FINAL INDEPENDENT REMEDIAL ACTION REPORT

ALGER FOOD MART
BURLINGTON, WASHINGTON

For:

Alger Food Mart
218 Old Highway 99 North
Burlington, WA 98233

And:

WASHINGTON STATE DEPARTMENT OF ECOLOGY
3190 160th Avenue S.E.
Bellevue, WA 98008-5452

By:

W. D. PURNELL & ASSOCIATES, INC.
Consulting Engineers & Geologists
2138 Humboldt Street
Bellingham, WA 98227
(360) 676-9589

December 17, 1996

W.D. PURNELL AND ASSOCIATES, INC.

December 17, 1996

Alger Food Mart
218 Old Highway 99 North
Burlington, WA 98233

Attn: Paul Kang

Re: Final Independent Remedial Action Report
Alger Food Mart
Burlington, Washington

Dear Mr. Kang:

W.D. Purnell & Associates, Inc., is pleased to present three copies of the Final Independent Remedial Action Report (FIRAR) for the above referenced property. In our opinion, the cleanup of contaminated soil has been completed and documented in accordance with WAC 173-340, "Model Toxics Control Act Cleanup Regulation".

Soil contaminated with gasoline was the only affected media. We have confirmed that ground water has not been affected by petroleum hydrocarbon contamination based on the following evidence: 1) ground water was not encountered during cleanup excavations; 2) ground water was not encountered within a 15-foot deep test pit within the area of contamination, 3) well logs for a wells in the vicinity of the subject property indicate that ground water is located approximately 120 feet below the ground surface, and 4) soils observed in the cleanup excavation consisted of very compact silty clay with very low permeability.

The FIRAR must be submitted to the Washington State Department of Ecology (WDOE). If you want the WDOE to review the report, you must pay them a fee. Should you decide to have the WDOE review the FIRAR, we have included a cover letter for the FIRAR, and two forms that need to be submitted with the FIRAR: the "Request for Review - Independent Remedial Action Report" and the "Independent Remedial Action Report Summary". The WDOE will review the report and provide a written opinion of "no further action" or that further cleanup actions are necessary at the site, per WAC 173-340. The WDOE requires a filing fee in the amount of $1,000 to conduct an initial review of the report. If the WDOE accepts the report for detailed review, you will be notified if additional fees are required before detailed review begins. Additional fees generally comprise 2 % of total project cost (less the $1,000 filing fee). It is the intent of the WDOE to complete the review within 90 days of submittal.

P.O. Box 5346, 2138 Humboldt, Bellingham, WA 98227 Phone: (360) 676-9589 800-859-5897 Fax: (360) 676-4626

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Alger Food Mart
Final Independent Remedial Action Report

SECTION 1: EXECUTIVE SUMMARY

This Final Independent Remedial Action Report describes the site investigation and cleanup at the Alger Food Mart site located in Alger, Washington (Figure 1, Appendix I), in accordance with the "Model Toxics Control Act Cleanup Regulation" (Chapter 173-340 WAC). The Alger Food Mart is listed on the WDOE Leaking Underground Storage Tank (LUST) and Underground Storage Tank (UST) lists. The site LUST and UST identification number is 6413.

This independent cleanup was directed at contaminated soil in the vicinity of 4 USTs and associated product lines. All four of these USTs were removed from the subject property, and contaminated soil was excavated and stockpiled on the subject property.

Soil samples indicated that the residual contaminants in the sidewalls and bottom of the excavation were non-detectable or below the MTCA Method A recommended cleanup standard in the vicinity of the former USTs, except for a 0.6 mg/kg detection for benzene in Sample OWTB2, beneath the former location of UST 3.

In our opinion, the residual benzene remaining in the bottom of the UST excavation did not warrant further excavation for the following reasons:

1) Gasoline-range hydrocarbons, toluene, ethylbenzene, and xylenes were not detected in the sample.

2) The soil sample was collected from a compact clay of very low permeability.

3) No ground water was encountered in the UST excavations, and well logs from the vicinity of the subject property indicate that the depth to ground water is approximately 100 feet beneath the surface and is overlain by 120 feet of impermeable clay.

4) The very low concentration poses no risk of contaminating ground water.

Approximately 30 cubic yards (43 tons) of soil contaminated above the MTCA 173-340 Method A Cleanup Standard for gasoline-range hydrocarbons was removed from the subject property, and remediated by thermal desorption at Associated Sand and Gravel of Everett, Washington. The Certificate of Destruction is included in Appendix VII.

SECTION 2 REMEDIAL INVESTIGATION AND CLEANUP SUMMARY

There are 5 USTs listed on the WDOE UST list for the subject property: UST 1, UST 2, UST 3, UST 1A 1, and UST 1A 2. An unlisted, abandoned UST (hereafter referred to as UST 4) was found on the subject property adjacent to UST 3 during this independent cleanup action. The locations of these tanks are indicated on Figures 2 and 3, Appendix I. A summary of the current status of these USTs and the relationship of these USTs in regard to this independent remedial action is presented in Table 1.

TABLE 1
Alger Food Mart UST Status

UST	Status	Comments
1	Removed 11/95	Removed by Tank Services, Inc. 11/95 Assessed by Pinner Engineering 11/95 Release reported 12/95 Cleanup conducted by W.D. Purnell and Associates, Inc. 8/96
2	Removed 11/95	Removed by Tank Services, Inc. 11/95 Assessed by Pinner Engineering 11/95 Release reported 12/95 Cleanup conducted by W.D. Purnell and Associates, Inc. 8/96
3	Removed 8/96	Listed as closed-in-place Assessed and removed by W.D. Purnell and Associates, Inc. 8/96 Cleanup conducted by W.D. Purnell and Associates, Inc. 8/96
4	Removed 8/96	Abandoned tank, not listed with WDOE Assessed and removed by W.D. Purnell and Associates 8/96 Cleanup conducted by W.D. Purnell and Associates, Inc. 8/96
1A 1	Operational	Installed 11/95 by Tank Services, Inc.
1A 2	Operational	Installed 11/95 by Tank Services, Inc.

An UST Site Assessment was conducted by Pinner Engineering, Inc. of Ferndale, Washington on UST 1 and UST 2 at the time of their removal in November 1995. A copy of the UST Site Assessment report (hereafter referred to as the Pinner report) is included in Appendix IV. The Pinner report indicated a release of gasoline at the site associated with UST 1 and/or UST 2. The release was indicated by the presence of gasoline-range hydrocarbons in a water sample collected from the UST pit, and implied that water in the pit was ground water. No gasoline-range hydrocarbons or BTEX compounds were detected in soil samples collected from the sidewalls and bottom of the UST excavation. The UST pit was backfilled with excavated soil from the UST removal and with excavated soil from the installation of two new tanks (Tank 1A 1 and Tank 1A 2), located approximately 75 feet to the south of the location of the removed USTs (Figure 2, Appendix I).

