



**ENVIRONMENTAL
ASSOCIATES, INC.**

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GROUNDWATER PLUME DELINEATION

Revchem Plastics, Inc.
1132 Thorne Road
Tacoma, Washington

MR. STEVE SHAUB

ENVIRONMENTAL ASSOCIATES, INC.

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July 23, 2004

JN-5102-4

Mr. Steve Shaub
Shaub-Ellison Company, Inc.
1117 Broadway Plaza, Suite 500
Tacoma, Washington 98402

Subject: **Groundwater Plume Delineation
Revchem Plastics Facility
1132 Thorne Road
Tacoma, Washington**

Gentlemen:

Environmental Associates, Inc. (EAI), has completed sampling and laboratory testing of groundwater obtained from selected localities on the subject property located in Tacoma, Washington. This report, prepared in accordance with the terms of our proposal dated June 21, 2004, 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) original copies of this report are being distributed to you. No other distribution or discussion of this report will take place without your prior approval. Additional copies are available for a small fee.

In March of 2004, EAI conducted subsurface sampling of soil and groundwater at the subject site. The results of that work as summarized in our report of June 10, 2004 noted the discovery of chlorinated solvents and diesel in groundwater. Recommendations leading to the work addressed by this current report included additional subsurface sampling and testing in an effort to better delineate the on-site extent of solvent impacts to groundwater.

Relying solely upon the information developed in the course of our study, the current additional groundwater sampling and testing appears to have been successful in achieving the primary objective of this phase of work, which was to further delineate onsite the extent of chlorinated solvent-



Revchem Plastics Facility
July 23, 2004

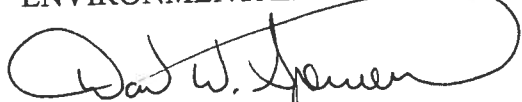
JN-5102-4
Page - 2

impacted groundwater on the subject property. Four (4) permanent groundwater monitoring wells were also installed and surveyed to deduce a north-northwesterly groundwater flow direction. The off-site / down-gradient extent (if any) of chlorinated solvent-impacted groundwater remains unknown

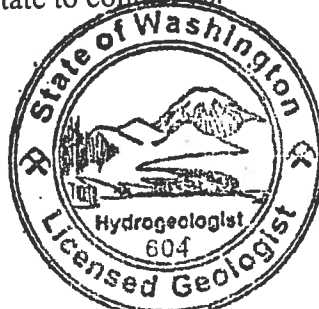
Additional evaluation including offsite (down-gradient) explorations, and/or initiation of remedial action and/or implementation of institutional controls, may still be necessary to achieve some level of compliance with Washington State's Model Toxics Control Act (WAC-173-340). Additional discussions regarding these findings along with recommendations are offered 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



DON W. SPENCER

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.

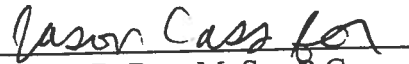
GROUNDWATER PLUME DELINEATION

REVCHEM PLASTICS, INC.
1132 Thorne Road
Tacoma, Washington

Prepared for:

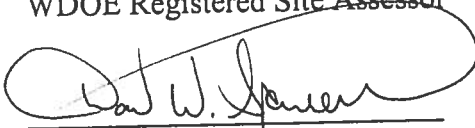
Mr. Steve Shaub
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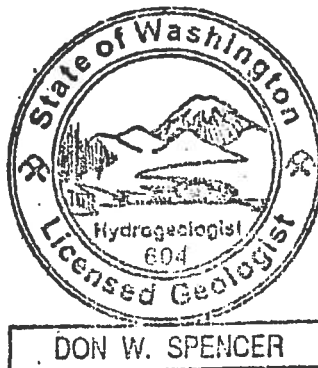
Questions regarding this investigation, the conclusions reached and the recommendations given should be addressed to one of the following undersigned.


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

License: 1125 (Washington)

WDOE Registered Site Assessor


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



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

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Reference Job Number: JN-5102-4

July 23, 2004

ENVIRONMENTAL ASSOCIATES, INC.

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INTRODUCTION/SCOPE OF WORK

SITE DESCRIPTION

The subject property is irregular-shaped and covers approximately 34,356 square feet (0.78 acres) of land. Improvements to the property include a split-level, concrete tilt-up building enclosing approximately 7,500 square feet of space that was reportedly erected in 1973. Additional improvements include an asphalt-paved storage yard area on the western portion of the site, and an asphalt-paved parking area on the eastern portion of the site. Currently the parcel is occupied by Revchem Plastics, Inc., an industrial chemicals and supplies company.

The approximate location of the site is shown on the Vicinity/Topographic Map, Plate 1, appended herewith. A brief description of land use on nearby parcels is provided below. Plate 2, Site Plan, depicts the setting of the subject property and land use for adjacent sites.

