

**ENVIRONMENTAL  
ASSOCIATES, INC.**

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DEPT OF ECOLOGY  
TCP - NWRO

December 9, 2003

JN 23269-1

Mr. Mike Ongaro  
20645 - 10<sup>th</sup> Place SW  
Normandy Park, Washington 98166

Subject: **Preliminary Subsurface Exploration  
Bulk Fuel Facility  
201 West Stanley Street  
Granite Falls, Washington**

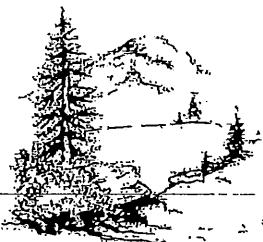
Dear Mr. Ongaro:

Environmental Associates, Inc. (EAI), has completed sampling and laboratory testing of soil and groundwater obtained from selected localities at the subject property located in Granite Falls, Washington. This report, prepared in accordance with the terms of our proposal dated November 7, 2003, summarizes our approach to the project along with results and conclusions. This letter is governed by the same limitations included in the attached report of which it is a part.

The contents of this report are confidential and are intended solely for your use and those of your representatives. Four (4) copies of this report are being distributed to you. No other distribution or discussion of this report will take place without your prior approval in writing. Additional copies are available for a small fee.

Relying solely upon the information developed in the course of our study, it would appear that soil and groundwater with concentrations of petroleum hydrocarbons (primarily diesel and benzene) above the current Washington State Department of Ecology (WDOE) Method-A target cleanup levels, exist on the subject property in the vicinity of the bulk-fuel and card-lock facility. The cause of contamination would appear to be related to past and/or ongoing on-site operations associated with the bulk-fuel and card-lock facilities.

The full extent of the impacted soil and groundwater has not been ascertained nor was such a determination envisioned in the scope of work proposed for this preliminary phase of evaluation. Additional assessment both on-site and possibly off-site would be required to further evaluate the extent and volume of impacted soil and groundwater, and to assess potential risks to human health in the event that nearby residences utilize groundwater via domestic wells.



Mr. Mike Ongaro  
December 9, 2003

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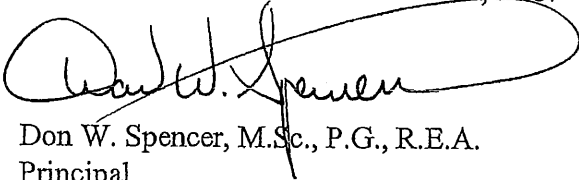
Remedial action, which may include a combination of an active cleanup, implementation of institutional and/or engineering controls, and/or risk-based evaluations may be necessary to achieve compliance with Washington State Department of Ecology's Model Toxics Control Act (MTCA; WAC173-340) and/or to address the interests of the various parties involved with this project.

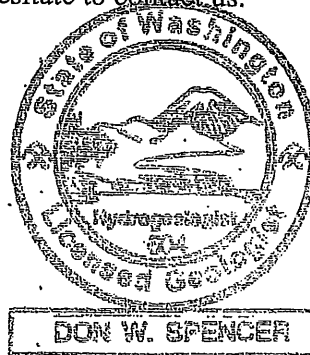
Acknowledging the documented impacts to groundwater, the installation of permanent groundwater monitoring wells and implementation of a groundwater compliance monitoring program may also be required as specified in MTCA (WAC-173-340-450(3)(a)(iii) et seq.).

Additional discussions along with common-sense recommendations for future management and/or additional evaluation are offered for your consideration in the Conclusions/Recommendations section of this report.

We appreciate the opportunity to be of service on this assignment. If you have any questions or if we may be of additional service, please do not hesitate to contact us.

Respectfully submitted,  
ENVIRONMENTAL ASSOCIATES, INC.

  
Don W. Spencer, M.Sc., P.G., R.E.A.  
Principal



EPA-Certified Asbestos Inspector/Management Planner  
I.D. # AM 48151

Registered Site Assessor/Licensed UST Supervisor  
State Certification #0878545-U7

License: 604 (Washington)  
License: 11464 (Oregon)  
License: 876 (California)  
License: 5195 (Illinois)  
License: 0327 (Mississippi)

**ENVIRONMENTAL ASSOCIATES, INC.**

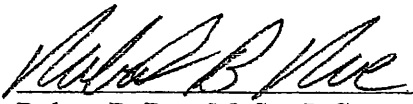
**PRELIMINARY SUBSURFACE EXPLORATION**

**Bulk-Fuel Facility  
201 West Stanley Street  
Granite Falls, Washington**

**Prepared for:**

**Mr. Mike Ongaro  
20645 - 10<sup>th</sup> Place SW  
Normandy Park, Washington 98139**

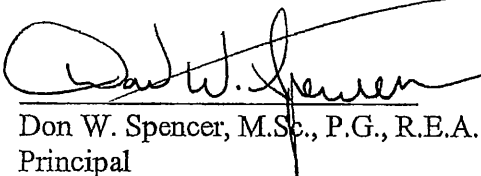
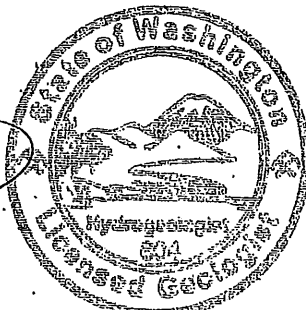
Questions regarding this investigation, the conclusions reached and the recommendations given should be addressed to one of the following undersigned.



Robert B. Roe, M. Sc., P.G.  
Hydrogeologist

License: 1125 (Washington)

WDOE Registered Site Assessor



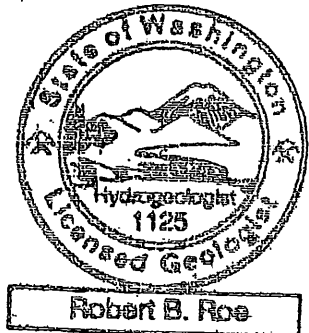
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License: 11464 (Oregon)  
License: 876 (California)  
License: 5195 (Illinois)  
License: 0327 (Mississippi)



Reference Job Number: JN 23269-1

December 9, 2003

*ENVIRONMENTAL ASSOCIATES, INC.*

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- Plate 2 - Site Plan
- Plate 3 - Site Plan - Detailed
- Plate 4 - Site Photographs
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## **APPENDIX**

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## INTRODUCTION/SCOPE OF WORK

### SITE DESCRIPTION

The subject property consists of approximately 09.4 acres (county records) of land located in a commercial/residential area of downtown Granite Falls, Washington at the approximate location shown on the Topographic Map, Plate 1, appended herewith. Plate 2, Site Plan, depicts the setting of the subject property and land use for adjacent sites. A brief description of land use on nearby parcels is provided below.

