

In 1994, petroleum hydrocarbon impacted soil was encountered during an upgrade of the service station's UST system. A Site characterization investigation was conducted from April through June in 1994, which included soil sampling from five test pits and five hand auger borings, as well as groundwater sampling from the installation of four monitoring wells, MW-1 through MW-4. Soil sample results confirmed the release of gasoline-range petroleum hydrocarbons [TPH-G:50 milligrams per kilogram (mg/kg) to 670 mg/kg], and groundwater sample results showed the release of benzene [740 microgram per liter (µg/L)], toluene (1,100 µg/L), ethylbenzene (320 µg/L), and xylenes (1,900 µg/L). These concentrations exceed the MTCA Method A cleanup levels of 30 mg/kg, 5 µg/L, 1,000 µg/L, 700 µg/L, and 1,000 µg/L, respectively for these compounds.

Soil test pits, borings, and groundwater monitoring locations and results are included as Appendix 6.3.

During the UST system upgrade, approximately 220 cubic yards of contaminated soil was excavated and stockpiled on visqueen at the Site. Due to limited space, the contaminated soil

was transported off Site for land farming. This soil was land farmed for several months until soil samples confirmed that contamination had been reduced to below MTCA Method A cleanup levels for the above petroleum related constituents. The treated soil was then transported off Site for use as structural fill material at 234 Astro Drive in Kelso, Washington.

A remediation feasibility and design report was completed later in 1994, which proposed the installation and operation of a soil vapor extraction (SVE) and air sparge system. The soil vapor extraction and air sparge system was installed and began operation in April 1995. It operated for approximately 19 months until November 1996 by which time the effluent air samples were non-detect for total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and xylenes (BTEX).

The SVE and air venting remediation system and the final effluent air sample results are included as Appendix 6.4.

In January 1998, one confirmational soil boring (GP-l) was advanced in an area of previous TPH-G soil contamination where 10,000 mg/kg was detected. Sample results confirmed that a pocket of residual TPH-G soil contamination (3,000 mg/kg) still exists at the depth of approximately 12 to 16 feet below ground surface (bgs) on the southern portion of the Site. Based on the groundwater sample results, no evidence of contaminant migration was present in groundwater monitoring well MW-1 that is located approximately 12 feet in a down gradient position to the GP-1 location.

GP-1 boring location and soil sample results are included as Appendix 6.5.

2.4 Groundwater Monitoring

Groundwater monitoring was conducted at the Site from 1994 until 1999. Groundwater samples were collected and analyzed for gasoline-and diesel-range petroleum hydrocarbons (TPH-G and TPH-D) and BTEX. Gasoline and BTEX contamination was detected at concentrations exceeding MTCA Method A cleanup levels in groundwater in 1994 and 1995. Following the operation of soil and groundwater treatment systems from April 1995 through December 1996, contamination was not detected in any of the wells at concentrations exceeding MTCA Method A cleanup levels. This was measured during groundwater sampling events from March 1997 through April 1999.

Groundwater monitoring data for the Site is available as Appendix 6.6.

2.5 Restrictive Covenant

Following the remedial activities, a Restrictive Covenant (RC) was recorded for the Site on September 1, 1999 and an NFA determination letter was issued on September 10, 1999. The RC imposes the following limitations:

Section 1: A portion of the Property contains total petroleum hydrocarbons in soil which exceed the Model Toxics Control Act Method A Residential Cleanup Levels. The contaminated soil is located at a depth of between 9 feet and 15 feet and extends up to 30 feet southwest of

the southern pump island. The Owner shall not alter, modify, or remove the existing structures in any manner that may result in the release or exposure to the environment of the contaminated soil or create a new exposure pathway without prior written approval from Ecology. Any activity on the Property that may result in the release or exposure to the environment of the contaminated soil 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 capped (paved) areas 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: Any activity on the Property that may interfere with the Integrity of the Remedial Action and continued protection of human health and the environment is prohibited.

Section 3: Any activity that may result in the release or exposure to the environment of a hazardous substance that remains on the Property as part of the Remedial Action, or create a new exposure pathway, is prohibited without prior written approval from Ecology.

Section 4: The owner of the Property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

Section 5: The owner must restrict leases to uses and activities consistent with the RC and notify all lessees of the restrictions on the use of the Property.

Section 6: The owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of the RC. Ecology may approve any inconsistent use only after public notice and comment.

Section 7: The Owner shall allow authorized representatives of Ecology that right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the property, and to inspect records that are related to the Remedial Action.

Section 8: The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this RC shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

The Restrictive Covenant is available as Appendix 6.7.

3.0 PERIODIC REVIEW

3.1 Effectiveness of Completed Cleanup Actions

Based upon the Site visit conducted on September 1, 2020, the building and asphalt cover at the Site continue to eliminate exposure pathways (ingestion, contact) to the contaminated soils. The asphalt cap appears in satisfactory condition and no repair, maintenance, or contingency actions have been required. The Site is still occupied by a retail petroleum station.

A photo log is available as Appendix 6.8.

The RC for the Site was recorded and is in place. This RC prohibits activities that will result in the release of contaminants contained as part of the cleanup without Ecology's approval, and prohibits any use of the property that is inconsistent with the Covenant. This RC serves to assure the long-term property use and integrity of the property surface.

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

3.3.1 Modified Cleanup Levels

Initial cleanup at the Site was governed by Chapter 173-340 WAC (1996 ed.). Current WAC 173-340-702(12) (c) provides 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 the department 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 changed for several compounds as a result of modifications to MTCA in 2001, contamination remains at the Site above MTCA Method A cleanup levels and the cleanup action is still protective of human health and the environment. A comparison of cleanup levels from pre-2001 and post-2001 are available in the table below:

Table 1: MTCA Method A Cleanup Levels

Analyte	1991 MTCA Soil Cleanup Level (ppm)	2001 MTCA Method A Soil Cleanup Level (ppm)	1991 MTCA Method A Groundwater Cleanup level (ppb)	2001 MTCA Method A Groundwater Cleanup Level (ppb)
Benzene	0.5	**0.03**	5	**5**
Ethylbenzene	20	**6**	30	**700**
Toluene	40	**7**	40	**1000**
Total Xylenes	20	**9**	20	**1000**
TPH	NL	**NL**	1000	NL
TPH-Gas	100	**100/30**	NL	1000/**800**
TPH-Diesel	200	**2000**	NL	**500**
NL = None listed				

3.3.2 Residual Saturation

Initial cleanup at the Site was governed by Chapter 173-340 WAC (1996 ed.). Current WAC 173-340-747(10) provides that,

> "To ensure the soil concentrations established under one of the methods specified in subsections (4) through (9) of this section will not cause an exceedance of the ground water cleanup level established under WAC 173-340-720, the soil concentrations must not result in the accumulation of nonaqueous phase liquid in groundwater. To determine if this criterion is met, residual saturation screening levels must be established and compared with the soil concentrations."