- North:** Across Thorne Road directly north of the site is Suburban Propane. Located across an unpaved extension of Ross Way adjacent to the northwest is a large warehouse occupied by Brown & Haley Candy.
- South:** Adjacent to the south is a paved access road. Across this street is a large warehouse addressed as 1160 Thorne Road. Located farther south is Norcore Products Raven Industries.
- East:** Across Thorne Road to the east/northeast of the site is a warehouse.
- West:** Immediately adjacent to the west/southwest a vacant parcel, which appears to be used for truck and trailer parking.

BACKGROUND

On June 10, 2004 EAI presented a Preliminary Subsurface Exploration report to Mr. Doug Dennis with Revchem Plastics, a prospective purchaser of the property. Predicated upon the results of sampling and testing conducted by EAI in March of 2004, the findings of that effort included the discovery of tetrachloroethene (PCE) impacted-groundwater in the vicinity of the southwest corner of the warehouse. EAI recommended additional on-site and offsite exploration to further delineate the extent of the impacted groundwater and the installation of permanent groundwater monitoring wells. EAI further recommended completing the additional on-site explorations and monitoring well installations prior to proceeding with off-site explorations. This proposed plan of action was further discussed and mutually agreed upon at a site meeting on June 11, 2004 between the client, the prospective purchaser, and EAI. It was further agreed that from that point forward the property owner would take over as the "client."

At the meeting the client also acknowledged that a parts cleaning station was formerly located in the corner of the subject building nearest to where the PCE has been encountered in the groundwater. Historically, the parts cleaner may have used chlorinated solvents.

Additional discussions regarding the history of the subject property and previous environmental work are provided in our June 10, 2004 report.

METHODOLOGY/SCOPE OF WORK

Your expressed interests to further delineate the onsite extent of chlorinated solvent-impacted groundwater and deduce local groundwater flow directions, formed the basis for the current scope of work:

- Complete additional soil borings to the southwest, south, and southeast of the previously detected PCE in an effort to further deduce the onsite extent of chlorinated solvent impacted groundwater.
- Perform "real-time" laboratory analysis on select groundwater samples using an onsite mobile laboratory to efficiently guide the exploration process;
- Use the results the above referenced findings along with previous site explorations to select locations and install four (4) permanent groundwater monitoring wells on the subject property. Three (3) of these wells were to be located around the perimeter of the groundwater "plume," while the fourth monitoring well was intended to be completed within the "core" of the suspected plume."
- Deduce the local groundwater flow direction by surveying the elevations of the monitoring well casings and depths to groundwater.
- Prepare a summary report documenting our methodology, findings, conclusions, and recommendations.

GEOLOGIC SETTING

Physiographically, the site is situated on a delta (known locally as the Tacoma "tide flats") formed by the Puyallup River, Wapato Creek, and Hylebos Creek where they discharge into Commencement Bay. Sediments were deposited to the delta and constantly modified by the rivers and by tidal action. Eventually, shallow marshlands occupied the broad tidal flats.

Published geologic maps for the site vicinity (Walters and Kimmel, 1968) suggest that much of the material underlying the subject site has been modified extensively by excavation, filling or construction. These man-made processes have greatly modified or obscured the original geology.

Materials that may underlie the site at some depth may include imported fill materials and recent alluvium of silt, sand, and gravel. Marine deposits of very fine grained sediments, which typically underlie the recent alluvium, may also conceivably be present at depth beneath the subject site.

The site is situated on a generally level area, approximately 15 feet above sea level. Based upon inference from topography and local drainage patterns, it appears that shallow seated groundwater (if present) may flow toward the west-northwest. This area of the Tacoma "tide flats" can be subject to tidal influences, hence the direction of the groundwater flow may vary depending on the tidal cycle. Depth to groundwater during this current study averaged approximately 7 feet below the ground surface.

With respect to surface water resources, as previously discussed, the site is located on the delta of the Puyallup River, Wapato Creek, and Hylebos Creek. The Puyallup River is located approximately one-half mile west of the site, and the Blair Waterway, a channelized portion of the Wapato Creek, is located approximately one-half mile to the east.

SUBSURFACE EXPLORATION

STRATAPROBE BORINGS

Boring and Soil Sampling

On July 12, 2004, Strataprobe borings MW-1 (B32), MW-2 (B29), MW-3 (B31), MW-4 and B30 were made at the approximate locations depicted on Plate 3 - Site Plan Detailed, using a truck mounted Strataprobe hydraulic ram soil boring rig. Boring locations MW-2, MW-3 and B30 were selected to further delineate the onsite limits of the chlorinated solvent impacted groundwater. Location MW-4 was selected to install a permanent monitoring well based upon the findings from our previous site exploration. Location MW-1 was selected to install a monitoring well due to its apparent location within the suspected "core area" of the on-site groundwater plume.