- North:** The north adjacent parcel has been cleared and graded but is otherwise undeveloped.
- South:** West Stanley Street forms the southern boundary of the subject property. Several residences and a latte stand lie south of West Stanley Street.
- West:** A lumber yard and building supply store lies west and adjacent to the subject property. In general properties further west along West Stanley Street are also commercial.
- East:** A Texaco gasoline station lies east and adjacent to the subject property.

As depicted on Plate 3, Site Plan-Detailed. Improvements to the subject property include a bulk-fuel facility and an equipment rental yard. The bulk-fuel facility consists of four (4) large capacity above-ground storage tanks (, which reportedly contain unleaded gasoline, diesel fuel, and high-sulfur diesel. The tanks are situated over bare earth enclose with a concrete berm. An unattended card-lock system dispenses fuel via two (2) separate pump islands. Other improvements associated with the bulk-fuel facility include an office/warehouse building and a shed. From site observations, the shed appears to have formerly housed fuel transfer pumps. The bulk-fuel facility is currently operated by Nelson Petroleum, a Chevron brand distributor.

The commercial building and yard on the western half of the subject property are currently occupied by an equipment rental business (Glens Rentals). A shed used to store rental equipment lies along the west side of the bulk-fuel facility.

## **BACKGROUND**

It is EAI's understanding that the client is considering acquisition of the subject parcel as a means to improve access to the parcel of land north and adjacent to the subject site. It is our further understanding that the existing bulk-fuel facility has likely operated on the subject site for more than 50 years and no previous environmental explorations have reportedly been performed on the property.

## **METHODOLOGY/SCOPE OF WORK**

Your expressed interests, which focused upon the desire to conduct a preliminary exploration of soil and groundwater on the subject property formed the basis for the following scope of work:

- Advance a total of seven (7) soil borings at the approximate locations depicted on Plate 3, Site Plan-Detailed as B1 through B7.
- Collect soil and groundwater samples for laboratory analysis.
- Prepare a summary report documenting our methodology, findings, conclusions, and recommendations.

## **GEOLOGIC SETTING**

Published geologic maps for the site vicinity (Jones, 1999) suggest that much of the materials underlying the subject site may consist of recessional outwash sand and gravel alluvial deposits.

Topographically, the site is a relatively level parcel approximately 400 feet above sea level. Based upon inference from topography and local drainage patterns, it appears that shallow-seated groundwater (less than 10 feet) in the vicinity of the subject property may flow in a southwesterly direction.

## **SUBSURFACE EXPLORATION**

### **SOIL BORINGS**

#### **Boring and Soil Sampling**

On July 21, 2003, seven (7) soil borings (B1 through B7) were made at the approximate locations noted on Plate 3, Site Plan-Detailed, using a Bobcat-equipped with a fencepost auger. The drilling equipment and operator were provided by the client.

Boring B1 was positioned along the eastern side of the property between the bulk-fuel facility office/warehouse building and the east adjacent Texaco gasoline station. Borings B2 and B3 were positioned on the east and south sides of the pump island attached to office/warehouse building. Boring B4 was positioned along the west side of the bulk-fuel tank farm berm. Boring B5 was positioned further west on the subject property. Boring B6 was positioned off the northwest corner of the storage tank farm. Boring B7 was positioned south of the tank farm.

At each boring location the auger was advanced to a depth of approximately 5 to 6 feet below the ground surface. Soil samples were collected from the auger flights corresponding to depths of approximately 2 to 3 feet below the ground surface (BGS) and approximately 4 to 5 feet BGS. The equipment operator pressure-washed the auger assembly between each soil boring to minimize the risk of cross-contamination.

#### **Groundwater Sampling**

Shallow groundwater was encountered at all seven (7) boring locations at depths between 2 and 4 feet below the ground surface. Individual disposable plastic bailers were used to collect a groundwater sample from each boring.

#### **Sample Management**

In an effort to preserve sample integrity, all soil and groundwater samples were stored on-site in an insulated chest maintained at or below 4 degrees centigrade, and were transported to the project laboratory in this condition. Each sample was clearly identified with respect to project, boring number, date, time, etc. EPA-recommended sample management protocol, including maintenance of chain-of-custody documentation, was observed at each stage of the project.

### **Subsurface Conditions and Sample Selection**

Subsurface soils consisted of an upper foot of organic topsoil underlain by organic silts, silty sands and peat, which extended to the 6-foot maximum depth explored.

Shallow groundwater was encountered at depths between 2 and 4 feet below the ground surface. Strong petroleum odors were noted emanating from soil samples recovered from borings B1, B3, B4, B6, and B7. Additionally, thick hydrocarbon sheens and globules of phase-separated petroleum (free product) were noted on the surface of the groundwater at B3, B4 and B7 and to a lesser extent at B1 and B6.

Groundwater samples from all seven (7) boring locations were selected for laboratory analysis. Soil samples from B1 (2 to 3 feet BGS), B3 (composite sample 2 to 3 feet and 4 to 5 feet BGS), B4 (composite sample 2 to 3 feet and 4 to 5 feet BGS), B6 (4 to 5 feet BGS), and B7 (composite sample 2 to 3 feet and 4 to 5 feet BGS), were also initially selected for laboratory analysis.

## **LABORATORY ANALYSIS / RESULTS**

### **Laboratory Analysis**

The selected soil and groundwater samples were all analyzed for gasoline and the associated BTEX compounds (benzene, toluene, ethylbenzene, and xylene) by Washington State Department of Ecology (WDOE) test method NWTPH-G/BTEX, and for diesel and heavy oil range petroleum by test method NWTPH-Dx.

### **Laboratory Results and Discussion**

#### **Soil**

##### *Gasoline / BTEX*

As summarized on the attached Table 1, the composite soil sample from B7 contained gasoline range total petroleum hydrocarbons at a concentration of 44 parts per million (ppm), which is above the WDOE's target compliance level of 30 ppm. The composite sample from B7 and the composite sample from B4 also contained benzene at concentrations above the WDOE's target level of 0.03 ppm. Trace levels of gasoline TPH and BTEX were also detected in the remaining samples, but at concentrations below the target compliance levels.



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December 9, 2003*

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*Diesel & Heavy Oil*

Diesel was detected in all five (5) soil samples analyzed. However, only the composite sample from B7 contained diesel at a concentration (11,000 ppm) above the WDOE's target compliance level of 2,000 ppm. The remaining concentrations of diesel ranged between 820 ppm to 970 ppm. Heavy oil was also detected in sample B1 at a concentration of 230 ppm, which is well below the WDOE's target compliance level of 2,000 ppm for heavy oil.