A residual saturation screening level of 1,000 mg/Kg has been established for weathered gasoline, which is applicable to this Site. Based on this screening level, soil concentrations at the Site may not be protective of groundwater; however, WAC 173-340-747 (10)(c) allows for empirical demonstration to be used to show that soil concentrations measured at the Site will not result in the accumulation of non-aqueous phase liquid on or in groundwater.

WAC 173-340-747 (10)(c)(i) states that, to demonstrate empirically that measured soil concentrations will not result in the accumulation of non-aqueous phase liquid on or in ground water, the following shall be demonstrated:

"(A) Non-aqueous phase liquid has not accumulated on or in groundwater; and

(B) The measured soil concentration will not result in non-aqueous phase liquid accumulating on or in groundwater at any time in the future. Specifically, it must be demonstrated that a sufficient amount of time has elapsed for migration of hazardous substances from soil into groundwater to occur and that the characteristics of the site (e.g., depth to groundwater and infiltration) are representative of future site conditions."

At this Site, TPH-G soil contamination remains at the Site in one area at a depth of 12 to 16 feet bgs. Based on the screening level and the close proximity of soil contamination to the groundwater table, soil concentrations at the Site may not be protective of groundwater. However, groundwater monitoring data has been collected over a sufficient time period to allow for migration of contaminants from soil to groundwater and sufficient groundwater monitoring data exists to demonstrate that TPH-G concentrations in soil are not resulting in the accumulation of non-aqueous phase liquids at the Site. Three years of groundwater monitoring from 1996 through 1999 did not detect petroleum hydrocarbon contamination above MTCA Method A cleanup levels or above laboratory detection limits. This demonstrates empirically that residual soil contamination left in place does not pose a significant threat to groundwater quality..

3.3.3 Soil to Vapor Pathway

Initial cleanup at the Site was governed by Chapter 173-340 WAC (1996 ed.). Current WAC 173-340-740(3)(B)(III)(C) provides that:

> "Evaluation of the soil to vapor pathway is required at sites contaminated with volatile organic hydrocarbons (VOCs) to determine the potential for adverse impacts on the indoor air quality that may pose a threat to human health and the environment. Examples of when this pathway should be evaluated include at sites where soil TPH-G and/or other VOC concentrations are significantly higher than the cleanup levels derived for the protection of groundwater for drinking water beneficial use, or where soil TPH-D concentrations are higher than 10,000 mg/kg. As a part of this investigation, procedures outlined in the Department of Ecology draft 'Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remediation Action' should be used."

Though the Site is contaminated with VOCs and some TPH-G contaminated soil was left on the Site exceeding the MTCA Method A cleanup level, no investigation was conducted at this Site to evaluate the soil to vapor pathway and whether potential vapor concentrations are protective of human health or the environment. However, it is Ecology's opinion that the exposure through the soil to vapor pathway does not pose a significant risk based on the following reasons:

- The service station UST system was upgraded by removing the old USTs from the Site in 1994. Releases that occurred at the Site would have happened approximately 20 years ago. During that time, many of the VOCs present in the gasoline would have likely volatized.
- Approximately 220 cubic yards of TPH-G contaminated soil was excavated from the Site and the remaining soil was treated with SVE and air sparging systems for 19 months staring

from April 1995 through December 1996. It was estimated that only 28 cubic yards of TPH-G contaminated soil was left in place at a depth of 12 feet to 16 feet bgs.

- The decrease in TPH-G concentrations in soil was evident (pre and post treatment) in the comparison of the results form 1994 versus 1998. There was approximately 70 percent reduction in TPH-G concentration from 10,000 mg/kg to 3,000 mg/kg.
- The highest remaining TPH-G concentration of 3,000 mg/kg in soil is located approximately 45 feet from the nearest building at a depth of 12 feet to 16 feet bgs. The top 12 feet of soil is clean indicating that contaminated vapors must pass through 45 feet horizontally and 12 feet vertically through clean soil to reach the building. Gasoline vapors attenuate quickly when passing through clean, well oxygenated soils.
- The residual contaminants may be bound within the fine-grained silt layers in the subsurface. It is unlikely that there is significant desorption of contaminants. This was indicated by a significant reduction in the soil gas recovery during the latter part of the SVE system operation.
- The source removal (excavation of contaminated soils) and the SVE treatment were conducted approximately 20 and 18 years ago, respectively. During this time, the residual TPH-G concentrations present in the soil would have likely volatized to great extent and the current TPH-G concentrations on the Site are likely much lower.
- Based on the results of soil samples collected from GP-1 during the conformational sampling in 1998, the ratio of volatile organic compounds (benzene, toluene, ethylbenzene, and xylenes) to TPH-G is very low (8%), indicative of weathered gasoline product, which does not produce many vapors.
- Groundwater beneath the Site is no longer impacted.

Based on the above reasons, though there is lack of soil vapor and indoor air data, Ecology believes that it is highly unlikely that there is any adverse impact on the human health and the environment through the soil to vapor pathway.

3.4 Current and Projected Site Use

The Site is currently used for commercial purposes. This use is not likely to have any 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 the excavation of approximately 220 cubic yards of petroleum contaminated soils, treatment of remaining residual contaminated soils and groundwater with SVE and air sparging systems and the containment of approximately 28 cubic yards of contaminated soil. The above implemented remedy 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 MTCA Method A 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.
- Soil cleanup level for TPH-G has not been met at the Site; however, under WAC 173-340-740(6) (f), the cleanup action is determined to comply with cleanup standards, since the long-term integrity of the containment system is ensured and the requirements for containment technologies have been met.
- Soil concentration of TPH-G exceeds residual saturation screening level. However, the final three years of groundwater monitoring from 1996 through 1999 did not detect petroleum hydrocarbon contamination above the laboratory detection limits. Hence, this soil concentration does not likely pose a threat to groundwater.
- The RC for the property is in place and will be effective in protecting public health from exposure to hazardous substances and protecting the integrity of the cleanup action.

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

ATC Associates, Inc. July 1994. Site Investigation Progress Report, Astro Western Service Station #102, 1459 Hudson Street, Longview, Washington.

ATC Associates, Inc. July 1994. Test Pit Soil Sample Analytical Data, Astro Western Service Station #102, 1459 Hudson, Longview, Washington.

Pacific Northern Environmental. September 1994. Soil Treatment and Final Disposition, Astro Station Number 102, 1459 Hudson Street, Longview, Washington 98632.

ATEC Associates, Inc. May 1996. First Quarter 1996 Groundwater Monitoring, Astro Western Station #102, Hudson Street, Longview, Washington.

ATC Associates, Inc. December 1997. UST Closure Plan, Astro Western Station #102, 1459 Hudson Street, Longview, Washington.

ATC Associates, Inc. March 1998. Soil Confirmation Sampling and Groundwater Monitoring January 1998, Astro Station #102, 1459 Hudson Street, Longview, Washington.

ATC Associates, Inc. June 1999. Groundwater Monitoring and Site Closure Report, Astro Western Station #102 – 1459 Hudson Street, Longview, Washington.