Groundwater Sampling

Prior to completing monitoring wells at locations MW-2 and MW-3 temporary groundwater samples were collected at MW-2, MW-3 and B30 and analyzed for chlorinated solvents by the onsite mobile laboratory.

The groundwater samples were collected by extending a temporary stainless steel well screen to the bottom of each boring. A peristaltic pump was then used to extract a groundwater sample.

Subsurface Conditions

Subsurface soils consisted of a sand-gravel fill to an average depth of 2.5 feet below the ground surface. At location MW-1 the boring was advanced in an attempt to evaluate the thickness of the shallow unconfined groundwater bearing zone. Below the fill soil at MW-1 a black fine to medium grain-size sand, with occasional lenses of silt were encountered to a depth of approximately 14 feet at which depth a lower permeability silt and clayey-silt was encountered to the 16-foot maximum depth explored.

From previous explorations by EAI and others throughout the "Tacoma Tide Flats," this lower silt / clayey-silt, likely represents the base of the upper unconfined water-bearing zone.

In general the depth to groundwater averaged approximately 7 feet below the ground surface.

LABORATORY ANALYSIS / RESULTS

The groundwater samples from MW-2 (B29), B30, and MW-3 (B31), were analyzed by the mobile laboratory for chlorinated volatile organic compounds (VOCs) by EPA Method 8021B.

Upon completing the installation of monitoring well MW-1, discussed in the forthcoming section of this report, a groundwater sample was collected and analyzed by the mobile laboratory.

As presented on Table 2, chlorinated VOCs were not detected in any of the three (3) groundwater samples from MW-2 (B29), B30, or MW-3 (B31).

The groundwater sample collected from MW-1 contained 4.1 parts per billion (ppb) tetrachloroethene (PCE), which is slightly below the Washington State Department of Ecology's Method-A target compliance level of 5 ppb.

A copy of the laboratory report is included in Appendix B.

MONITORING WELL INSTALLATION & WATER TABLE SURVEY

Once the mobile laboratory confirmed the "non-detection" of chlorinated VOCs at MW-2 and B30 and MW-3, monitoring wells were completed at MW-1, MW-2, MW-3, and MW-4. As discussed earlier, location MW-1 represents the apparent "core area" of the onsite contaminant plume. Locations MW-2 through MW-4 are intended to establish points of groundwater compliance around the on-site perimeter of the groundwater plume.

All four (4) monitoring wells were drilled using the Strataprobe rig equipped with a 3-inch interior diameter casing. Once the casing was advanced to the desired depth (approximately 15 feet to fully penetrate the unconfined aquifer) a 2-inch diameter PVC pipe, screened between 5 and 15 feet below the ground surface was installed through the center of the casing. The casing was then removed from the ground and the annulus of each well was sand packed approximately two feet above the well screen; a bentonite seal was then placed above the sand and carried to within two feet of the ground surface to prevent infiltration of surface contamination along the well casing. A concrete plug and traffic-grade well monument were installed to protect and control access to each wellhead.

Monitoring well installation and design methods conformed to the requirements and specifications outlined in revisions of WAC 173-160 for "resource protection wells" in the State of Washington. On July 14, 2004, a builder's level and depth to water meter were employed to survey the elevation of the shallow water table. The relative elevations of the tops of each monitoring well casing and corresponding depths to groundwater are provided in Table 1. This data was used to deduce the groundwater table elevations depicted as blue lines on Plate 3, Site Plan-Detailed. The water table survey suggests that shallow groundwater flows toward the north-northwest.

CONCLUSIONS/RECOMMENDATIONS

Relying upon the results of groundwater sampling and laboratory testing conducted thus far by Environmental Associates, Inc. (EAI), the following conclusions and summary discussions are offered:

- The additional explorations appear to have been successful in delineating the onsite extent of chlorinated solvent-impacted groundwater. The red-tinted area depicted on Plate 3, Site Plan-Detailed represents a preliminary interpretation of the possible onsite extent of the solvent-impacted groundwater.
- The installation of the four (4) newly completed onsite groundwater monitoring wells was also successful in providing a means to deduce the local groundwater flow direction and providing infrastructure to conduct future groundwater monitoring as will likely be required by the WDOE to work toward achieving regulatory compliance at the subject property.
- The deduced north-northwesterly groundwater flow direction appears to support our earlier opinion that chlorinated solvent-impacted groundwater likely extends off-site beyond the northwestern boundary of the subject property.