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W.D. Purnell and Associates, Inc. visited the site on August 9, 1996 and oversaw the excavation of backfill soil in the UST 1 and UST 2 pit, and assessed the soil and ground water conditions in the UST excavation. All excavated soil was stockpiled on site. We made the following observations during our site investigation:

(1) The backfill material consisted of silty clay, slabs of concrete, broken fuel product lines, and sand. Some of the broken product lines still contained gasoline.

(2) The distribution lines and vent lines for UST 1 and UST 2 had not been removed and still contained gasoline. Soil in the vicinity of the distribution lines appeared to be contaminated with gasoline.

(3) A perforated drain line was located immediately above the distribution lines and directed storm water run-off from the paved parking area into the soils above the distribution lines and in the UST 1 and UST 2 pit.

(4) Two USTs (UST 3 and UST 4) were located immediately to the west of the UST 1 and UST 2 pit. Both of these USTs contained water.

(5) Ground water was not observed in our excavations.

Soil samples were collected from the bottom and sidewalls of the UST 1 and UST 2 pit (Samples NTB, STB, S, and W), from beneath UST 3 and UST 4 (Samples OETB and OWTB), from beneath the distribution lines (Sample PI), and from the excavated soil (Samples EXG 1, EXG 2, and EXB). Soil sampling locations were based on *Guidance For Remediation of Releases from Underground Storage Tanks, WDOE Publication #91-30* and on field screening of soil samples. Field screening included both sheen testing and photo ionization detector (PID) screening. All samples were collected with a stainless steel spoon decontaminated with alconox and distilled water. Soil samples were placed in 8-ounce glass jars with teflon lined lids and immediately stored in a ice-filled cooler.

Analytical results are summarized in Table 2, and the complete laboratory report is included in Appendix VI. Analytical results indicated that soil was contaminated with gasoline-range hydrocarbons above the WAC 173-340 Method A standard in the south sidewall of the UST 1 and UST 2 pit below the location of the former distribution lines (Sample S), and beneath UST 3 (Sample OWTB). Analytical results indicated that soil from beneath UST 4 (Sample OETB), from the bottom of the UST 1 and UST 2 distribution line excavation (Sample PI), and from the bottom and west sidewall of the UST 1 and UST 2 pit (Samples NTB, STB, W) had residual concentrations of gasoline-range hydrocarbons, and BTEX compounds below the MTCA Method A cleanup standards. Analytical results indicated that the stockpiled soil from the excavation (Samples EXG 1, EXG 2, and EXB) had residual concentrations of gasoline-range hydrocarbons, and BTEX compounds below the MTCA Method A cleanup standards. Lead was not detected in Sample EXB.

TABLE 2
Analytical Results

Sample	Date	Location	Depth (feet)	TPH-Gasoline Range (mg/Kg)	TPH-Diesel Range (mg/Kg)	TPH-Oil Range (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylenes (mg/kg)	Lead (mg/kg)	SOIL FATE
OETB	8/9/96	Bottom of UST pit below UST 4	9	5	NT	NT	0.1	< 0.1	0.1	< 0.3	NT	Residual
OWTB	8/9/96	Bottom of UST pit below UST 3	9	110	NT	NT	0.3	0.7	0.7	3.7	NT	Disposed
NTB	8/9/96	Bottom of UST pit below UST 2	9	6	NT	NT	< 0.1	< 0.1	< 0.1	< 0.1	NT	Residual
STB	8/9/96	Bottom of UST pit below UST 1	9	7	NT	NT	< 0.1	< 0.1	< 0.1	< 0.3	NT	Residual
S	8/9/96	South sidewall below product lines	3	460	NT	NT	< 0.1	0.7	2.1	5.9	NT	Disposed
W	8/9/96	West sidewall between USTs 1 and 2	3	< 5	NT	NT	< 0.1	< 0.1	< 0.1	< 0.3	NT	Residual
PI	8/9/96	Below product lines below pump island	3	9	NT	NT	< 0.1	< 0.1	< 0.1	< 0.3	NT	Residual
EXG 1	8/9/96	Soil stockpile	NA	7	NT	NT	< 0.1	< 0.1	< 0.1	< 0.3	NT	Returned to pit
EXG 2	8/9/96	Soil stockpile	NA	< 5	NT	NT	0.1	< 0.1	< 0.1	< 0.3	NT	Returned to pit
EXB	8/9/96	UST 1 and UST 2 excavated soil stockpile	NA	50	NT	NT	< 0.1	0.2	0.4	2.3	<4	Returned to pit
SP2 A	8/28/96	UST 3 and UST 4 excavated soil stockpile	NA	1,200	30	< 50	5	43	17	110	34	Disposed
SP2 B	8/28/96	UST 3 and UST 4 excavated soil stockpile	NA	1,600	40	< 50	11	47	16	100	33	Disposed
WW	8/28/96	West sidewall west of UST 3	3	6	< 26	< 52	0.2	0.2	< 0.1	0.4	7	Residual
OWTB2	8/28/96	Bottom of UST pit beneath UST 3	10	< 5	< 28	< 56	0.6	< 0.1	< 0.1	< 0.3	9	Residual
SW	8/28/96	South sidewall south of UST 3	3	< 5	< 25	< 50	< 0.1	< 0.1	< 0.1	< 0.3	9	Residual
S2	8/28/96	South sidewall 5 feet south of Sample S	3	< 5	NT	NT	< 0.1	< 0.1	< 0.1	< 0.3	8	Residual
WAC 173-340 Method A Cleanup Standard				100	200	200	0.5	40	20	20	200	

mg/Kg = parts-per-million; NA = not applicable; NT = not tested; see Figure 3, Appendix I for sample locations.

Based on our site observations, initial analytical results, review of the Pinner report, and our conversations with Paul Kang (the property manager), it is our opinion that the release of gasoline reported in the Pinner report may have been the result of one or more of the following:

(1) Storm water from the perforated drain line may have been contaminated by leaking distribution lines or pumps before draining into the UST 1 and UST 2.

(2) Storm water in the UST 1 and UST 2 pit may have been contaminated by the broken fuel lines we observed in the UST 1 and UST 2 pit.