ATC Associates, Inc. March 1999. UST Site Closure – LUST File No. 5163, Astro Western Station #102, 1459 Hudson Street, Longview, Washington.

ATC Associates, Inc. 1999. Correspondence.

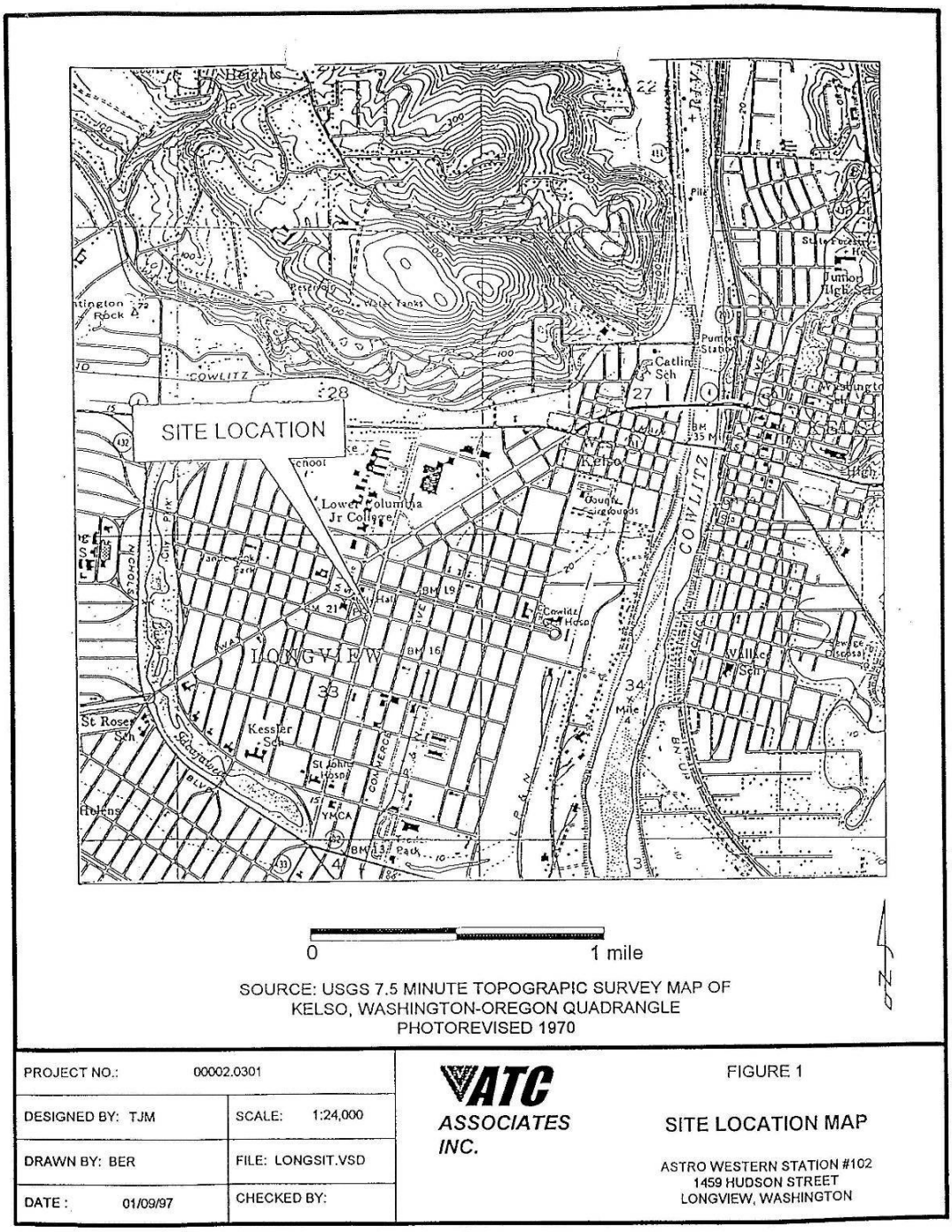
Ecology. September 1999. No Further Action Determination Letter, Astro Western Station #102, Hudson Street, Washington.

Ecology. September 1999. Restrictive Covenant.

Ecology. September 1, 2020. Site Visit.