Recommendations and Additional Discussion

Based upon information developed thus far, and assuming that the various involved parties desire to eventually pursue some form of a determination of no further action (NFA) from the Washington State Department of Ecology (WDOE), the following recommendations are offered:

Acknowledging the likelihood that impacted groundwater extends off the subject site, it remains EAI's opinion that the next logical step in working toward regulatory compliance at this facility would include limited off-site explorations on the northwest adjacent property. This could include the completion of 3 to 4 additional soil borings, of which one or more may warrant completion as permanent groundwater monitoring wells. This would essentially be a very similar scope of work to that completed during this latest onsite phase of the project. Obviously such offsite explorations would require the involvement of the adjacent property owner. EAI would suggest that the client briefly consult with appropriate legal council prior to pursuing any off-site explorations.

Again the above course of action is recommended if it remains the client's desire to eventually achieve a determination of no further action (NFA) from the WDOE. Receiving an NFA is often a desirable, or may even be a required goal of "third parties (buyers, lenders, etc.) when contemplating the sale or refinancing of the property.

In terms of third party liability, EAI offers the following brief discussion for the clients consideration. Under State environmental laws (WAC-173-340) the subject property owner is liable for any contamination that has migrated onto an adjacent parcel and the adjacent property owner by law has a cause of action to recover any costs incurred in cleaning upon contamination that impacted his property. Although it is unclear as to whether the adjacent property owner would ever discover the impact, not addressing this potential liability at this point in time, may have the negative consequences of significantly increasing the clients liability exposure and cleanup costs that could be incurred at some point in the future.

Once the extent of the off-site impact (if any) has been delineated, several options for remediating or managing the area of impacted groundwater can be evaluated. Groundwater remediation/management approaches that could be explored once the extent of the offsite impact is better defined, may include classic "pump and treat" systems, air stripping (sparging) / vapor extraction, chemical injection to stimulate and enhance bio-degradation, or simply monitor natural attenuation of the contaminant plume.

In the interim, and as a means of complying with the provisions of the Model Toxics Control Act (MTCA; WAC 173-340), EAI recommends initiation of a groundwater monitoring program to sample the existing monitoring wells on a quarterly basis (every 3 months). The monitoring program should continue as long as contaminants remain and/or until WDOE is satisfied with the environmental conditions associated with the encountered release.

As discussed at length in preceding sections, additional offsite characterization to determine the full extent of PCE impacted groundwater would likely be necessary to further evaluate whether or not the subject site could qualify for an NFA, or alternatively whether or not some form of active remedial action or implementation of other engineering / institutional controls could be required to obtain some level of regulatory compliance with regard to chlorinated solvents at this site.

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 lender, depending upon their individual risk tolerances.

Regulatory Reporting Requirements

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 within 90 days. Therefore EAI also recommends that the client provide the existing property owner with a copy of this report.

LIMITATIONS

This report has been prepared for the exclusive use of Mr. Steve Shaub and Doug Dennis, along with their 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 June 21, 2004. The opinions expressed in this report are based upon interpretations, observations and testing made at separated sampling locations and conditions may vary between those locations or at other locations or depths. EAI makes no warranty with respect to future actions of regulatory agencies 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

Environmental Associates, Inc., May 2, 2000, Phase-I Environmental Audit, Commercial Building, 1132 Thorne Road, Tacoma, Washington.

Environmental Associates, Inc., June 10, 2004, Preliminary Subsurface Exploration, Revchem Plastics, Inc., 1132 Throne Road, Tacoma, Washington, 20 pages, attachments.

Walters, K.L. and Kimmel, G.E., 1968, Groundwater Occurrence and Stratigraphy of Unconsolidated Deposits - Central Pierce County, Washington, USGS Water Supply Bulletin No. 22, 13 pps., 3 plates, 19 figures, 9 tables.

TABLE 1 Water Table Survey (feet)				
Monitoring Well Number	TOC Elevation	Depth to Water Below TOC	Net Change	Elevation of Water Table
MW-1 Jul-04	15.00	7.76	---	7.24
MW-2 Jul-04	13.87	6.48	---	7.39
MW-3 Jul-04	14.93	7.46	---	7.47
MW-4 Jul-04	15.11	7.99	---	7.12
Notes: (1) TOC. Top of well casing elevation. (2) Elevations based upon assigning the ground surface in the vicinity of MW-1 an approximate elevation of 15 feet above sea-level.				

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

Boring	Tetrachloroethene (PCE)	Trichloroethene (TCE)	(cis) 1,2 Dichloroethene	(trans) 1,2 Dichloroethene	Vinyl Chloride	Dichlorodifluoromethane
--------	-------------------------	-----------------------	--------------------------	----------------------------	----------------	-------------------------

Initial Site Exploration Samples

B2	5	ND	ND	ND	ND	ND
B6	ND	ND	ND	ND	ND	ND
B7	ND	ND	ND	ND	ND	ND
B8	ND	ND	ND	ND	ND	12
B13	ND	ND	ND	ND	ND	ND
B14	ND	ND	ND	ND	ND	ND

Followup Site Exploration Samples (May 2004)