**Groundwater**

*Gasoline/BTEX*

Referring to Table-2, the groundwater samples from B3, B4, and B7 all contained benzene at concentrations ranging between 23 parts per billion (ppb) and 200 ppb, which are all above the WDOE's target compliance level of 5 ppb. The groundwater sample from B7, which had to be diluted by the laboratory, may also contain gasoline range total petroleum hydrocarbons at concentrations above the WDOE's target compliance level of 800 ppb.

*Diesel & Heavy oil*

Diesel was detected in all seven (7) groundwater samples. The concentrations of diesel in the groundwater at B1, B3, B4, B6, and B7 ranged between 1,400 ppb and 210,000 ppb, which are all above the WDOE's target compliance level for diesel of 500 ppb. Groundwater sample B1 also contained heavy oil at a concentration of 530 ppb, which is also slightly above the WDOE's target compliance level for heavy oil of 500 ppb.

**Discussion**

Relying upon the results of the site explorations conducted to date, it appears that greatest impact to subject site soils by petroleum hydrocarbons (primarily diesel and benzene) is in the vicinity of the above ground tank farm. (B4 and B7). Due to site access considerations along with time and project budgetary constraints, not all areas of the property were explored, nor was such an extended exploration plan envisioned in the scope of work proposed for this preliminary evaluation. It may be reasonable to consider that soil in some of these other areas of the property (not sampled and tested to date) may also contain significantly elevated concentrations of petroleum. Such locations may include areas within the tank-farm berm, areas directly under the product line runs and pump islands, and areas under the existing pump shed and office/warehouse building, where petroleum products may have been stored, handled, and/or disposed of. As presented on Plate-5 Site Photographs, petroleum stained soil was observed inside the tank berm in the vicinity of the fuel transfer valves.

The significantly elevated concentrations of diesel at B4 and B7 along with the observations of "globules" of petroleum at these locations, suggest that phase-separated petroleum (free-product, "raw diesel") may be present at the interface between the soil and shallow groundwater. Additionally, the employees at Glen's Equipment Rental informed EAI that during periods of "high groundwater" "diesel seeps out of the ground" in the area so noted on Plate 3 Site Plan-Detailed, southwest of the tank-farm. The equipment rental employees also stated that a tank valve may have failed or been left open, resulting in a substantial release of fuel, a couple of years ago.

The full extent of the impacted soil and groundwater remains unknown. Acknowledging the apparent extent of impacted groundwater on the subject site and the inferred southwesterly groundwater flow direction, it would appear that there is a significant risk of off-site migration of contaminants to the southwest. Land use to the southwest is primarily residential, with some commercial interests along West Stanley Street. It is unknown to what extent (if any) these potentially down-gradient properties have been impacted by the subject site.

## **CONCLUSIONS/RECOMMENDATIONS**

Relying upon the results of soil and groundwater sampling and laboratory testing conducted in the course of this study by Environmental Associates, Inc. (EAI), it appears that the former and/or ongoing operation of bulk-fuel / card-lock facility on the subject property has resulted in soil and groundwater contamination at concentrations above the Washington State Department of Ecology's target compliance levels.

Based upon information developed thus far, the following recommendations are offered:

- Acknowledging that the lateral extent of impacted soil and groundwater remains unknown, additional site exploration may be warranted prior to final selection of a remediation/management approach. Such explorations may include completing additional borings along the north side of the bulk-fuel facility and further to the west of B4 and B6. Additional explorations to the north, south, and west of B1 may also be warranted.

Off-site explorations in inferred downgradient areas to the south and southwest may also be necessary to fully assess the lateral limits of the impacted groundwater. Additionally in the interest of mitigation of potential risks to public health, it would also be prudent to determine whether or not any immediately down-gradient properties are supplied by private water wells.

*Mr. Mike Ongaro  
December 9, 2003*

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Acknowledging the preliminary nature of the site assessment data developed to date, specific cleanup/management approaches that may eventually be considered for this site are not presented here at this time. However, responding to the client's inquiry regarding potential cleanup costs, EAI would simply advise that with the extent of impacted soil and groundwater encountered to date, costs to eventually achieve regulatory compliance on this site could conceivably range between \$250-K to \$500-K or more.

- As discussed in the cover letter, regardless of the final cleanup approach developed, the presence of impacted groundwater and suspected presence of "free product" requires the installation of permanent groundwater monitoring wells and implementation of a groundwater monitoring program as specified in the Washington State Model Toxics Control Act (MTCA; WAC173-340-450(3)(a)(iii) et seq.). If the presence of "free product" is verified by monitoring well installation, the owner and/or facility operator are also required to immediately begin an interim action to recover the "free-product" to the maximum practical extent possible.

Typical groundwater monitoring programs involve sampling and testing groundwater quality quarterly (every 3 months). If conditions appear relatively stable, the time interval may eventually be increased to semi-annually to annually or longer. At a minimum, the installation of three (3) groundwater monitoring wells would be required, however given the size of the property and contaminant distribution known/suspected to date, additional monitoring wells are also recommended in an effort to provide adequate monitoring of groundwater conditions within the groundwater "plume" and at "down-gradient" points of compliance.

If the client or property owner elects to conduct additional site characterizations, EAI would recommend completing that task prior to selection of groundwater monitoring well locations.

Finally, to achieve lawful compliance with Chapter 173-340-300, WAC, EAI recommends that copies of this report along with any future reports regarding the environmental conditions thus far encountered be forwarded to the Department of Ecology by the owner. Acknowledging that the client is a prospective purchaser of the property, EAI recommends that the client inform the existing property owner of these findings and reporting requirements by providing them with a copy of this report.

Decision making authority with regard to pursuing additional site explorations and/or remedial actions as outline above, or consideration of other approaches, clearly lies with the client, property owner/operator, and/or other interested parties, depending upon their individual risk tolerances.

## **LIMITATIONS**

This report has been prepared for the exclusive use of Mr. Mike Ongaro, along with his several representatives for specific application to this site. Our work for this project was conducted in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions set forth in our proposal dated November 7, 2003. The opinions expressed in this report are based upon interpretations, observations and testing made at separated sampling localities and conditions may vary between those localities or at other locations or depths. EAI makes no warranty with respect to future actions of regulatory agencies, and/or cleanup costs, with respect to this property. No other warranty, expressed or implied, is made. If new information is developed in future site work that may include excavations, borings, studies, etc., Environmental Associates, Inc., must be retained to reevaluate the conclusions of this report and to provide amendments as required.

## **REFERENCES**

Jones, M.A., 1999, Geological Framework for The Puget Sound Aquifer System, Washington and British Columbia, USGS, Professional Paper 1424-C, plate 9.