6.0 APPENDICES

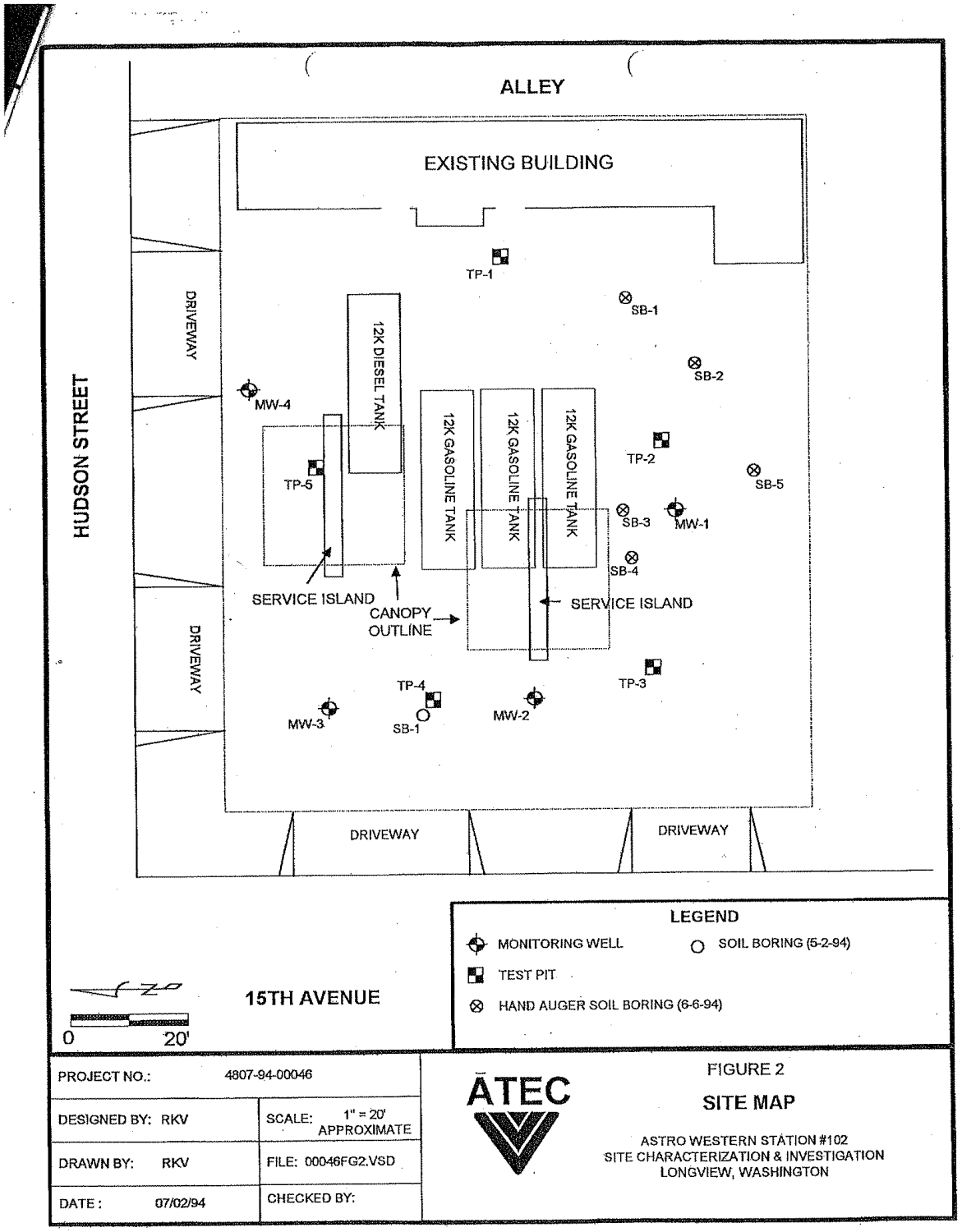
6.1 Vicinity Map



SOURCE: USGS 7.5 MINUTE TOPOGRAPIC SURVEY MAP OF
KELSO, WASHINGTON-OREGON QUADRANGLE
PHOTOREVISED 1970

PROJECT NO.: 00002.0301		VATC ASSOCIATES INC.	FIGURE 1
DESIGNED BY: TJM	SCALE: 1:24,000		SITE LOCATION MAP
DRAWN BY: BER	FILE: LONGSIT.VSD		ASTRO WESTERN STATION #102 1459 HUDSON STREET LONGVIEW, WASHINGTON
DATE : 01/09/97	CHECKED BY:		

6.2 Site Plan


ALLEY
EXISTING BUILDING
DRIVEWAY
DRIVEWAY
DRIVEWAY
DRIVEWAY
HUDSON STREET
12K DIESEL TANK
12K GASOLINE TANK
12K GASOLINE TANK
12K GASOLINE TANK
TP-1
SB-1
SB-2
MW-4
TP-2
SB-5
TP-5
SB-3
MW-1
SB-4
SERVICE ISLAND
CANOPY OUTLINE
SERVICE ISLAND
TP-3
TP-4
MW-3
SB-1
MW-2
15TH AVENUE
0
20'
LEGEND
MONITORING WELL
SOIL BORING (5-2-94)
TEST PIT
HAND AUGER SOIL BORING (6-6-94)
PROJECT NO.: 4807-94-00046
DESIGNED BY: RKV
SCALE: 1" = 20' APPROXIMATE
DRAWN BY: RKV
FILE: 00046FG2.VSD
DATE : 07/02/94
CHECKED BY:
ATEC
FIGURE 2
SITE MAP
ASTRO WESTERN STATION #102
SITE CHARACTERIZATION & INVESTIGATION
LONGVIEW, WASHINGTON