B21	ND	ND	ND	ND	ND	ND
B24	ND	ND	ND	ND	ND	ND
B25 (MW-4)	1	ND	ND	ND	ND	ND
B26	ND	ND	ND	ND	ND	ND
B27	13	ND	ND	ND	ND	ND
B28	20	ND	ND	ND	ND	ND

Additional Site Exploration Samples (July 2004)

B29 / MW-2	ND	ND	ND	ND	ND	ND
B30	ND	ND	ND	ND	ND	ND
B31 / MW-3	ND	ND	ND	ND	ND	ND
B32 / MW-1	4.1	ND	ND	ND	ND	ND
Reporting Limit ³	1	1	1	1	1	1
Existing Cleanup Level ⁴	5 (A)	5 (A)	80 (B)	160 (B)	0.2 (A)	1600 (B)

Notes:

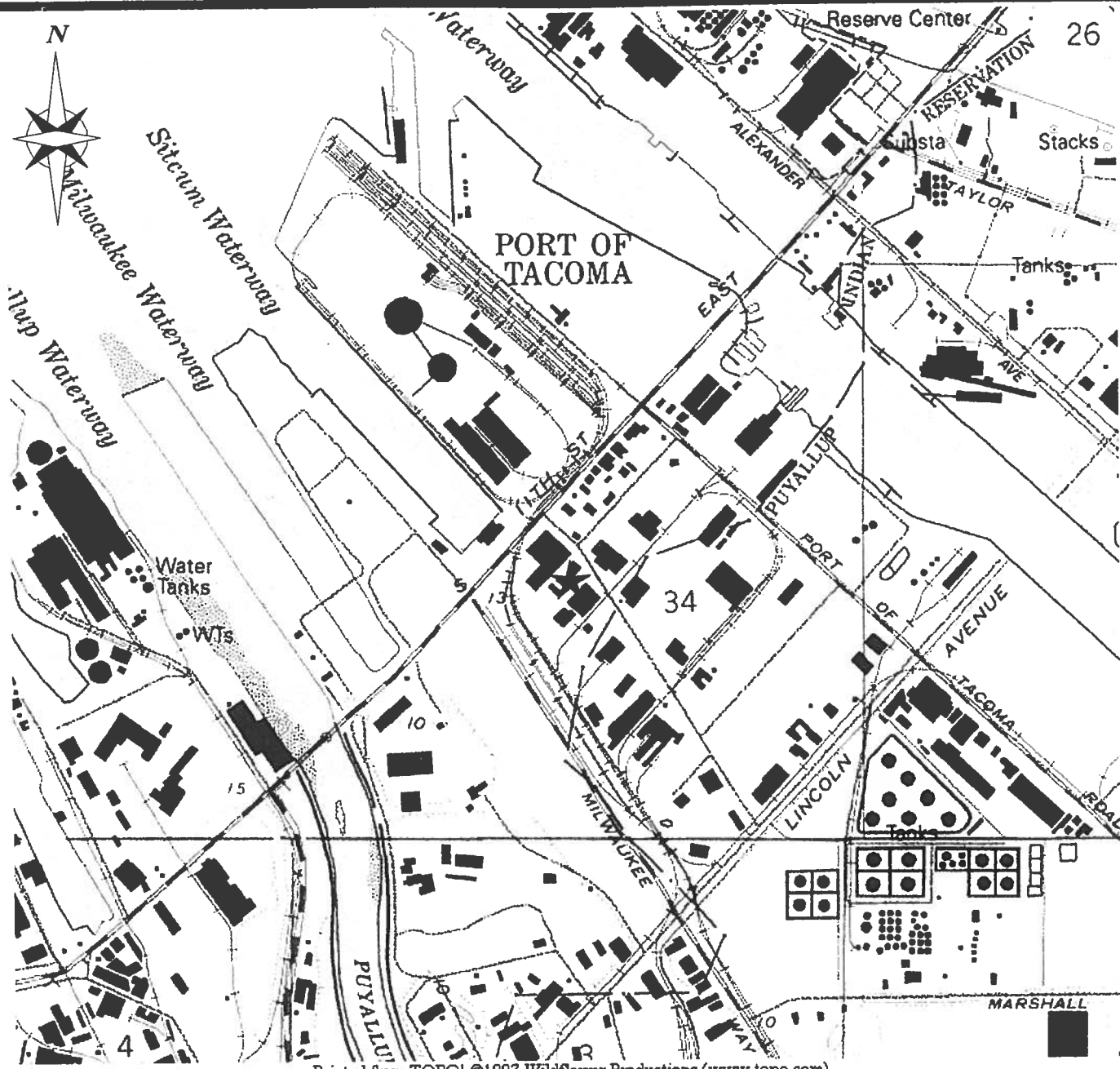
1 - "ND" denotes analyte not detected at or above listed Reporting Limit.