**TABLE 1 - Petroleum Hydrocarbons - Soil Sampling Results**  
**All results and limits in parts per million (ppm)**

Boring	Gasoline (TPH)	Diesel	Heavy Oil	Benzene	Toluene	Ethylbenzene	Total Xylenes
B1-2'-3'	8	820	230	<0.02	0.08	0.11	0.43
B3-2'-3' / B3-4'-5' (composite)	3	970	<50	<0.02	<0.02	<0.02	0.08
B4-2'-3' / B4-4'-5' (composite)	5	870	<50	<b>0.04</b>	<0.02	<0.02	0.07
B6-4'-5'	4	890	<50	<0.02	<0.02	<0.02	0.04
B7-2'-3' / B7-4'-5'	<b>44</b>	<b>11,000</b>	<500	<b>0.40</b>	<0.02	2.60	2.40
Reporting Limit <sup>3</sup>	1	10	50	0.02	0.02	0.02	0.02
WDOE Target Compliance Level <sup>4</sup>	30 or 100 <sup>5</sup>	2000	2000	0.03	7	6	9

## Notes:

- 1 - "ND" denotes analyte not detected at or above listed Reporting Limit.
- 2 - "NA" denotes sample not analyzed for specific analyte.
- 3 - "Reporting Limit" represents the laboratory lower quantitation limit.
- 4 - Method A soil cleanup levels as published in the Model Toxics Control Act (MTCA) 173-340-WAC.
- 5 - The MTCA gasoline TPH cleanup level is 30 ppm for soils with benzene otherwise it is 100 ppm.

**Bold and Italics** denotes concentrations above MTCA Method A soil cleanup levels.

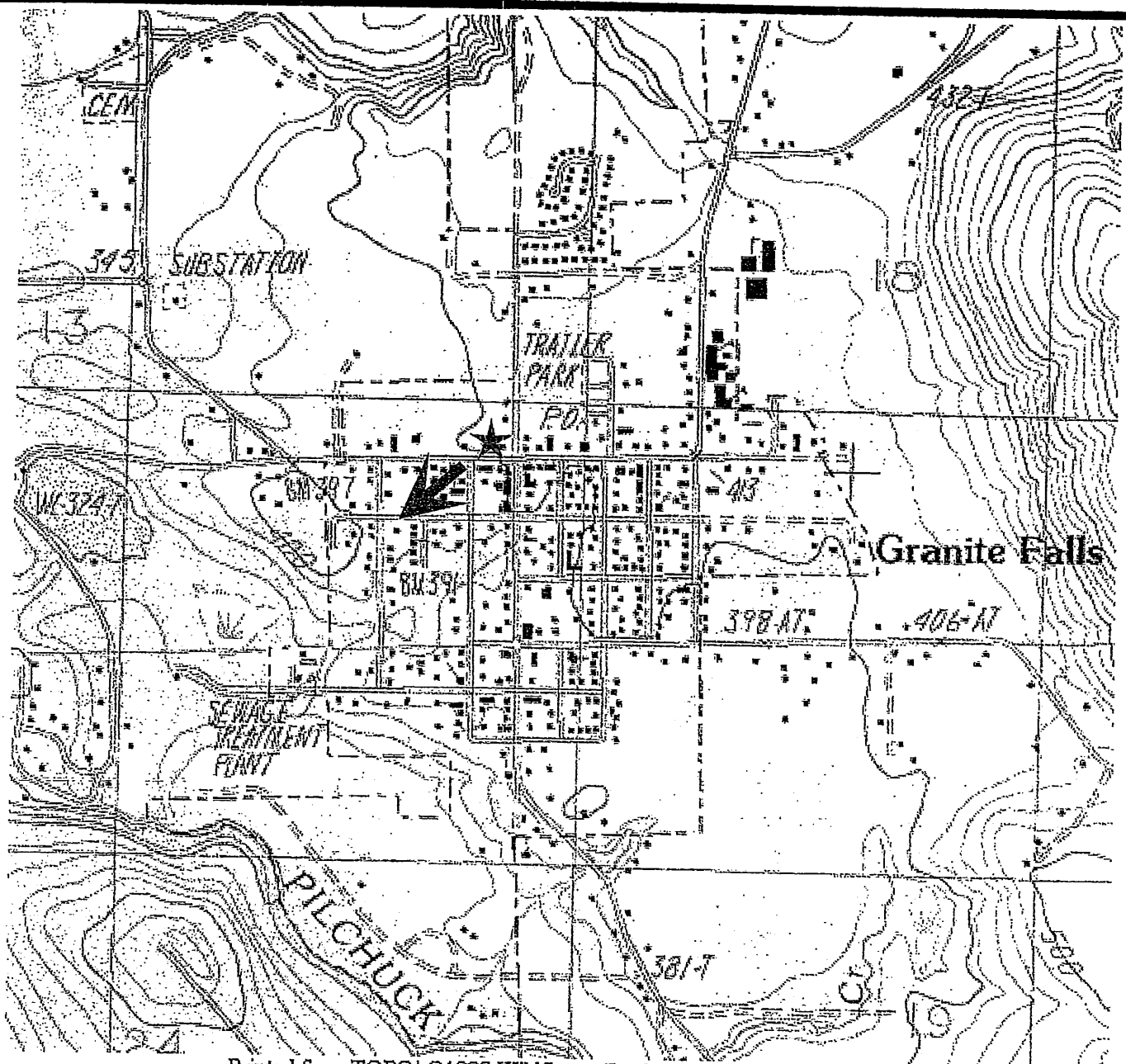
BGS - Below ground surface.

**TABLE 2 - Petroleum Hydrocarbons - Groundwater Sampling Results**  
**All results and limits in parts per billion (ppb)**

Boring	Gasoline (TPH)	Diesel	Heavy Oil	Benzene	Toluene	Ethylbenzene	Total Xylenes
B1	<250	<b>1,400</b>	<b>530</b>	<5	<5	<5	<15
B2	<50	99	<290	<1	<1	<1	<1
B3	380	<b>8,000</b>	320	<b>23</b>	<5	17	31
B4	<1,000	<b>24,000</b>	490	<b>150</b>	<20	<20	<60
B5	<50	97	<260	<1	<1	<1	<1
B6	<250	<b>5,500</b>	<250	<5	<5	<5	<15
B7	<2000	<b>210,000</b>	<b>2,200</b>	<b>200</b>	<40	120	<120
Reporting Limit <sup>3</sup>	250	50	250	5	5	5	5
MTCA-Method-A Cleanup Levels <sup>4</sup>	<b>800 or 1000<sup>5</sup></b>	<b>500</b>	<b>500</b>	<b>5</b>	<b>1000</b>	<b>700</b>	<b>1000</b>

Notes:

- 1 - "ND" denotes analyte not detected at or above listed Reporting Limit.
  - 2 - "NA" denotes sample not analyzed for specific analyte.
  - 3 - "Reporting Limit" represents the laboratory lower quantitation limit.
  - 4 - Method A groundwater cleanup levels as published in the Model Toxics Control Act (MTCA) 173-340-WAC.
  - 5 - The MTCA gasoline TPH cleanup level is 800 ppb for groundwater with benzene. Otherwise, the cleanup level is 1000 ppb.
- Bold and italics denotes concentrations above existing or proposed MTCA Method A groundwater cleanup levels.