(3) Contaminated soil in the sidewalls and bottom of the UST 1 and UST 2 pit was not detected by the Pinner sampling and may have contaminated storm water flowing into the UST excavation from the adjoining paved parking area.

(4) Contaminated soil from UST 3 and UST 4 or the UST 1 and UST 2 distribution lines may have contaminated storm water flowing into the excavation.

We returned to the site on August 28, 1996 to observe the removal of UST 3 and UST 4, and to direct the excavation of contaminated soil identified from the August 9, 1996 sampling and any other potentially contaminated soil in the vicinity of UST 3 and UST 4. Soil was excavated to the top of UST 3 and UST 4, and the tank vent lines and product lines were excavated. Water in the tanks was pumped by Vintage Oil of Anacortes, Washington. The tanks were inerted with carbon dioxide, cut open, and cleaned prior to removal from the UST pit. Both tanks were rusted, but we did not observe any holes in the tanks; however, the product lines were in very poor condition and had numerous holes.

We observed soil above, adjacent to, and beneath UST 3 and UST 4 that appeared to be contaminated with oil or degraded diesel. In addition, the soil had a gasoline odor. Soil from the UST 3 and UST 4 excavation, from beneath the removed tanks, and from the south sidewall of the adjoining UST 1 and UST 2 pit was excavated and stockpiled. Soil samples were collected from the south and west sidewalls of the UST 3 and UST 4 pit (Samples SW and WW), from the bottom of the UST pit beneath the former location of UST 3 at a depth of 10 feet (Sample OWTB2), from the south sidewall of the UST 1 and UST 2 pit (Sample S2), and from the excavated soil stockpile (Samples SP2 A and SP2 B).

Analytical results from samples collected on August 28, 1996 indicated that the excavated soil (Samples SP2 A and SP2 B) was contaminated above the MTCA Method A Cleanup Standard for gasoline-range hydrocarbons, benzene, toluene, and xylenes. Residual soil contamination in the sidewalls and bottom of the UST excavations (Samples WW, SW, OWTB2, and S2) was below the MTCA Method A cleanup standards except for benzene beneath the former location of UST 3 (Sample OWTB2). The benzene concentration at this location was 0.6 mg/kg, slightly above the MTCA Method A benzene standard of 0.5 mg/kg.

The MTCA Method A cleanup standard for benzene is based on protection of ground water. In our opinion, the residual benzene (0.6 mg/kg) remaining in the bottom of the UST excavation does not pose a threat to ground water, and further excavation is not warranted for the following reasons:

1) Gasoline-range hydrocarbons, toluene, ethylbenzene, and xylenes were not detected in Sample OWTB2.

2) The soil sample was collected from a compact clay of very low permeability.

3) No ground water was encountered in the UST excavations, and well logs from the vicinity of the subject property indicate that the depth to ground water is approximately 100 feet beneath the surface and is overlain by approximately 120 feet of impermeable clay.

4) Other soil samples collected in the sidewalls and bottom of the UST 3 and UST 4 excavation were below the MTCA Method A cleanup standards.

All UST excavations were backfilled with the stockpiled soil from the August 9, 1996 excavation and clean sand and gravel pit run. Approximately 30 cubic yards of contaminated soil was trucked to Associated Sand and Gravel Company, Inc. of Everett, Washington for treatment and disposal. The certificate of destruction for this soil is included in Appendix VII.

SECTION 3: SITE DESCRIPTION

3.1 Site Name

Alger Food Mart

3.2 Street Address

218 Old Highway 99 North
Burlington, WA 98233

3.3 Mailing Address

Alger Food Mart
218 Old Highway 99 North
Burlington, WA 98233

Attn: Paul Kang, Manager

3.4 Phone Number

Paul Kang (360)-724-5705

3.5 Other Names for the Site (Aliases)

Current site occupants: Alger Food Mart

3.6 MTRS

NE $^1/_4$ of NE $^1/_4$ of Section 18, Township 36 North, Range 04 East of Willamette Meridian. See Figure 1 (Appendix I).

3.7 Latitude and Longitude

Approximate Latitude: 48°37'00"
Approximate Longitude: 122°20'15"

Reference: Alger, Washington, 1952, 7.5 Minute Series (Topographic): United States Geological Survey, scale 1:24,000

3.8 Map of Site Location

See Figure 1 (Appendix I).

3.9 Detailed Site Map(s)

See Figure 2 and 3 (Appendix I).

3.10 Site Geology

The following descriptions of the surficial deposits on the subject property and in the vicinity of the subject property were interpreted from our own observations and the Preliminary Geologic Map of the Bellingham 1:100,000 Quadrangle, Washington (Pringle et al., 1994). Pringle et al. (1994) indicate that the subject property and surrounding area are underlain by glacial deposits. However, the map does not differentiate the glacial deposits in the vicinity of the subject property. Our field observations indicate that the subject property is underlain by very compact layered silty clay. We interpret this unit to represent a glacial lacustrine (lake) deposit. The very compact nature of this unit indicates that it may have been at least partially consolidated by glacial ice.

Our review of well logs (Appendix III) from nearby properties indicates that the compact silty clay that we observed in the UST excavation is approximately 90 to 120 feet thick.

According to the Soil Survey of Skagit County (USDA, 1989), native soils in the vicinity of the subject property consist of Skipopa silt loam, described in Table 3.

TABLE 3
Soil Characteristics per Soil Survey of Skagit County

Skipopa silt loam		
Depth (inches)	**Description**	**USCS Classification**
0-8	silt loam	ML/MH
8-16	silt loam, silty clay loam	ML
16-60	silty clay, silty clay loam, clay	CL/CH

A guide to the USCS classification system is included in Appendix II. This soil is described by the USDA as having formed in a mantle of loess and volcanic ash underlain by glaciolacustrine sediment, and is described as having very low permeability. Our field observations of soils in the UST excavations were consistent with the USDA (1989) soil mapping.

3.11 Annual Precipitation

According to the U.S. Department of Commerce, Seattle Weather Bureau, the mean annual precipitation in Bellingham area, located approximately 10 miles north of the subject property is 33.96 inches/year, and the mean annual precipitation in the Sedro Wolley area, located approximately 10 miles to the southeast of the subject property is 45.50 inches per year (as referenced in the Department of Ecology, Toxics Cleanup Program, Interim Cleanup Information Memorandum No. 740-1, October 30, 1992). Because of the mountains in the vicinity of the subject property, the precipitation in area of the subject property is probably at least as high as that in Sedro-Wolley.