2 - "NA" denotes sample not analyzed for specific analyte.

3 - "Reporting Limit" represents the laboratory lower quantitation limit.

4 - Method A or B groundwater cleanup levels as published in the Model Toxics Control Act (MTCA) 173-340-WAC, amended 2/12/01.

Bold and Italics denotes concentrations above existing MTCA Method A groundwater cleanup levels.



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★ Subject Property

Scale

1/2
Mile



Contour Interval = 20 Feet



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VICINITY / TOPOGRAPHIC MAP

Revchem Plastics, Inc.
1132 Thorne Road
Tacoma, Washington

Job Number:

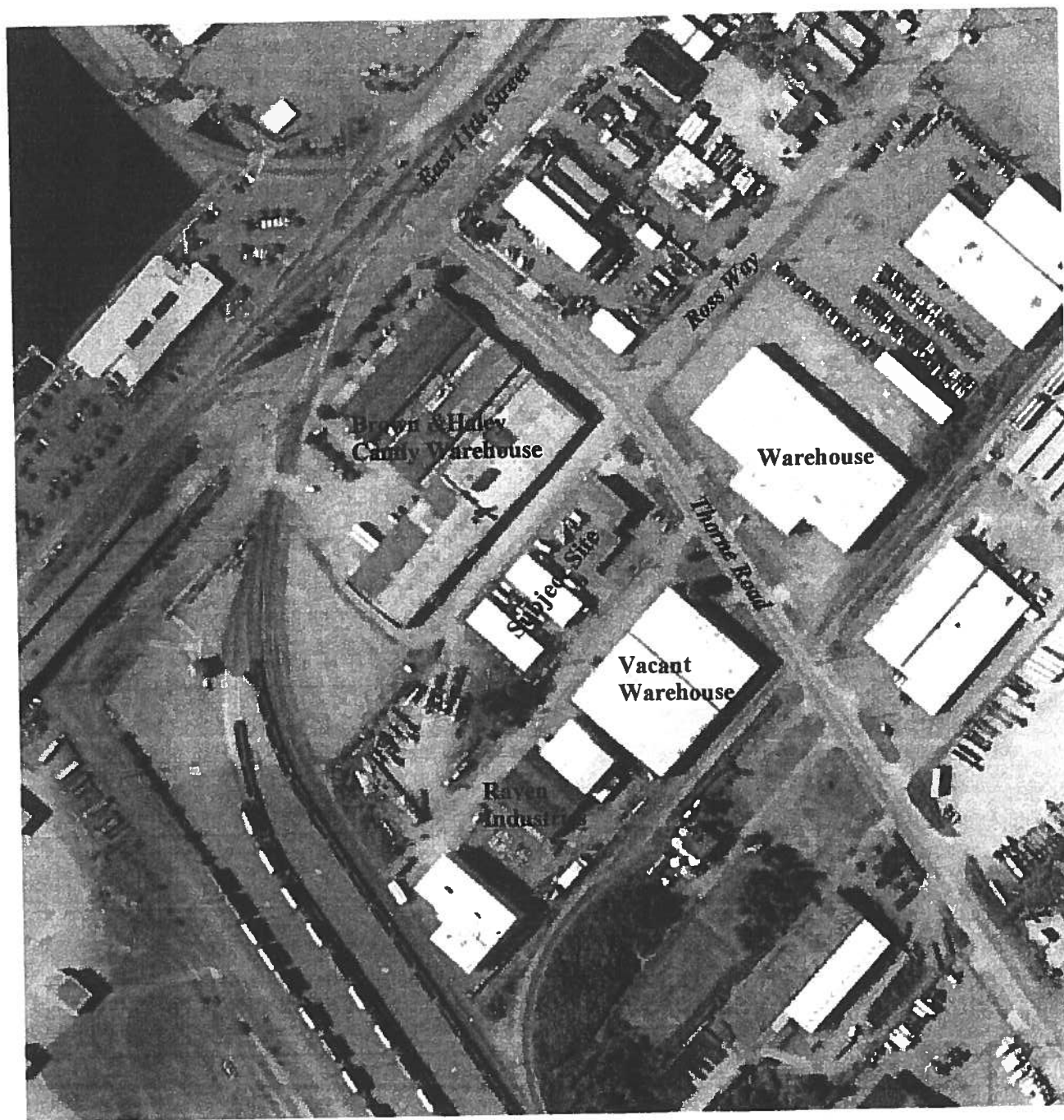
JN 5102-4

Date:

July 2004

Plate:

1



Inferred direction of shallow groundwater flow.