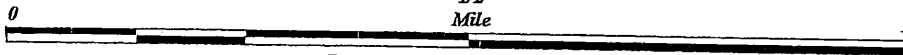


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★ Subject Property

↙ Inferred direction of shallow groundwater flow, based upon the local topographical gradient.

Scale  
1/2  
Mile



Contour Interval = 20 Feet



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1380 - 112th Avenue NE, Suite 300  
Bellevue, Washington 98004

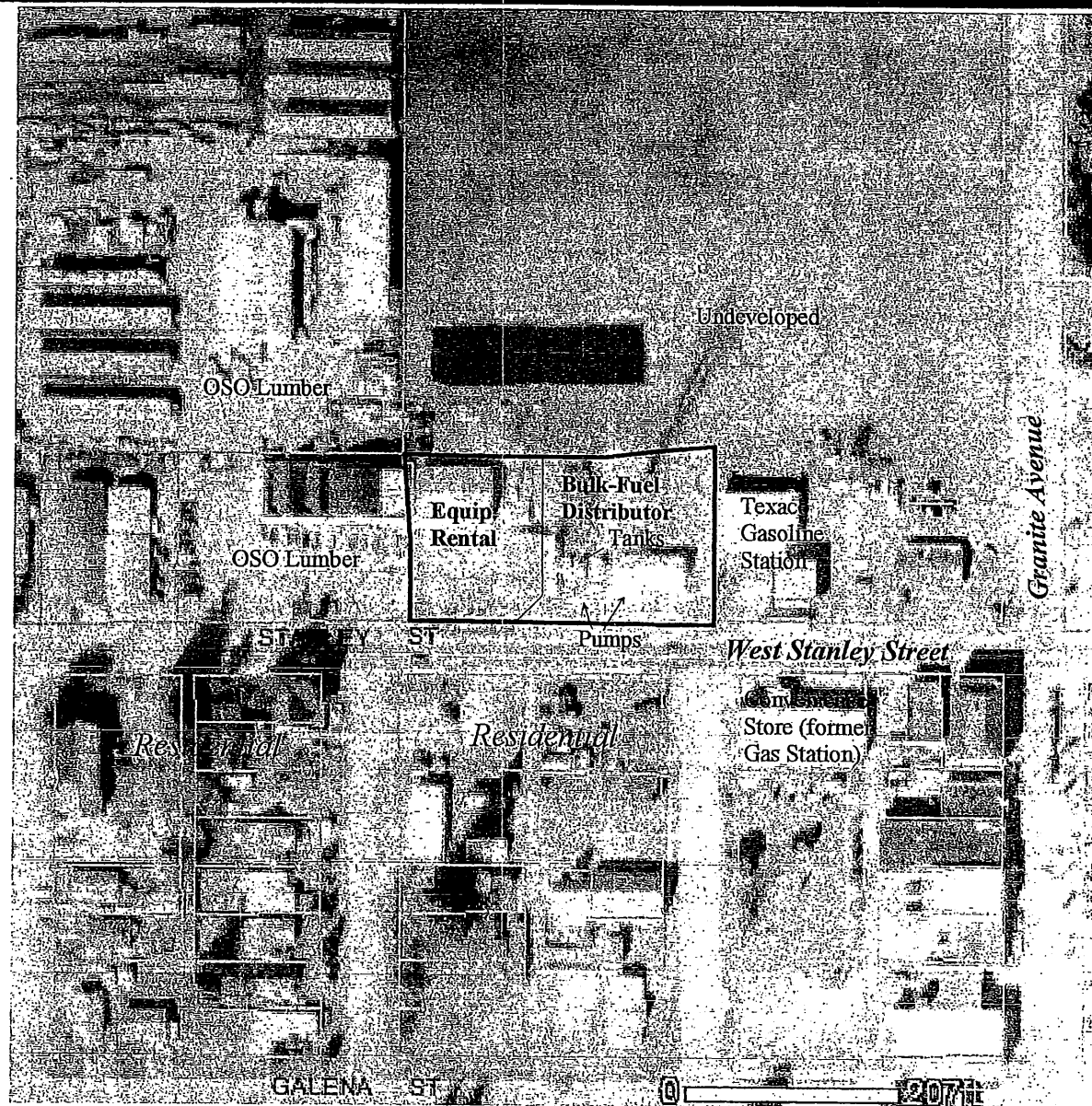
**VICINITY / TOPOGRAPHIC MAP**

Bulk-Fuel Facility  
201 West Stanley Street  
Granite Falls, Washington

Job Number:  
JN 23269-1

Date:  
December 2003

Plate:  
1



Shallow groundwater flow direction deduced by GeoEngineers in 1998.