6.3 Test Pits, Soil Borings and Groundwater Monitoring Well Locations and Soil and Groundwater Results

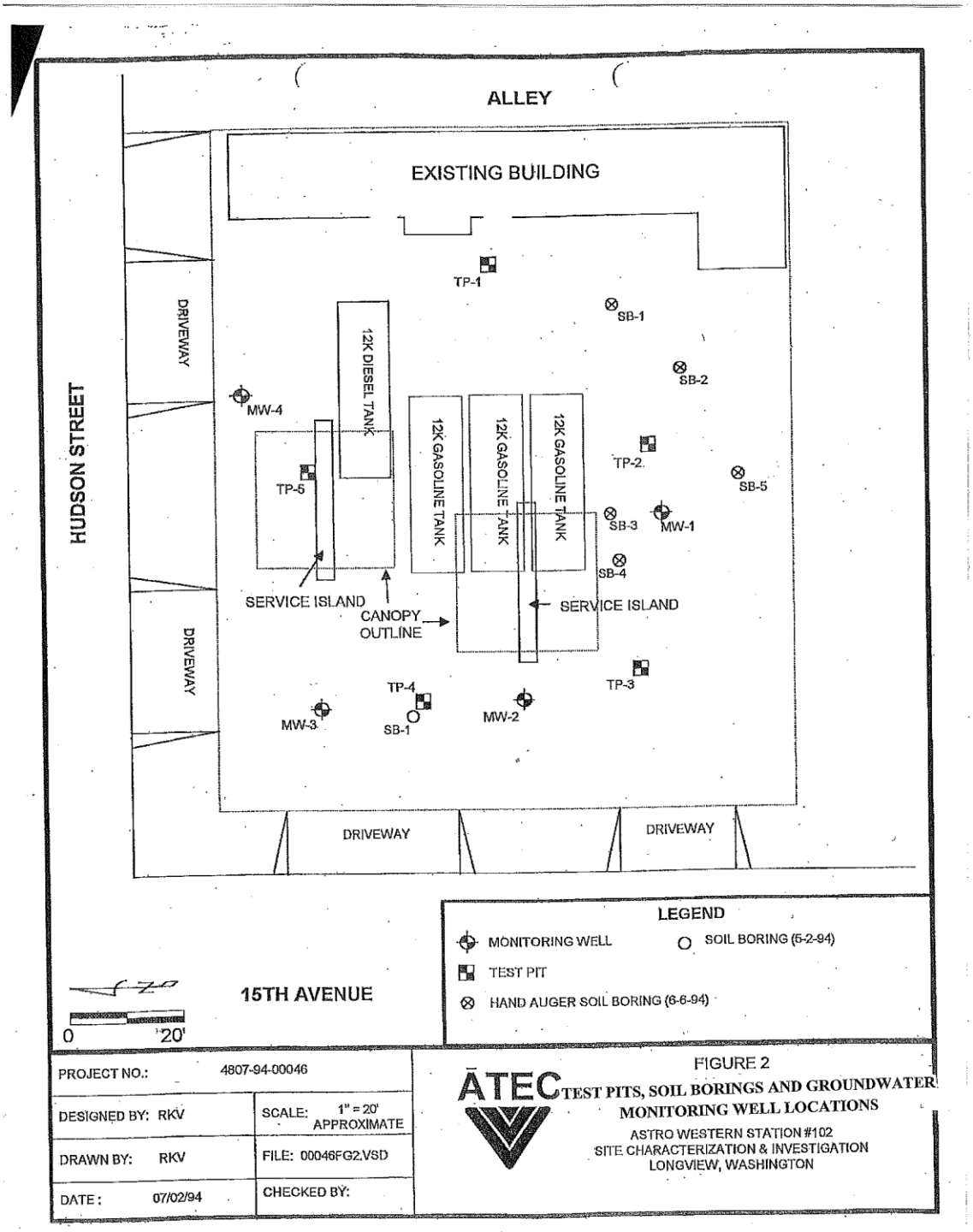


TABLE 2
SOIL SAMPLE
ANALYTICAL RESULTS
ASTRO WESTERN SERVICE STATION
LONGVIEW, WASHINGTON
MAY 2 AND 6, 1994

Sample #	Depth (bsg)	Date Sampled	TPH-HCID Gasoline	TPH-HCID Diesel	TPH-HCID Heavy Oils	TPH-418.1 (ppm)
MW-1-1	4.5-6'	5-2-94	ND	ND	H. Oil	2,200
MW-1-2	9.5-11'	5-2-94	ND	ND	ND	NA
MW-2-1	4.5-6'	5-2-94	ND	ND	ND	NA
MW-2-2	9.5-11'	5-2-94	ND	ND	H. Oil	130
MW-3-1	4.5-6'	5-2-94	ND	ND	ND	NA
MW-3-2	9.5-11'	5-2-94	ND	ND	ND	NA
MW-4-1	4.5-6'	5-2-94	ND	ND	ND	NA
MW-4-2	9.5-11'	5-2-94	ND	ND	ND	NA
SB-1-1	4.5-6'	5-2-94	ND	ND	ND	NA
SB-1-2	9.5-11'	5-2-94	ND	ND	ND	NA

ppm = parts per million
ppb = parts per billion
ND = none detected
NA = not analyzed

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
TEST PIT
ASTRO WESTERN SERVICE STATION
LONGVIEW, WASHINGTON
APRIL 14, 1994
(ppm)

Test Pit Number	TPH-HCID Diesel	TPH-HCID Gasoline
TP-1	ND	ND
TP-2	ND	50
TP-3	ND	520
TP-4	ND	220
TP-5	ND	670

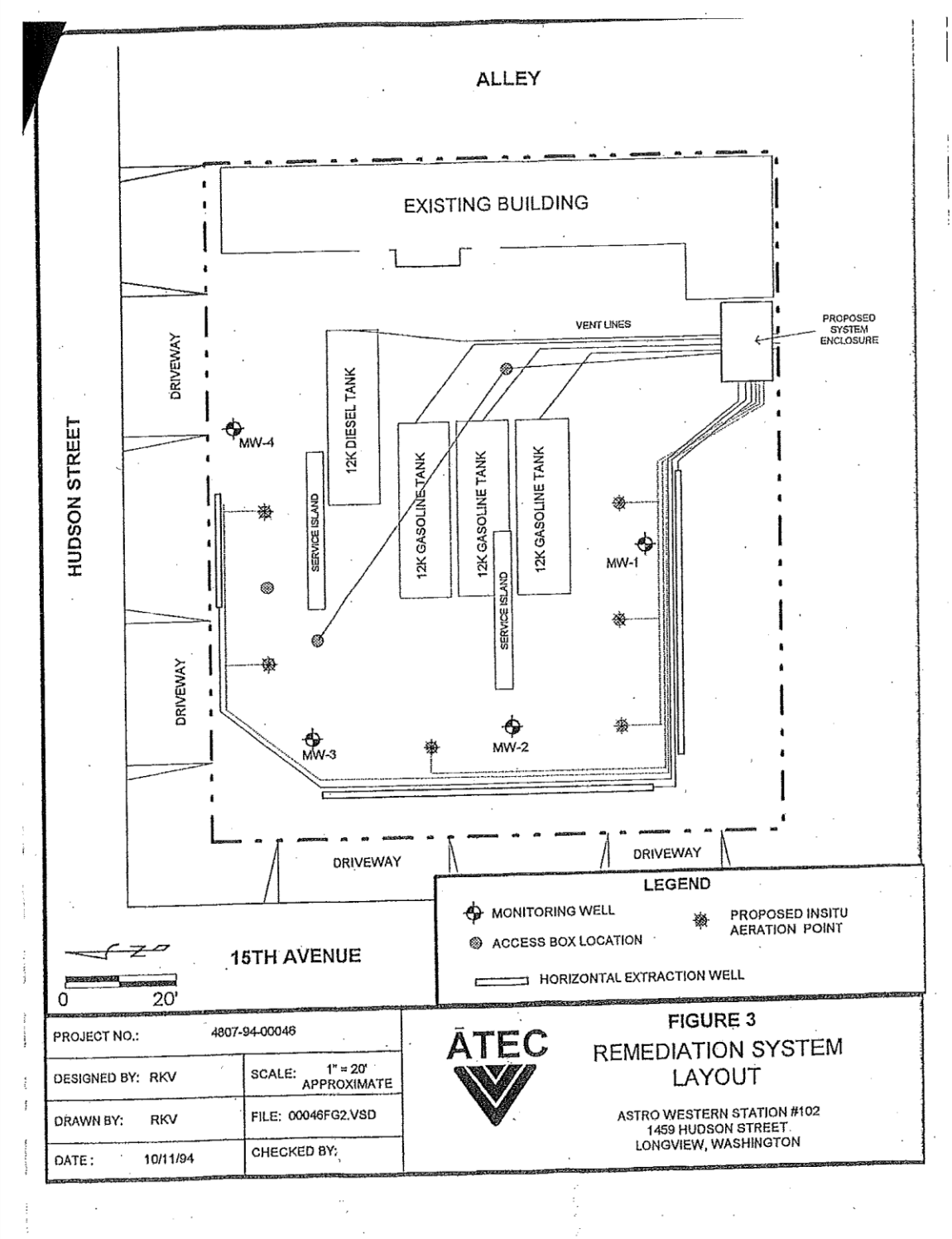
ppm = parts per million
ND = none

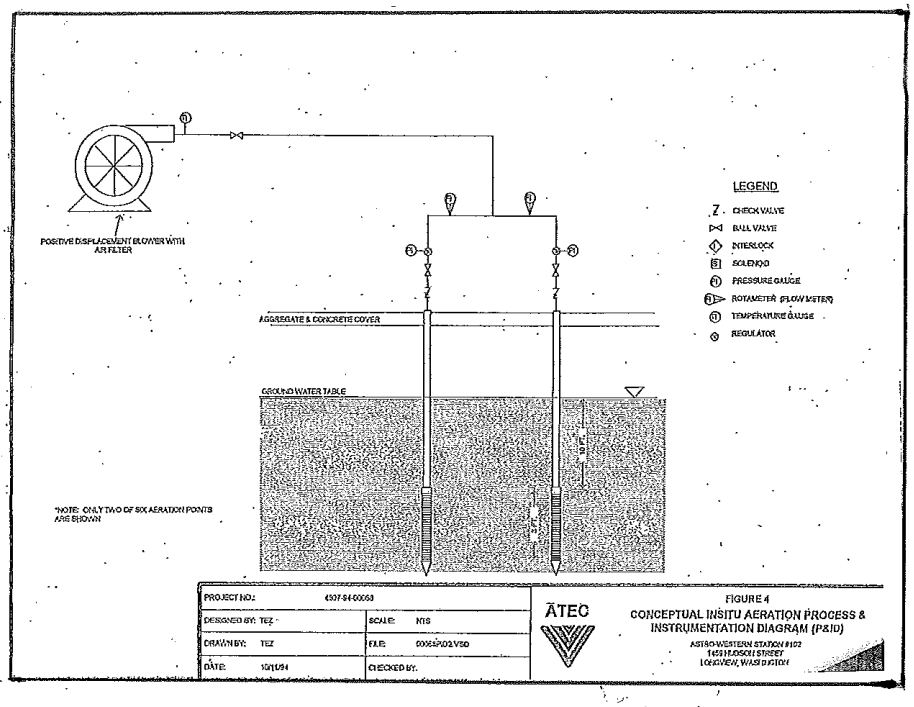
TABLE 4
GROUND WATER SAMPLE
ANALYTICAL RESULTS
ASTRO WESTERN SERVICE STATION
LONGVIEW, WASHINGTON
MAY 2 AND 6, 1994