3.12 Site Hydrology

The subject property is located approximately 2,000 feet east of Friday Creek (Figure 1, Appendix I). Except for a drainage ditch located on the east side of Old Highway 99 across from the subject property, no surface water drainage courses are located on the subject property or adjoining properties. The ditch was dry at the time of our site work in August 1996. The subject property and adjoining properties slope towards the west. Surface water drainage towards Friday Creek appears to be through a series of wetlands. Wetlands are present on the northwest portion of the subject property approximately 300 feet to the west of the removed USTs (Figure 2, Appendix I).

Because of the very impermeable nature of the soil underlying the subject property, surface water infiltration is probably very low. We observed minor subsurface water within gravel fill above the native silty clay. No ground water was observed within the native silty clay to the depth of our excavation (9 feet) in the area of the removed USTs. We excavated a test pit within the bottom of the UST excavation to a depth of 15 feet in order to determine soil and ground water conditions beneath the UST excavation. This test pit indicated that silty clay soils of very low permeability are present below the former USTs to the depth of at least 15 feet, and no ground water was present within 15 feet of the ground surface in the area of the former USTs.

A well is located on the subject property approximately 50 feet to the west of the former USTs. A well log was not available for this well, and was not in the WDOE well log file. According to the property owner this well is approximately 120 feet deep, and draws water from a gravel aquifer 100 feet below the ground surface. Water well logs on file with the WDOE (Appendix II) indicate that ground water in the vicinity of the subject property is approximately 90 to 120 feet below the ground surface.

3.13 Drinking Water

Water for domestic use on the subject property and adjoining properties is provided by private wells. These wells draw water from an aquifer located approximately 90 to 120 feet beneath the ground surface. Well logs indicate that this is a confined aquifer overlain by silty clay from the ground surface to the top of the aquifer. Water well logs in the vicinity of the subject property are included in the Appendix II.

3.14 Other Pertinent Site Information

An Underground Storage Tank Site Check/Assessment for UST 1 and UST 2, dated December 4, 1995, was conducted by Pinner Engineering, Inc.; the report is included in Appendix IV. The Pinner report indicated a release of petroleum hydrocarbons from UST I and UST 2 at the time of removal of the two tanks.

The location of the subject property is indicated in Figure 1 (Appendix I). The subject property is located in the town of Alger within the south trending Friday Creek Valley. The property is at an elevation of approximately 260 feet above mean sea-level. The property lies approximately eight miles north of Burlington, and approximately 2,000 feet east of Friday Creek. The subject property slopes very gently towards the west, and the topographic relief across the property is approximately 4 feet.

Regionally, the subject property is located within an approximately one mile wide south trending valley bounded on the west by Chuckanut Mountain and on the east by Anderson Mountain.

Locally, the subject property is bounded on the north by a residence, on the east by Old Highway 99 North and residences, on the west by Friday Creek Road, and on the south by a grass covered field.

SECTION 4: SITE HISTORY/LAND USE

4.1 Property Owners

Not Known

4.2 Facility Owners/Operators

Alger Food Mart
Operator - Paul Kang

4.3 Business Type and Years of Operation

The property has been used as grocery store and gasoline station since at least the 1960s.

A private residence, a garage/storage building, and a grocery store are located on the subject property. The 1952 Alger, Washington Topographic Map indicates that these buildings have been located on the subject property since at least 1952.

4.4 General Description

Four USTs and a former pump island were located adjacent to the northeast corner of the grocery store (Figures 2 and 3, Appendix I). UST 1 and 2 were removed from the subject property in November 1995, as described in the Pinner report (Appendix IV). Two older USTs (UST 3 and UST 4) were located immediately to the west of UST 1 and UST 2. UST 3 and UST 4 were removed during the independent remedial action in August 1996. Two new USTs (UST 1A 1 and UST 1A 2) and a pump island were installed to the southeast of the grocery store in November 1995. These two tanks contain unleaded gasoline and diesel, respectively.

Most of the area between the grocery store and Old Highway 99 is paved. One catch basin is located adjacent to the former pump island (Figure 5). During the independent remedial action, we observed that the catch basin directed water into a perforated drain line that directed water into the area above the former USTs.

The subject property to the west of the grocery store and USTs consists of a residence, a garage/storage building attached to the grocery store, and landscaped yard. A drinking water well is located approximately 50 feet to the west of the USTs. According to the property owner the well is 120 feet deep, and draws water from a gravel aquifer 100 feet below the ground surface.

SECTION 5: HAZARDOUS SUBSTANCE MANAGEMENT/HANDLING PRACTICES

5.1 Hazardous Substance Identification and Quantities

Based on our observations during the excavation of potentially contaminated soil in the vicinity of the removed USTs and UST product lines, we concluded that potentially hazardous substances used in the past on the property consisted of petroleum hydrocarbon products. UST 1, UST 2, and UST 3 were all approximately 750-gallon tanks, and UST 4 was approximately 1,000 gallons in volume.

5.2 On-Site Treatment, Storage, and Disposal

Except for the USTs, no on-site treatment, storage, or disposal facilities are located on the property.

SECTION 6: NATURE AND EXTENT OF CONTAMINATION AND MEDIA AFFECTED

6.1 Documentation of Releases

UST 1 and UST 2 were removed from the property in November 1995. A release of gasoline-range hydrocarbons reportedly associated with UST 1 and UST 2 is described in the UST site assessment (Pinner report, Appendix IV) that was conducted at the time of removal.

We investigated the source of contamination in the vicinity of UST 1 and UST 2 by reexcavating the UST 1 and UST 2 pit on August 9, 1996. We observed that the backfill material in the UST 1 and UST 2 pit

consisted of silty clay, slabs of concrete, broken fuel product lines, and sand. We observed that some of the broken product lines within the backfill soil still contained gasoline. During the reexcavation of UST 1 and UST 2, two older USTs (UST 3 and UST 4) were observed to be located immediately to the west of the UST 1 and UST 2 pit, and we observed that the fuel product lines leading from the UST 1 and UST 2 pit to the former pump island were still in place.

Soil contaminated with petroleum hydrocarbons was observed at the following locations:

1) Adjacent to the broken fuel lines in backfill soils of the UST 1 and UST 2 pit,

2) Beneath the UST 1 and UST 2 product lines near the former pump island,

3) Adjacent to and beneath UST 3 and UST 4.