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Bellevue, Washington 98004

Site Plan

Revchem Plastics, Inc.
1132 Thorne Road
Tacoma, Washington

Job Number:

JN-5102-4

Date:

July 2004

Scale:

Plate:

2

Easement

Inferred area of PCE-impacted groundwater on the subject property

Deduced Groundwater Flow Direction

MW-4 (B25)

MW-1

MW-2

Revchem Plastics

Former UST Area

Thorne Road

Asphalt

Asphalt

Asphalt

Castan Trucking

Container

- Approximate locations of Strataprobe borings made by EAI in April/May 2004.
- Approximate locations of monitoring wells Installed by EAI in July 2004.
- Red denotes locations where contaminants were found in groundwater at concentrations above WDOE target compliance levels.
- Orange denotes locations where contamination was found at detectable concentrations.
- Green denotes locations tested and found not to contain detectable concentrations of chlorinated VOCs
- Black denotes locations not tested.



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SITE PLAN-DETAILED

Revchem Plastics, Inc.
1132 Thorne Road
Tacoma, Washington

Job Number:	Date:	Scale:	Plate:
JN-5102-4	July 2004	1"=40'	3

APPENDIX A

Boring Logs

BORING MW-1 (B32)

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Head Space Analysis (ppm)
0		Damp		(F)	Fill, sand-gravel mix, brown. Sample B32-1-2	0.1
5		Moist		SP	Sand, fine to medium grained, minor silt, black. Sample B32-3-4	5.0
		Wet		SP	Sand, fine to medium grained, minor silt, black. Sample B32-7-8	0.6
10				SP	Sand, fine to medium grained, minor silt, shell fragments, black. Sample B32-11-12	1.5
15				ML	Silt / Clayey-silt, brown/black.	
20					Boring terminated at 16 feet.	
25						
30						
35						
40						

Sampler: Continuous Sample collected in 4-foot sections.
 Driller: ESN-Strataprobe.
 Monitoring Well: 2"-PVC, Screened 5' to 15', 0.010" Slot



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

BORING MW-1 (B32)

Revchem Plastics, Inc.
 1132 Thorne Road
 Tacoma, Washington

Job Number:
JN-5102-4

Date:
7/12/04

Logged by:
RBR

Plate:
A-1

BORING MW-2 (B29)

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Head Space Analysis (ppm)
0		Damp		(F)	Fill, sand-gravel mix, brown. Sample B29-1-2	0.0
5		Moist		SP	Sand, fine to medium grained, minor silt, black. Sample B29-3-4	4.0
10		Wet		SP	Sand, fine to medium grained, minor silt, black. Sample B29-7-8	5.9
15				SP	Sand, fine to medium grained, minor silt, shell fragments, black. Sample B29-11-12	0.0
20					Boring terminated at 12 feet. Monitoring well Installed to 15ft.	
25						
30						
35						
40						

Sampler: Continuous Sample collected in 4-foot sections.
 Driller: ESN-Strataprobe.
 Monitoring Well: 2"-PVC, Screened 5' to 15', 0.010" Slot



**ENVIRONMENTAL
ASSOCIATES, INC.**

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

BORING MW-2 (B29)

Revchem Plastics, Inc.
 1132 Thorne Road
 Tacoma, Washington


Job Number:
JN-5102-4

Date:
7/12/04

Logged by:
RBR

Plate:
A-2

BORING MW-3 (B31)

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Head Space Analysis (ppm)
0		Damp		(F)	Fill, sand-gravel mix, brown. Sample B31-1-2	9.0
				SP	Sand, fine to medium grained, minor silt, black. Sample B31-3-4	8.4
5		Moist		SP	Sand, fine to medium grained, minor silt, black. Sample B31-7-8	6.5
10		Wet		SP	Sand, fine to medium grained, minor silt, shell fragments, black. Sample B31-11-12	5.6
15					Boring terminated at 12 feet. Monitoring well Installed to 15ft.	
20						
25						
30						
35						
40						

Sampler: Continuous Sample collected in 4-foot sections.
 Driller: ESN-Strataprobe.
 Monitoring Well: 2"-PVC, Screened 5' to 15', 0.010" Slot



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 Bellevue, Washington 98004

BORING MW-3 (B31)

Revchem Plastics, Inc.
 1132 Thorne Road
 Tacoma, Washington

Job Number:
JN-5102-4

Date:
7/12/04

Logged by:
RBR

Plate:
A-3

BORING MW-4

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Head Space Analysis (ppm)
0					Monitoring well Installed to 15ft. See Boring Log B25 in previous study for lithology.	
5						
10						
15						
20						
25						
30						
35						
40						

Sampler: Continuous Sample collected in 4-foot sections.
 Driller: ESN-Strataprobe.
 Monitoring Well: 2"-PVC, Screened 5' to 15', 0.010" Slot