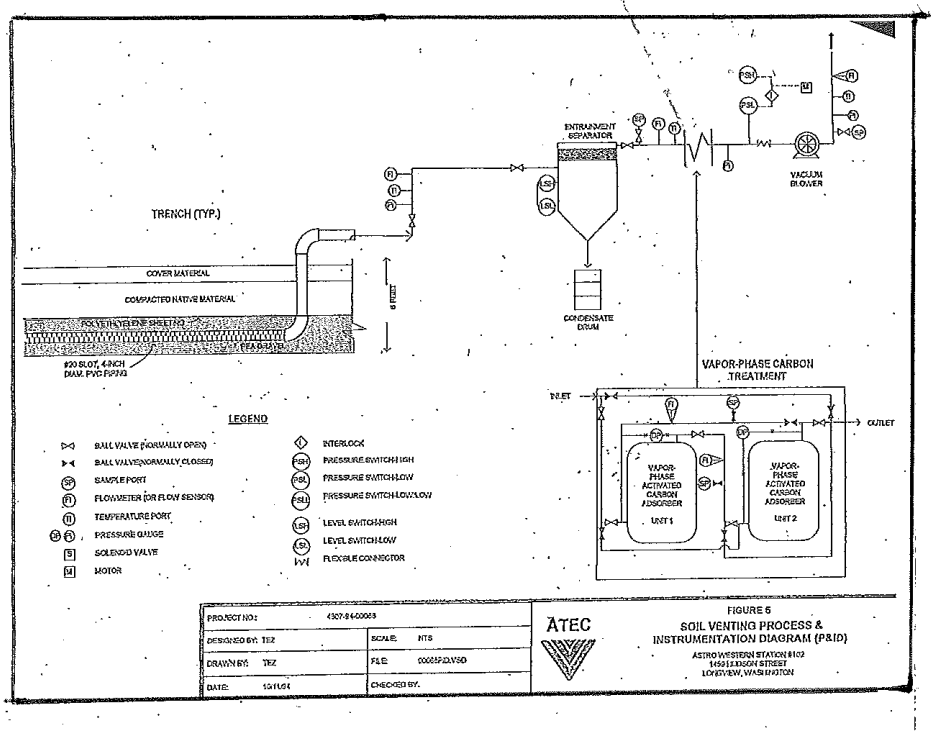
Monitoring Well	Date Sampled	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	TPH-418.1 (ppm)
MW-1	5-6-94	50	0.8	1.3	15	2.2
MW-2	5-6-94	740	1,100	320	1,900	3.0
MW-3	5-6-94	ND	9.0	90	560	2.8
MW-4	5-6-94	ND	ND	ND	ND	ND

ppm = parts per million
ppb = parts per billion
ND = none detected
NA = not analyzed

6.4 Remediation System Layout and Soil Vapor Extraction System Emission Results




POSITIVE DISPLACEMENT BLOWER WITH AIR FILTER
AGGREGATE & CONCRETE COVER
GROUND WATER TABLE
*NOTE: ONLY TWO OF SIX AERATION POINTS ARE SHOWN
LEGEND
CHECK VALVE
BALL VALVE
INTERLOCK
SOLENOID
PRESSURE GAUGE
ROTAMETER (FLOW METER)
TEMPERATURE GAUGE
REGULATOR
PROJECT NO.: 4307-84-00003
DESIGNED BY: TEZ
SCALE: NTS
DRAWN BY: TEZ
FILE: 00084P02.VSD
DATE: 10/1/04
CHECKED BY:
ATEC
FIGURE 4
CONCEPTUAL INSITU AERATION PROCESS & INSTRUMENTATION DIAGRAM (P&ID)
ASTRO WESTERN STATION #102
1450 LEXSON STREET
LONGVIEW, WASHINGTON


TRENCH (TYP.)
COVER MATERIAL
COMPACTED NATIVE MATERIAL
POLYETHYLENE SHEETING
#20 SLOT, 4 INCH DIAM. PVC PIPING
6 FEET
ENTRAINMENT SEPARATOR
CONDENSATE DRUM
VACUUM BLOWER
VAPOR-PHASE CARBON TREATMENT
INLET
OUTLET
VAPOR-PHASE ACTIVATED CARBON ADSORBER UNIT 1
VAPOR-PHASE ACTIVATED CARBON ADSORBER UNIT 2
LEGEND
BALL VALVE (NORMALLY OPEN)
BALL VALVE (NORMALLY CLOSED)
SAMPLE PORT
FLOWMETER (OR FLOW SENSOR)
TEMPERATURE PORT
PRESSURE GAUGE
SOLENOID VALVE
MOTOR
INTERLOCK
PRESSURE SWITCH HIGH
PRESSURE SWITCH LOW
PRESSURE SWITCH LOW-LOW
LEVEL SWITCH HIGH
LEVEL SWITCH LOW
FLEXIBLE CONNECTOR
PROJECT NO.: 4307-84-00003
DESIGNED BY: TEZ
SCALE: NTS
DRAWN BY: TEZ
FILE: 00085P01.VSD
DATE: 10/1/04
CHECKED BY:
ATEC
FIGURE 5
SOIL VENTING PROCESS & INSTRUMENTATION DIAGRAM (P&ID)
ASTRO WESTERN STATION #102
1450 LEXSON STREET
LONGVIEW, WASHINGTON

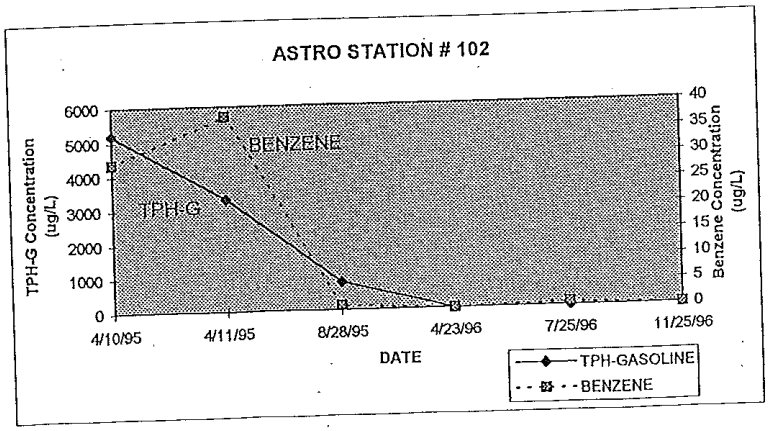
SOIL VAPOR EXTRACTION - ANALYTICAL EMISSION DATA

ASTRO STATION # 102
Longview, Washington
Update: 11/25/96
SWAPCA Order of Approval: 95-1732
By: Tom Mergy