6.2 Contaminant Identification

According to the WDOE records, UST 1 and UST 2 are reported to have contained gasoline. No information was available on the contents of UST 3 and UST 4; however, both UST 3 and UST 4 had a gasoline odor. During the excavation of potentially contaminated backfill soil in the UST 1 and UST 2 pit, and during the removal of UST 3, UST 4, and the associated product lines we observed that the tanks and fuel lines contained water and petroleum hydrocarbons that appeared and smelled like gasoline. However, we also observed oil or possibly degraded diesel in the soils above, adjacent to, and beneath UST 3 and UST 4. Gasoline-range hydrocarbons, benzene, toluene, and xylenes were detected at concentrations above the MTCA Method A cleanup standards. Diesel-range hydrocarbons, ethylbenzene, and lead were detected at concentrations below the MTCA Method A cleanup standards, and oil-range hydrocarbons were not detected in any of the samples analyzed for oil-range hydrocarbons (Table 2).

6.3 Extent and Magnitude of Contamination

The extent of the contamination was limited to fill soils in the vicinity of the product lines and immediately above, adjacent to, and beneath UST 3 and UST 4. The highest contaminant concentration detected was in soil excavated from the area around UST 3 and UST 4. Approximately 30 cubic yards of soil was excavated during the removal of UST 3 and UST 4, the excavation of soil from the south sidewall of the UST 1 and UST 2 pit adjacent to the product lines, and the overexcavation of contaminated soil in the UST 3 and abandoned UST pit. The two soil samples of this excavated soil had concentrations of 1,600 mg/kg (Sample SP2 B) and 1,200 mg/kg (Sample SP2 A) for gasoline-range hydrocarbons.

6.4 Affected Media

Affected media was limited to backfill soils adjacent to the USTs and product lines and native silty clay in the immediate vicinity of the USTs and product lines. Ground water was not encountered during the excavation of contaminated soil, and a test pit indicated the presence of very low permeability soils to a depth of at least 15 feet in the vicinity of the former USTs. Well logs from vicinity of the subject property (Appendix III) indicate that the depth to ground water is approximately 100 to 120 feet, and clayey soils are encountered from the surface to a depth of approximately 100 to 120 feet.

A water sample collected from the UST 1 and UST 2 pit, described in the Pinner report, was contaminated with gasoline-range hydrocarbons above the WAC 173-340 Method A Standard. However, the Pinner report indicated that the source of water was from surface water runoff from the parking lot draining into the UST pit. During our independent cleanup action, we observed that a catch basin located adjacent to the pump island (Figures 3 and 5, Appendix I) directed water into a perforated pipe that was located above the product lines and within the UST pit (Figures 3, 6, and 8, Appendix I).

A drinking water well is located approximately 50 feet from the USTs. At the request of the Skagit County Health Department, this well was sampled by the property owner on December 27, 1993, and analyzed for volatile organic chemicals. No volatile organic chemicals were detected. A copy of the laboratory report for this sampling event is included in Appendix V.

Based on the Pinner report of surface water runoff in the UST pit, our observations of no ground water to a depth of at least 15 feet, water well logs from the property vicinity, and the analytical result from the drinking water well on the subject property, it is our opinion that ground water was not affected.

6.5 Laboratory Reports

Laboratory reports associated with the independent remedial action conducted on August 9 and 28, 1996 are organized in chronological order and included in Appendix VI.

6.6 Contaminant Map

Figure 3 shows the extent of soil excavation for this independent remedial action, and defines the extent of soil contamination associated with the USTs and fuel product lines.

6.7 Sensitive Environments

The site is located approximately 2,000 feet from Friday Creek (Figure 1, Appendix I). Wetlands are located in the vicinity of the subject property, and a wetland is located on the northwest portion of the subject property approximately 300 feet to the west of the former USTs.

SECTION 7: INDEPENDENT REMEDIAL ACTIONS PERFORMED

7.1 Selected Cleanup Technology

Contaminated soil was temporarily stockpiled on the subject property. This soil was trucked to Associated Sand and Gravel Company, Inc. of Everett, Washington for treatment using thermal desorption. The Certificate of Destruction is included in Appendix VII.

7.2 Selected Cleanup Standards

Selected cleanup standards for the contaminated soil are WAC 173-340 Method A recommended cleanup standards for gasoline-range petroleum hydrocarbons (100 mg/Kg), oil-range petroleum hydrocarbons (200 mg/kg), diesel-range petroleum hydrocarbons (200 mg/kg), benzene (0.5 mg/kg), ethylbenzene (20 mg/kg), toluene (40 mg/kg), xylenes (20 mg/kg), and lead (200 mg/kg).

7.3 Residual Contaminants

All soil residual concentrations are non-detect or below the WAC 173-340 Method A recommended cleanup standard, except for benzene detected beneath the former location of UST 3 (Sample OWTB2) at a concentration of 0.6 mg/kg. No gasoline-range hydrocarbons, or other BTEX compounds were detected in this soil sample.

The analytical results for the soil residual concentrations are presented in Table 2. The sample locations are indicated on Figure 3, Appendix I.

7.4 Results of Cleanup Actions

The concentration of residual contaminants in soil are non-detectable or below the MTCA Method A recommended cleanup standard for the soils in the vicinity of the former USTs, except for 0.6 mg/kg detection for benzene in Sample OWTB2, beneath the former location of UST 3.

In our opinion, the residual benzene remaining in the bottom of the UST excavation did not warrant further excavation for the following reasons:

1) Gasoline-range hydrocarbons, toluene, ethylbenzene, and xylenes were not detected in the sample,

2) The soil sample was collected from a compact clay of very low permeability,

3) No ground water was encountered in the UST excavations, and well logs from the vicinity of the subject property indicate that the depth to ground water is approximately 100 feet beneath the surface and is overlain by 100 feet of impermeable clay.

4) The reported concentration poses no risk of contaminating ground water.

Approximately 30 cubic yards of soil contaminated above the MTCA 173-340 Method A Cleanup Standard for gasoline-range hydrocarbons was removed from the subject property, and remediated by thermal desorption at Associated Sand and Gravel of Everett, Washington.

The following items must be forwarded to the WDOE if you want the report to be reviewed:

1) Cover letter
2) Request for Review - Independent Remedial Action Report (including Attachment A)
3) Independent Remedial Action Report Summary
4) Final Independent Remedial Action Report
5) A check or money order for $1,000.