Subject Property



**ENVIRONMENTAL ASSOCIATES, INC.**

1380 - 112th Avenue N.E., Ste. 300  
Bellevue, Washington 98004

**SITE PLAN**

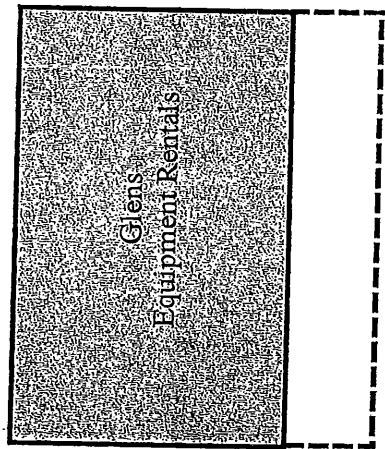
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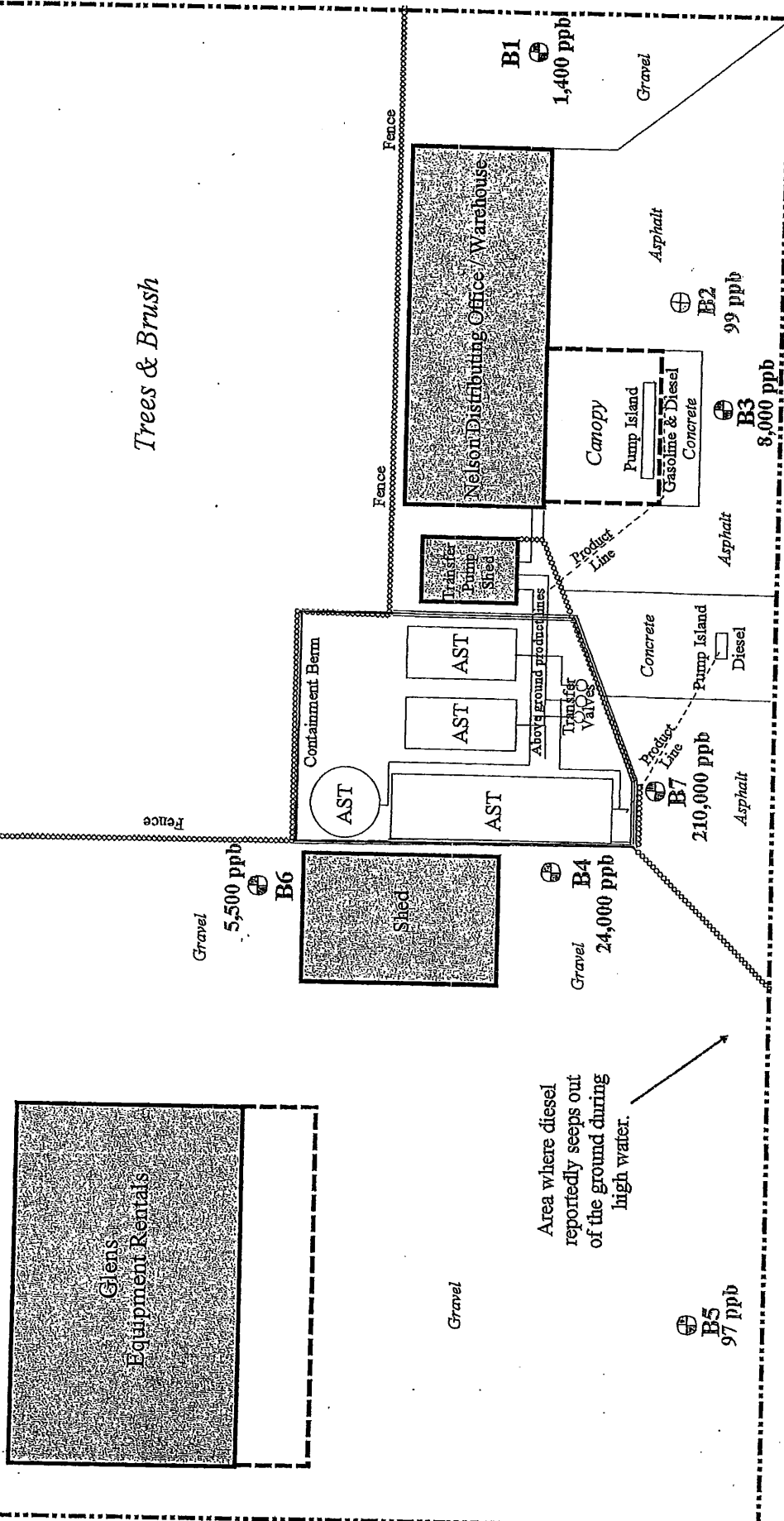
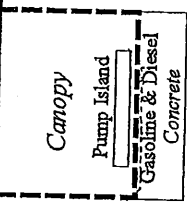
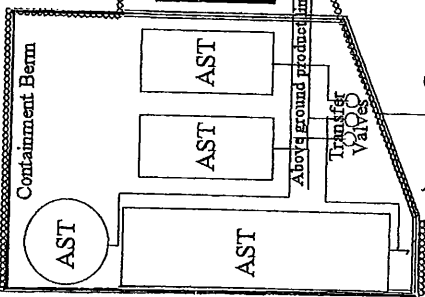
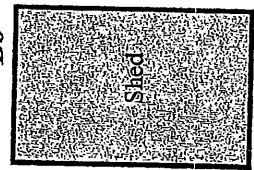
Date:  
December 2003

Plate:  
2





Trees & Brush



Area where diesel reportedly seeps out of the ground during high water.

**Legend**

- ⊕ Approximate soil boring locations. Green denotes locations where diesel concentrations in the groundwater were below the WDOE's Method-A target compliance levels. Red denotes concentrations above the compliance level of 500 ppb.



**SITE PLAN-DETAILED**

**Bulk-Fuel Facility**  
 201 West Stanley Street  
 Granite Falls, Washington

**ENVIRONMENTAL ASSOCIATES, INC.**

1380 - 112th Avenue NE, Suite 300  
 Bellevue, Washington 98004

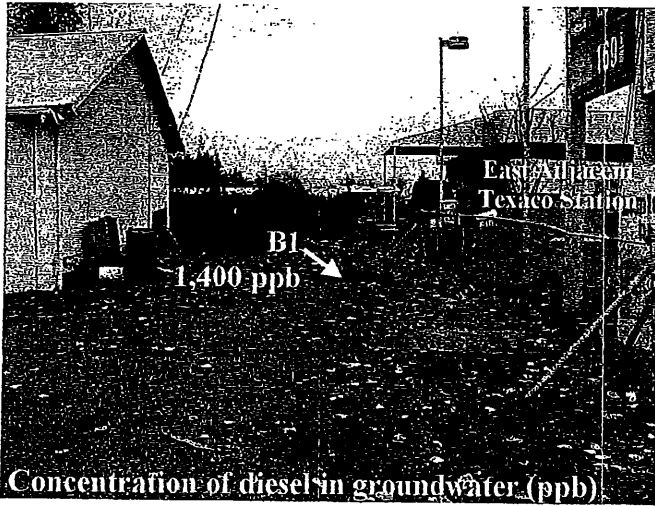


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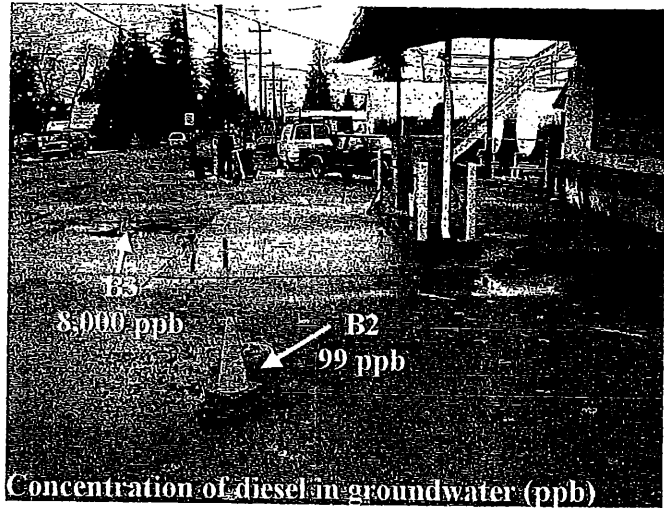
Scale: **1"=30'**