Vapor Emmission Analytical Results

DATE	TPH-G	Benzene	Toluene	E.Benz	Xylene
4/10/95	5200	29	35	11	38
4/11/95	3300	38	19	8	24
8/28/95	810	0.8	8.8	3.3	16
4/23/96	ND	ND	ND	ND	ND
7/25/96	ND	0.68	2.6	ND	1.4
11/25/96	ND	ND	ND	ND	ND

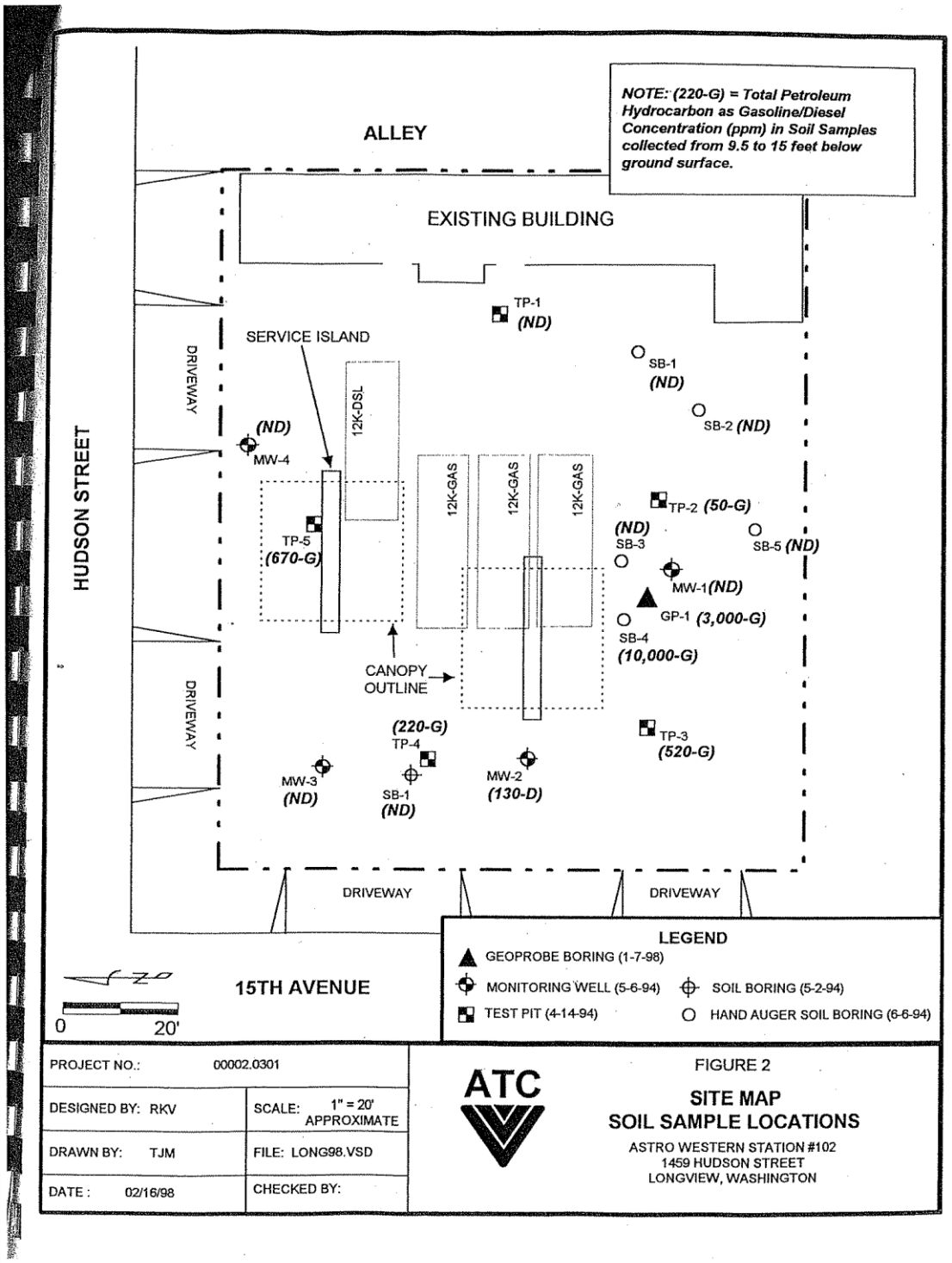
PLOT OF SOIL VAPOR PRE-TREATMENT ANALYTICAL RESULTS



LONGTBLS.XLS\SVE EFFLUENT ANALYTICAL

ATC ASSOCIATES INC.

6.5 Final Confirmation Soil Boring, GP-1 Location and Results



6.6 Groundwater Monitoring Results

TABLE 2
GROUND WATER ANALYTICAL DATA
ASTRO WESTERN STATION #102
1459 HUDSON STREET
LONGVIEW, WASHINGTON

Monitoring Well	Date	TPH-Dx (ppm)	TPH-Gas (ppm)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	Total Lead (ppm)
MW-1	05-06-94	2,200	--	50	0.8	1.3	15	
	04-03-95	--	130	6.0	ND	4.5	9.8	
	03-05-96	--	--	ND	ND	ND	ND	
	08-21-96	--	--	ND	ND	ND	ND	
	11-25-96	--	--	ND	ND	ND	ND	
	03-03-97	--	--	ND	ND	ND	ND	
	06-12-97	--	ND	ND	ND	ND	ND	
	01-07-98	ND	ND	--	--	--	--	0.0012
	04-22-99	0.29**	ND	--	--	--	--	ND*
MW-2	05-06-94	3,000	--	740	1,100	320	1,900	
	04-03-95	--	700	160	6.2	40	86	
	03-05-96	--	--	20	ND	2	ND	
	10-07-96	--	--	2	ND	12	ND	
	11-25-96	--	--	ND	ND	ND	ND	
	03-03-97	--	--	ND	ND	ND	ND	
	06-12-97	--	ND	ND	ND	ND	ND	
	01-07-98	ND	ND	--	--	--	--	0.0012
	04-22-99	ND	ND	--	--	--	--	ND*
MW-3	05-06-94	2,800	--	ND	9.0	90	560	
	04-03-95	--	1,700	47	3.1	60	160	
	03-05-96	--	--	ND	ND	ND	ND	
	08-21-96	--	--	ND	ND	ND	ND	
	11-25-96	--	--	ND	ND	ND	ND	
	03-03-97	--	--	ND	ND	ND	ND	
	06-12-97	--	ND	ND	ND	ND	ND	
	01-07-98	ND	ND	--	--	--	--	0.0033
	04-22-99	ND	ND	--	--	--	--	ND*
MW-4	05-06-94	ND	--	ND	ND	ND	ND	
	04-03-95	--	ND	ND	ND	ND	ND	
	03-05-96	--	--	ND	ND	ND	ND	
	08-21-96	--	--	ND	ND	ND	ND	
	11-25-96	--	--	ND	ND	ND	ND	
	03-03-97	--	--	ND	ND	ND	ND	
	06-12-97	--	ND	ND	ND	ND	ND	
	01-07-98	ND	ND	--	--	--	--	0.001
	04-22-99	ND	ND	--	--	--	--	ND*
DOE Method A Levels		1	1	5	40	30	20	0.005