If you decide that you do not want the WDOE to review the FIRAR, the FIRAR will be placed into the file for the subject property maintained by the WDOE, and the subject property will remain on the Leaking Underground Storage Tank list. However, the status of the subject property (as reported on the list) will be changed to "Reported Cleaned Up". In either case, the FIRAR and supporting documents (if you want the WDOE to review th FIRAR) should be mailed to:

Washington State Department of Ecology
3190 160th Avenue S.E.
Bellevue, WA 98008-5452

Attn: Elaine P. Atkinson
Toxics Cleanup Program

We appreciate the opportunity to be of service to you. Should you have any questions concerning this letter, the FIRAR forms, or the FIRAR, please contact our office at (800) 859-5597.

Sincerely yours,

W. D. PURNELL & ASSOCIATES, INC.,

W. D. Purnell By AK

Willard D. Purnell, P.E.G.
Professional Engineering Geologist

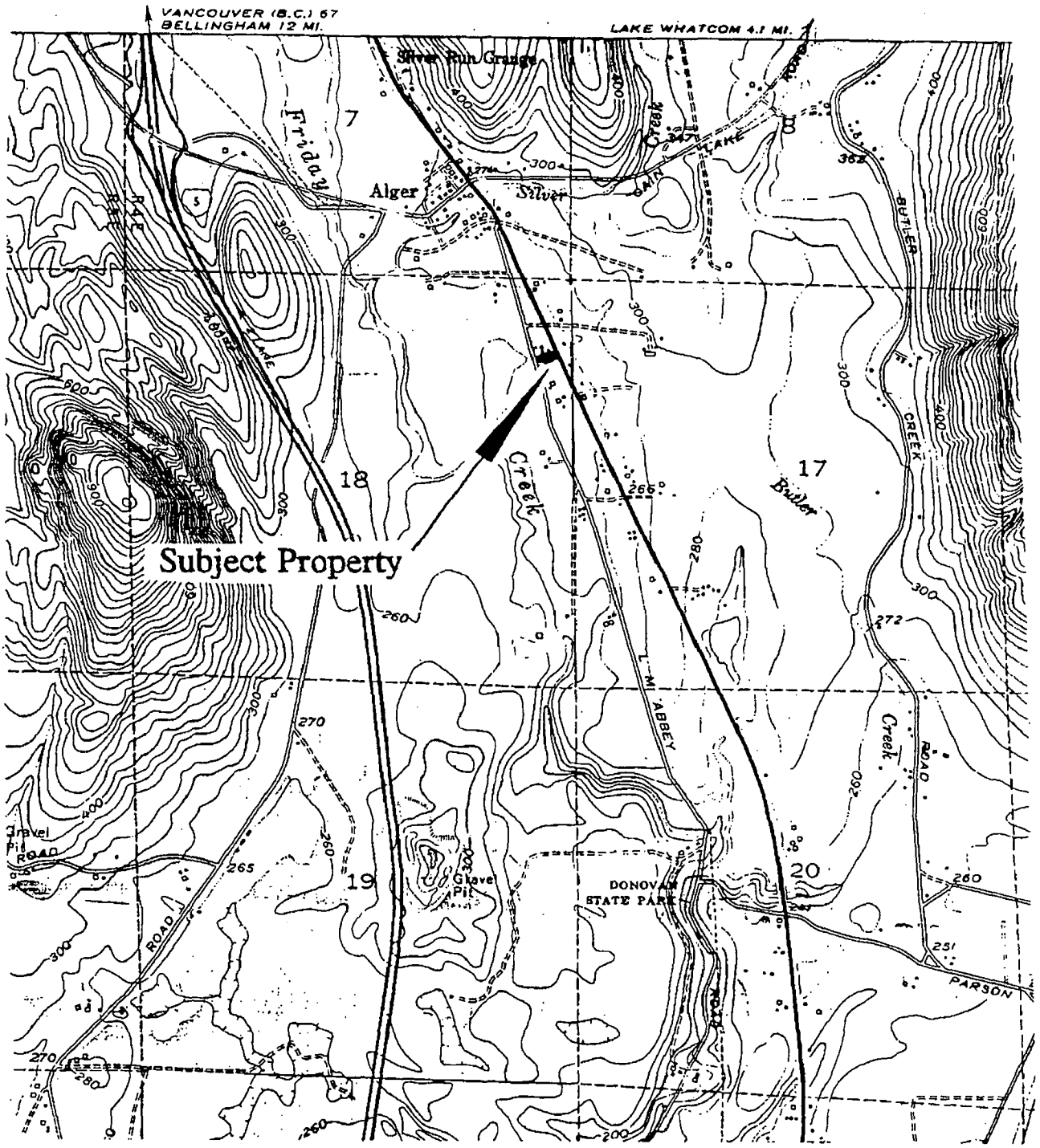
Dan McShane, M.S.
Geologist

Jon M. Einarsen, Ph.D.
Geologist

Thomas E. Bennett, M.S.C.E., P.E.
Environmental Engineer

APPENDIX I

Figure 1 - Site Vicinity Map
Figure 2 - Site Plan
Figure 3 - UST Detail
Figure 4 through Figure 9 - Site Photographs



Reference: Alger, Washington 1952, 7.5 Minute Series (Topographic)

JOB NO.:	96020B.96
DESIGNED BY:	DM
DRAWN BY:	DM
CHECKED BY:	JME

CONSULTING ENGINEERS
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Fax: (360) 676-4625