Plate: **3**



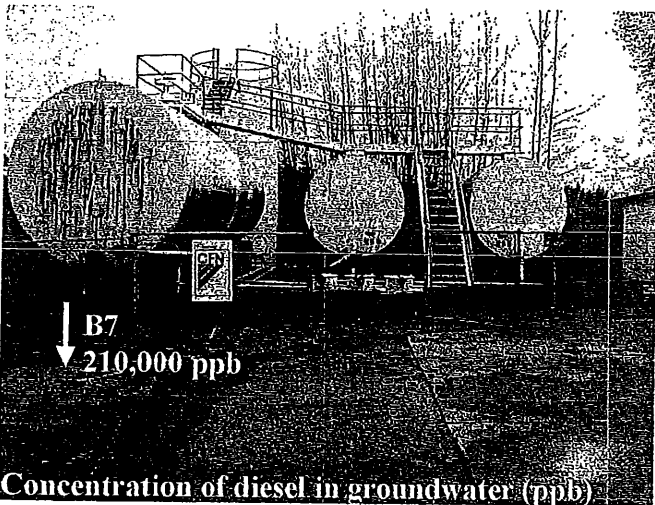
Concentration of diesel in groundwater (ppb)

View looking north along the east margin of the subject property.



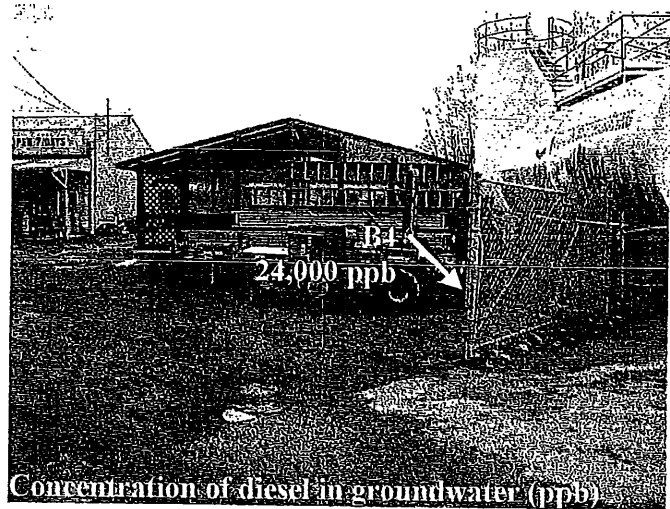
Concentration of diesel in groundwater (ppb)

View of the card-lock pump islands, looking west.



Concentration of diesel in groundwater (ppb)

View of the above ground bulk fuel storage tanks, looking north.



Concentration of diesel in groundwater (ppb)

View looking north along the west side of the bulk-fuel tanks .



**ENVIRONMENTAL  
ASSOCIATES, INC.**

1380 - 112th Avenue N.E., Suite 300  
Bellevue, Washington 98004

**SITE PHOTOGRAPHS**

Bulk-Fuel Facility  
201 West Stanley Street  
Granite Falls, Washington

Job Number:

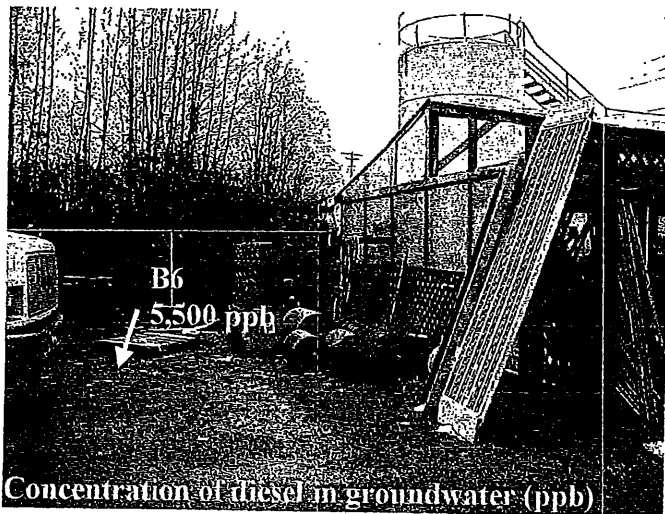
JN-23269-1

Date:

December 2003

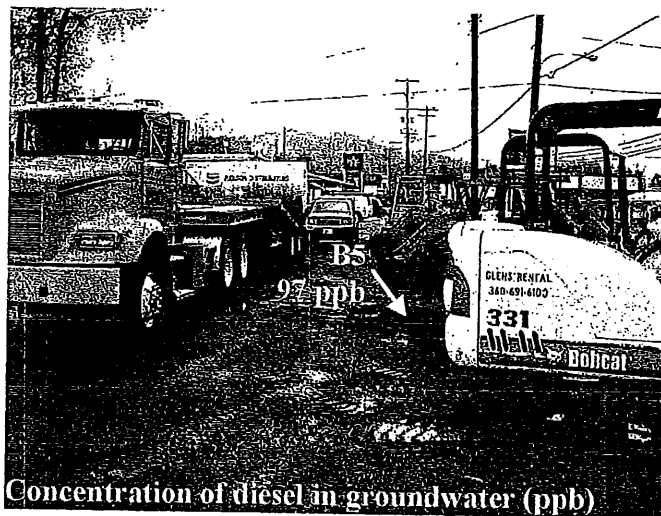
Plate:

4



**Concentration of diesel in groundwater (ppb)**

View along the north side of the equipment rental storage shed, looking east.

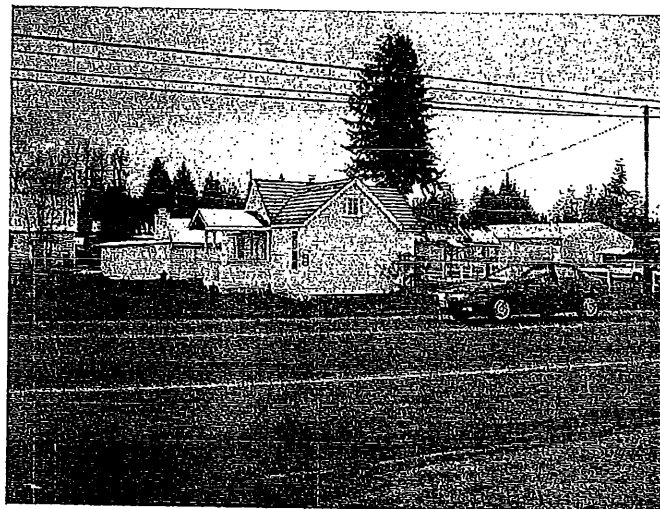


**Concentration of diesel in groundwater (ppb)**

View from the vicinity of boring B5 looking east.