**ENVIRONMENTAL
ASSOCIATES, INC.**

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

BORING MW-4

Revchem Plastics, Inc.
 1132 Thorne Road
 Tacoma, Washington

Job Number:
JN-5102-4

Date:
7/12/04

Logged by:
RBR

Plate:
A-4

BORING B30

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Head Space Analysis (ppm)
0		Damp		(F)	Fill, sand-gravel mix, brown. Sample B30-1-2	1.0
5				SP	Sand, fine to medium grained, minor silt, black. Sample B30-3-4	1.8
	▼	Moist		SP	Sand, fine to medium grained, minor silt, black. Sample B30-7-8	1.8
10		Wet		SP	Sand, fine to medium grained, minor silt, shell fragments, black. Sample B30-11-12	0.0
15					Boring terminated at 12 feet.	
20					Temporary well screen 9' to 12'.	
25						
30						
35						
40						

Sampler: Continuous Sample collected in 4-foot sections.
Driller: ESN-Strataprobe.



**ENVIRONMENTAL
ASSOCIATES, INC.**

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

BORING B30

Revchem Plastics, Inc.
1132 Thorne Road
Tacoma, Washington

Job Number:	Date:	Logged by:	Plate:
JN-5102-4	7/12/04	RBR	A-5

APPENDIX B
Laboratory Report

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

REVCHEM PLASTICS PROJECT
Tacoma, Washington
Environmental Associates, Inc.
Client Project #JN 5102-4

Specific Halogenated and Aromatic Hydrocarbons (EPA 8021B) in Water

Sample Description		Method Blank	B29	B29 Dup	B30	B31	MW1
Date Sampled		7/12/04	7/12/04	7/12/04	7/12/04	7/12/04	7/12/04
Date Analyzed		7/12/04	7/12/04	7/12/04	7/12/04	7/12/04	7/12/04
	MIDL (ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Vinyl chloride	5.0	nd	nd	nd	nd	nd	nd
Benzene	1.0	nd	nd	nd	nd	nd	nd
Toluene	1.0	nd	nd	nd	nd	nd	nd
Ethylbenzene	1.0	nd	nd	nd	nd	nd	nd
Total Xylenes	1.0	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	1.0	nd	nd	nd	nd	nd	nd
Methylene chloride	1.0	nd	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	1.0	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	1.0	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	1.0	nd	nd	nd	nd	nd	nd
Chloroform	1.0	nd	nd	nd	nd	nd	nd
1,1,1-Trichloroethane (TCA)	1.0	nd	nd	nd	nd	nd	nd
Carbon tetrachloride	1.0	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	1.0	nd	nd	nd	nd	nd	nd
Trichloroethene (TCE)	1.0	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	1.0	nd	nd	nd	nd	nd	nd
Tetrachloroethene (PCE)	1.0	nd	nd	nd	nd	nd	4.1
1,1,1,2-Tetrachloroethane	1.0	nd	nd	nd	nd	nd	nd
Surrogate Recovery (%)		100	68	112	86	100	99

"nd" Indicates not detected at listed detection limit.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene): 65%- 135%

ANALYSIS PERFORMED BY: T. McCall

CHAIN-OF-CUSTODY RECORD

CLIENT: Revchem Plastics EAI ⁹⁰⁰⁴
 ADDRESS: 1320 - 112th Ave NE, Suite 300 Bellevue
 PHONE: (425) 475-7025 FAX: (425) 475-7316
 CLIENT PROJECT #: 2 JV-5102-4 PROJECT MANAGER: Robert Rice

DATE: 7/12/04 PAGE OF
 PROJECT NAME: Revchem Plastics
 LOCATION: Tacoma WA
 COLLECTOR: Robert Rice DATE OF COLLECTION: 7/12/04

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES	VOA 8021B BTEX Only	VOA 8021B	SEM VOL 8270	TPH - HClD	TPH 8015 (aqueous)	TPH 8015 (diesel)	PAH 8100	PCBs 8082	EPH	VPH	Methamphetamine	PO	Hex Chroma	NOTES	Total Number of Containers	Laboratory Note Number
1. B29			H ₂ O	110A	X																
2. E30			"	"	X																
3. E31			"	"	X																
4. MW-1					X																
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					
11.																					
12.																					
13.																					
14.																					
15.																					
16.																					
17.																					
18.																					

RELINQUISHED BY (Signature)		DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
<u>Robert Rice</u>		<u>7/12/04</u>	<u>John M. Caff</u>	<u>7/12/04</u>
RELINQUISHED BY (Signature)		DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
SAMPLE DISPOSAL INSTRUCTIONS				
<input type="checkbox"/> ESN DISPOSAL @ \$2.00 each <input type="checkbox"/> Return <input type="checkbox"/> Pickup				
LABORATORY NOTES:				
TOTAL NUMBER OF CONTAINERS				
CHAIN OF CUSTODY SEALS Y/N/A				
SEALS INTACT? Y/N/A				
RECEIVED GOOD COND /COLD				
NOTES:				
Turn Around Time: 24 HR 48 HR 5 DAY				