Figure 1
Site Vicinity Map
218 N Old Highway 99, Burlington, WA

DATE: 8-1-96
SCALE: H: 1:24,000 V: N/A

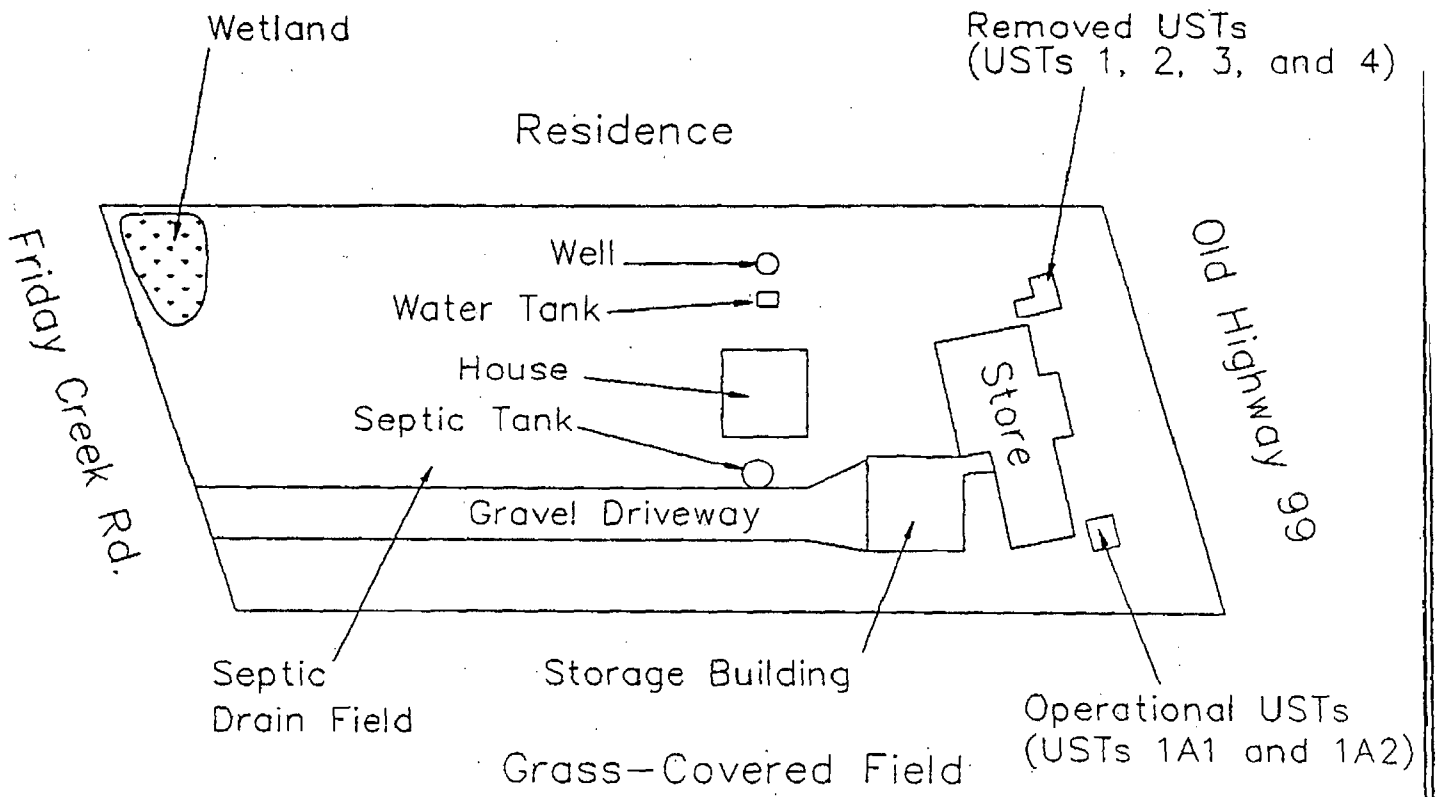

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Figure 2
Site Plan
Alger Food Mart, Burlington, WA

DATE: 8-13-96
SCALE: H: 1:800 V: N/A

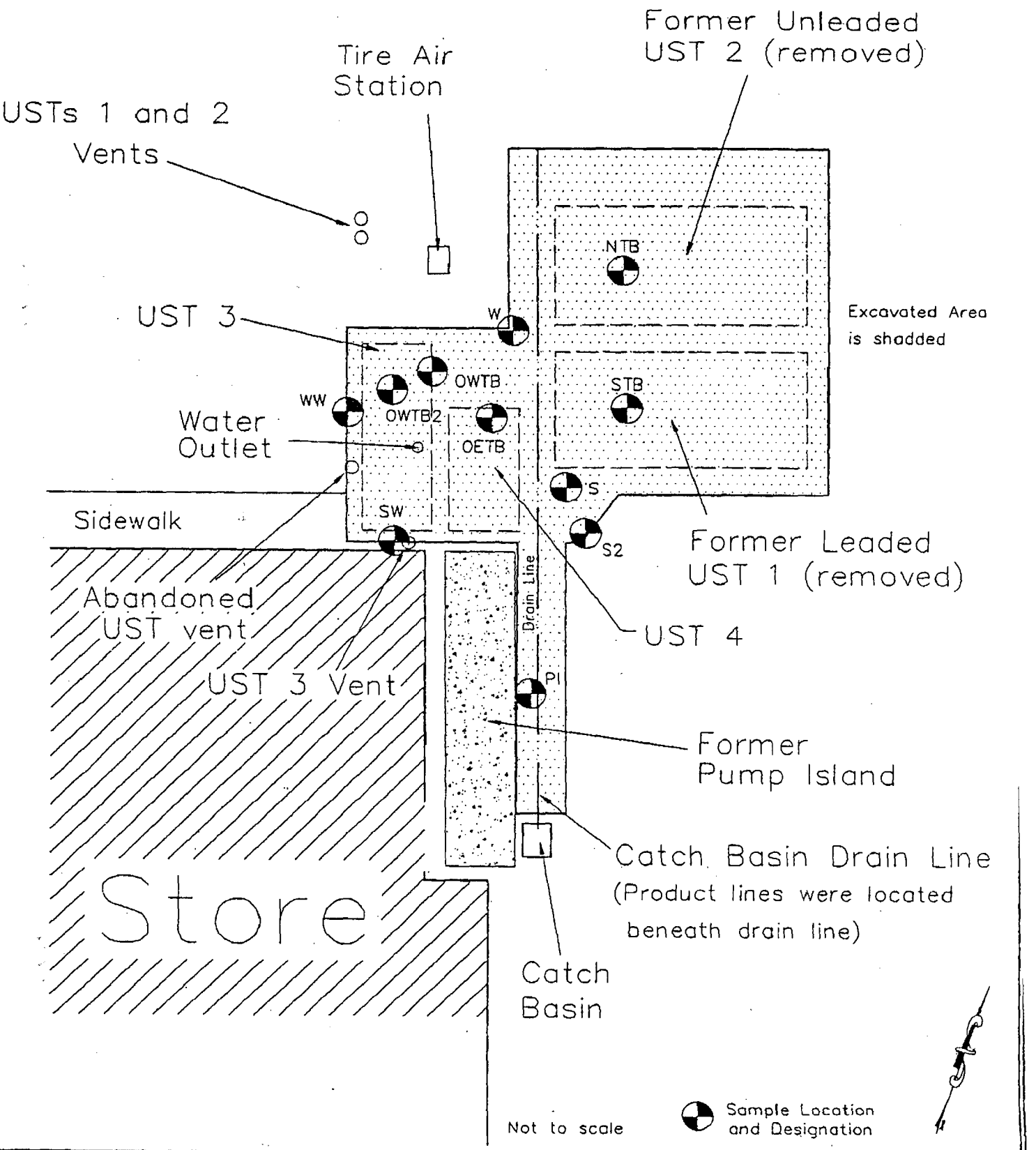

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Figure 3
USTs Detail
Alger Food Mart, Burlington, WA

DATE: 8-30-96 SCALE: H: NA V: N/A

Figure 4. View of UST area on August 9, 1996. The pile of soil is from the removal of UST 1 and UST 2 which were located immediately in front of the soil stock pile. The two drums in the background are used for storing used cooking oil. The vent lines for UST 1 and UST 2 can be seen adjacent to the fence to the left of the power pole.