* = dissolved lead concentration of field filtered water sample
** = Follow-up analysis of Polynuclear Aromatic Hydrocarbons were non-detect
ppb = parts per billion
ppm = parts per million
-- = not analyzed
ND = not detected at the detection limits stated on the certified analytical reports

6.7 Environmental Covenant

3069792
Page: 1 of 5
10/01/1999 11:08A
WSCO PETROLIUM COV 12.00 Cowlitz County

Return Address:

_____
_____
_____
_____

WASHINGTON STATE COUNTY AUDITOR / RECORDER'S INDEXING FORM (Cover Sheet)

(RCW 65.04)

Please print or type information

Document Title(s) (or transactions contained therein):
1. RESTRICTIVE COVENANT, WSCO PETROLEUM, ASTRO #102
2.
3.
4.

Reference Number(s) of Documents assigned or released:

Additional reference #'s on page 4 of document.

Grantor(s) (Last name first, then first name and initials)
1. WSCO PETROLEUM CORP, GLENN ZIRKLE, PRESIDENT
2.
3.
4.
☐ Additional names on page ____ of document.

Grantee(s) (Last name first, then first name and initials)
1. Public
2.
3.
4.
☐ Additional names on page ____ of document.

Legal description (abbreviated: i.e. lot, block, plat or section, township, range)
LOTS 21 & 22, BLOCK 96,
☐ Additional legal is on page ____ of document. PLAT OF LONGVIEW NO. 11

Assessor's Property Tax Parcel/Account Number

☐ Assessor Tax # not yet assigned 01628 / R021584

The Auditor/Recorder will rely on the information provided on the form. The staff will not read the document to verify the accuracy or completeness of the indexing information provided herein.

RESTRICTIVE COVENANT

WSCO Petroleum, Astro Station #102

This Declaration of Restrictive Covenant is made pursuant to RCW 70.105D.030(1)(f) and (g) and WAC 173-340-440 by WSCO Petroleum, its successors and assigns, and the State of Washington Department of Ecology, its successors and assigns (hereafter "Ecology").

An independent remedial action (hereafter "Remedial Action") occurred at the property that is the subject of this Restrictive Covenant. The Remedial Action conducted at the property is described in the following documents prepared by ATC Associates, Inc.:

1. Ground Water Monitoring and Site Closure Report dated June 14, 1999
2. Letter to Ecology, Subject: UST Site Closure – LUST File No. 5163, Astro Western Station #102, dated March 3, 1999
3. Soil Confirmation Sampling and January 1998 Ground Water Monitoring, dated March 16, 1998

These documents are on file at Ecology's Southwest Regional Office (SWRO).

This Restrictive Covenant is required because the Remedial Action resulted in residual concentrations of total petroleum hydrocarbons as gasoline and diesel which exceed the Model Toxics Control Act Method A Residential Cleanup Level(s) for soil established under WAC 173-340-740.

The undersigned, WSCO Petroleum, is the fee owner of real property (hereafter "Property") in the County of Cowlitz, State of Washington, that is subject to this Restrictive Covenant. The Property is legally described in Attachment A of this restrictive covenant and made a part hereof by reference.

WSCO Petroleum makes the following declaration as to limitations, restrictions, and uses

to which the Property 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 Property (hereafter "Owner").

Section 1. (This Section must describe with particularity the restrictions to be placed on the property.)

A portion of the Property contains total petroleum hydrocarbons in soil which exceed the Model Toxics Control Act Method A Residential Cleanup Level(s). The contaminated soil is located at a depth between 9 feet and 15 feet and extending up to 30 feet southwest of the southern pump island. The Owner shall not alter, modify, or remove the existing structures in any manner that may result in the release or exposure to the environment of that contaminated soil or create a new exposure pathway without prior written approval from Ecology. Any activity on the Property that may result in the release or exposure to the environment of the contaminated soil 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 capped (paved) areas 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. Any activity on the Property that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited.

September 10, 1999

Section 3. Any activity on the Property that may result in the release or exposure to the environment of a hazardous substance that remains on the Property as part of the Remedial Action, or create a new exposure pathway, is prohibited without prior written approval from Ecology.

Section 4. The Owner of the property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

Section 5. The Owner must restrict leases to uses and activities consistent with the Restrictive Covenant and notify all lessees of the restrictions on the use of the Property.

Section 6. The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Restrictive Covenant. Ecology may approve any inconsistent use only after public notice and comment.

Section 7. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the property, and to inspect records that are related to the Remedial Action.

Section 8. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Restrictive Covenant shall no longer limit use of the Property

RESTRICTIVE COVENANT
Astro Station #102, Longview, WA
Page 4

or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

Glenn Zirkle President

WSCO Petroleum

9-29-99

Date Signed

STATE OF Oregon)
) ss.
County of Multnomah)

On this day personally appeared before me Ronda VanderMeer to me known to be the individual, or individuals described in and who executed the within and foregoing instrument, and acknowledged that he/she signed the same as his/her free and voluntary act and deed, for the uses and purposes therein mentioned.

Dated: September 29, 1999.

Ronda L VanderMeer
Notary Public for the state of OREGON,
Residing at 2929 N.W. 29th PORTLAND
My Commission Expires 8/26/03

OFFICIAL SEAL
RONDA L. VANDER MEER
NOTARY PUBLIC-OREGON
COMMISSION NO. 326595
MY COMMISSION EXPIRES AUG. 26, 2003

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6.8 Photo Log

Photo 1: Astro Quick Mart, Front of the Store From the Northwest.

Photo 2: Astro Quick Mart, Front of the Store From the Northeast.

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Photo 3: Pump Islands and Asphalt Cap From the Northwest.

Photo 4: Pump Islands From the Southeast.

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Photo 5: Pump Islands and Asphalt Cap From the Southwest.


Photo 6: Approximate Area of Soil Contamination Left in Place at 15 Feet Below Ground Surface and the Concrete/Asphalt Cap From the South.

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Photo 7: Approximate Area of Soil Contamination Left in Place at 15 feet Below Ground Surface and the Concrete/Asphalt Cap From the North.

Photo 8: Abandoned Groundwater Monitoring Well.

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