View of petroleum-stained soil around the fuel transfer valves.



View of residences to the southwest of the subject site (south of West Stanley Street).



**ENVIRONMENTAL ASSOCIATES, INC.**

1380 - 112th Avenue N.E., Suite 300  
Bellevue, Washington 98004

**SITE PHOTOGRAPHS**

**Bulk-Fuel Facility  
201 West Stanley Street  
Granite Falls, Washington**

Job Number:  
JN-23269-1

Date:  
December 2003

Plate:  
5

**APPENDIX A**  
**Laboratory Report**

FRIEDMAN & BRUYA, INC.  
 ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.  
 Charlene Morrow, M.S.  
 Yelena Aravkina, M.S.  
 Bradley T. Benson, B.S.  
 Kurt Johnson, B.S.

1012 16th Avenue West  
 Seattle, WA 98119-2029  
 TEL: (206) 285-8282  
 FAX: (206) 283-5044  
 e-mail: fbi@alsomedta.com



DATE: 12/8/03  
 TO: Robert Roe  
 COMPANY: Environmental Associates PROJECT ID: Nelson Petroleum  
 FAX #: (425) 455-2316 PHONE #: \_\_\_\_\_  
 FROM: Michele for Charlene Morrow

We are sending you the following:

# Pages/Documents (including cover sheet)	Description
6	Results

These are transmitted as indicated:

- For your use     
  For review and comment     
  For your signature and return  
 As requested     
  As noted     
  Other \_\_\_\_\_

Remarks: \_\_\_\_\_

For items sent via Fax:

Original: Will Follow  Will Not Follow

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.  
Charlene Morrow, M.S.  
Yelena Aravkina, M.S.  
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Kurt Johnson, B.S.

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TEL: (206) 285-8282  
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December 8, 2003

Robert Roe, Project Manager  
Environmental Associates, Inc.  
1380 112th Ave. NE, #300  
Bellevue, WA 98004

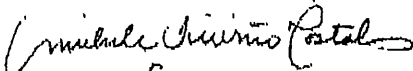
Dear Mr. Roe:

Included are the results from the testing of material submitted on November 21, 2003 from the Nelson Petroleum, PO# 23269-1, F&BI 311211 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

  
for

Charlene Morrow  
Chemist

Enclosures  
EAL1206R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/08/08  
 Date Received: 11/21/08  
 Project: Nelson Petroleum, PO# 23269-1, F&BI 311211  
 Date Extracted: 12/02/08  
 Date Analyzed: 12/02/08

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES  
 FOR BENZENE, TOLUENE, ETHYLBENZENE,  
 XYLENES AND TPH AS GASOLINE  
 USING EPA METHOD 8021B AND NWTPH-Gx  
 Results Reported on a Dry Weight Basis  
 Results Reported as µg/g (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 47-132)
B1-2-3 311211-01	<0.02	0.08	0.11	0.43	8	92
Composite: B3-2-3/B3-4-5 311211-03/04 Comp.	<0.02	<0.02	<0.02	0.08	3	83
Composite B4-2-3/B4-4-5 311211-05/06 Comp.	0.04	<0.02	<0.02	0.07	5	89
B6-4-5 311211-08	<0.02	<0.02	<0.02	0.04	4	89
Composite: B7-2-3/B7-4-5 d 311211-09/10 Comp.	0.4	<0.2	2.6	2.4	44	85
Method Blank	<0.02	<0.02	<0.02	<0.06	<1	90

d - The sample was diluted. Detection limits are raised due to dilution.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/08/03  
 Date Received: 11/21/03  
 Project: Nelson Petroleum, PO# 23289-1, F&BI 311211  
 Date Extracted: 12/02/03  
 Date Analyzed: 12/02/03 and 12/03/03

RESULTS FROM THE ANALYSIS OF THE WATER SAMPLES  
 FOR BENZENE, TOLUENE, ETHYLBENZENE  
 XYLENES AND TPH AS GASOLINE  
 USING EPA METHOD 8021B AND NWTPH-Gx  
 Results Reported as µg/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 61-136)
B1 d 011211-11	<5	<5	<5	<15	<250	83
B2 011211-12	<1	<1	<1	<1	<50	85
B3 d 311211-13	23	<5	17	31	380	88
B4 d 311211-14	150	<20	<20	<60	<1,000	86
B5 011211-15	<1	<1	<1	<1	<50	87
B6 d 311211-16	<5	<5	<5	<15	<250	85
B7 d 311211-17	200	<40	120	<120	<2,000	83
Method Blank	<1	<1	<1	<1	<50	70

d - The sample was diluted. Detection limits are raised due to dilution.



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/08/03  
 Date Received: 11/21/03  
 Project: Nelson Petroleum, PO# 23269-1, F&BI 311211  
 Date Extracted: 11/24/03  
 Date Analyzed: 11/24/03

**RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL  
 USING METHOD NWTPH-Dx  
 Extended to Include Motor Oil Range Compounds  
 Results Reported on a Dry Weight Basis  
 Results Reported as µg/g (ppm)**

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C10-C25)	<u>Motor Oil Range</u> (C25-C30)	<u>Surrogate</u> (% Recovery) (Limit 60-133)
B1-2-3 311211-01	820	230	74
Composite: B3-2-3/B3-4-5 311211-08/04 Comp.	970	<50	84
Composite B4-2-3/B4-4-5 311211-05/06 Comp.	870	<50	81
B6-4-5 311211-08	890	<50	78
Composite: B7-2-3/B7-4-5 d 311211-09/10 Comp.	11,000	<500	97
Method Blank	<10	<50	94

d - The sample was diluted. Detection limits are raised due to dilution.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/08/03  
 Date Received: 11/21/03  
 Project: Nelson Petroleum, PO# 28269-1, F&BI 311211  
 Date Extracted: 11/25/03  
 Date Analyzed: 11/25/03 and 11/26/03

RESULTS FROM THE ANALYSIS OF THE WATER SAMPLES  
 FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL  
 USING METHOD NWTPH-Dx  
 Extended to Include Motor Oil Range Compounds  
 Results Reported as µg/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>28</sub> )	<u>Motor Oil Range</u> (C <sub>35</sub> -C <sub>38</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 59-147)
B1 311211-11	2,800	530	77
B2 311211-12	99	<290	75
B3 311211-13	8,000	320	82
B4 311211-14	23,000	400	ip
B5 311211-15	97	<260	81
B6 311211-16	5,500	<250	68
B7 d 311211-17	210,000	<2,500	ip
Method Blank	<50	<250	86

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

d - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.