Figure 5. View of the second excavation of the UST 1 and UST 2 pit on August 9, 1996. The former pump island is on the left in front of the milk cartons. The catch basin is located on the far left. The catch basin collected storm water run off from the parking area and directed the water into a perforated drain pipe that paralleled the fuel product lines and terminated in the UST excavation.

Figure 6. View of former pump island and product line trench during the removal of the product lines on August 9, 1996. The perforated drain pipe from the catch basin can be seen in the trench. The drain line was located immediately above the fuel product lines.

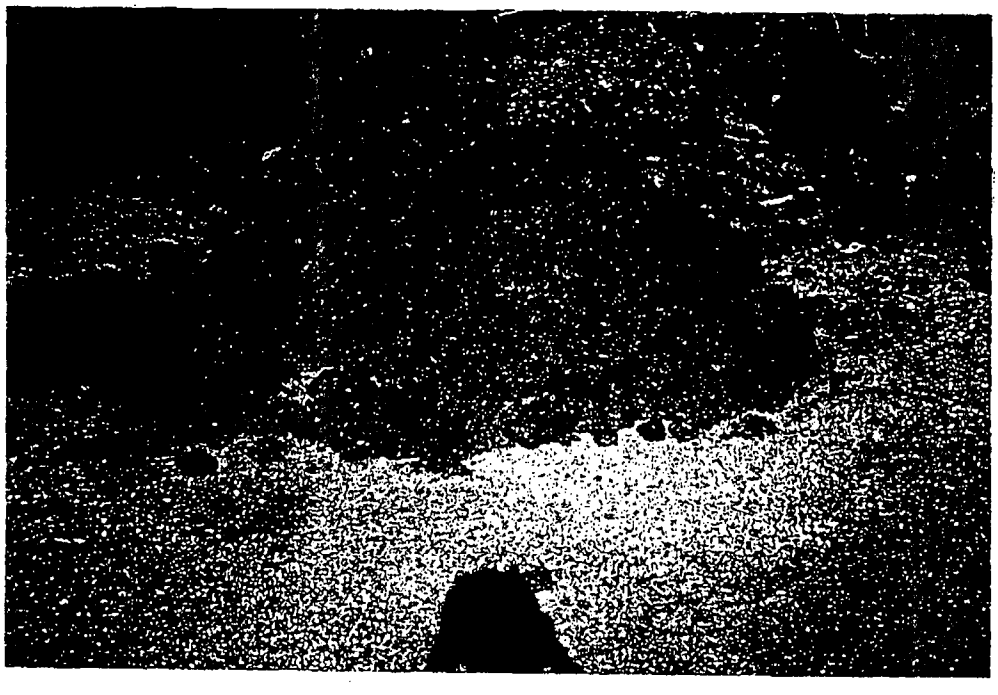

Figure 7. View of stock piled soil from the August 9, 1996 second excavation of the UST 1 and UST 2 pits. Field screening of soil in foreground indicated that it was contaminated with petroleum hydrocarbons. Subsequent analyses indicated that gasoline-range hydrocarbons at a concentration of 50 mg/kg. Note the fill pipes in the soil stock pile that were encountered during second excavation of the UST 1 and UST 2 pit.

Figure 8. View of UST 3 which was encountered during the second excavation of the UST 1 and UST 2 pit. The abandoned UST is immediately behind UST 3. The end of the perforated drain line from the catch basin can be seen on the far left.

Figure 9. View of UST 3 and the abandoned UST prior to removal on August 28, 1996. The worker is standing on the abandoned UST. The top of the UST 3 fill pipe can be seen on the left.

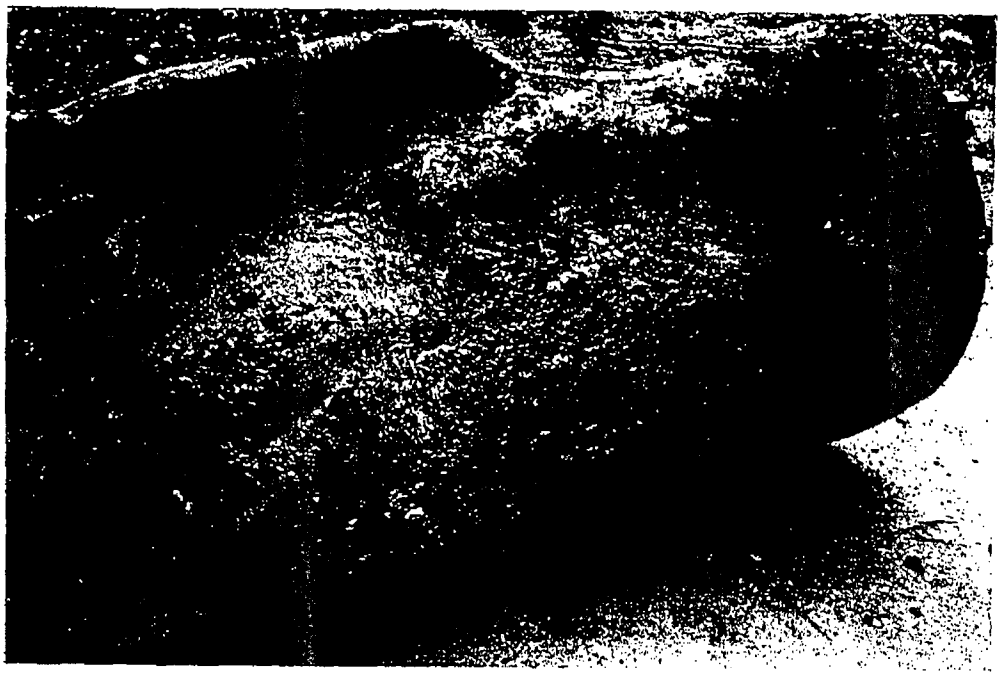

Figure 10. View of UST 3 after removal on August 28, 1996. UST and the abandoned UST were cut up and removed from the site.

Figure 11. View of UST 3 and the abandoned UST excavation after removal of contaminated soil from the bottom and sidewalls of the pit.