tss073

MPCA Leaksite Rema s Screen Leak ID: 6348

06/25/96 EMH- File sent to archives. No other remarks for this site at this time.

Rpt Trkng(F11) Restore(F12) Save(F10) Quit(PF3) >

MINNESOTA POLLUTION CONTROL AGENCY
TANKS AND SPILLS SECTION
PETROLEUM TANK RELEASE REPORT

Report Taken By:

Date/Time Occurred:

Date/Time Reported: 5/21/93

Date/Time Discovered: 5/21/93

LEAK# 6348 | **PROJECT MANAGER:** JAJ | **USTIS #** 3352

CALLER
Name: DANA WAGNER
Phone: 559-1423
Relationship to site:
BRUCE LEISCH ASSOCIATES

SITE
Name: HARTZELL MANUFACTURING
Street: 2516 WABASH AVE
City: SAINT PAUL Zip: 55114
County: RAMSEY Region: M/1

3rd St
3rd

TANK OPERATOR
Name:
Street:
City: Zip:
Contact Person:
Phone:

TANK OWNER
Name: HARTZELL MANUFACTURING
Street: 2516 WABASH AVE
City: SAINT PAUL St.: MN Zip: 55114
Contact Person: DON BARBER
Phone: 646-9456

Own tanks/product/property?
Share in profits?
Control over inventory, maintenace and tank decisions?

SITUATION
Material Released/Amount:
STODDARD SOLVENT

Source of Release:
FORMER UST

Release Discovery:
BORING

TANK INFORMATION

Contents	Size	Age	Removed	Condition	Registered
STODDARD SOLVENT			1988		

State or Federal
Excavation Contractor: BAY WEST

Notification prior to removal:

Consultant:

SOIL

Contaminated soil excavated: ND

Was it a total excavation: -

Vapor readings: OVM - 311 ppm at 13-15 ft.

Soil samples:

Borings: Y

Native soil type:

Stockpiled properly/disposal arranged:

Other:

WATER
Groundwater in excavation: —

Free product present: unknown

Depth to groundwater: 23 ft.

City water/wells private/municipal:

Surface water:

VAPORS
Sewers/buildings:

SITE INFORMATION
Description of area:

Previous release(s):

INSTRUCTION GIVEN	**CONTACTS**
Hire consultant	Local Fire/Police
Submit report	Local Officials
Staff will call	Regional Staff
Contact staff	Other

CONCLUSIONS AND OTHER RELATED INFORMATION

Tanks

MINNESOTA DUTY OFFICER INCIDENT REPORT

#6348
JAJ

Report taken by: Bob-Ga Date: 5-21-93 Time: 1640 Record #

CALLER

Name: Dana Wagner
Firm/Agency: Bruce Liesch Associates
Address: 13400 15th Ave. N.
City: Plymouth State: MN
County: Hennepin Zip: 55441
Phone (Day): 559-1423
Phone (Eve):

REPORTED SOURCE/RESPONSIBLE PARTY

Contact: Don Barber
Firm/Agency: Hartsell Manufacturing
Address: 2516 Wabash Ave.
City: St. Paul State: MN
County: Ramsey Zip: ?
Phone (Day): 646-9456
Phone (Eve):

INCIDENT SPECIFICS Incident Date: 5-21-93 Time: 0930 hours
Location of Incident: 2516 Wabash Ave., St. Paul, Ramsey Co.
Legal: Section: Township: Range:
Material(s) and Quantity Contaminated soil, unk amt
Area Affected: Air / Surface Water / Ground Water / (Soil) / Asphalt / Concrete
Sanitary Sewer / Storm Sewer / Tile Line
Other Info on Affected Area:
General Description of Area: Urban / Rural / Residential / (Commercial) / Industrial
Has material escaped from facility or facility property? Yes / No / (Unknown)
Has the released material been contained? (Yes) / No / Unknown

Incident Narrative
(Spill) / Air Release / Equip Malfnct / Shutdown / Sewage Bypass / Dumping / Complaint
A boring was placed at a site where underground tank was removed in 1988. Petroleum products were identified using a OVM detector. Readings of 311 ppm were found at a depth of 13-15 ft. Groundwater was encountered at 23 ft, but it is unknown if water table was impacted.

Was there local emergency response to this incident? Yes / (No) / Unknown
IS THIS A BUSINESS OR GOVERNMENT FACILITY REPORTING IN COMPLIANCE WITH SARA TITLE III, SECTION 304? Yes / (No) / Unknown
(If YES, complete the SARA Title III Supplement)

DUTY OFFICER NOTIFICATIONS (Agency, Name, Time)	
PCA Tanks (fax)	
SERC To Mail	
FM To Mail	

Minnesota Pollution Control Agency

September 16, 1993

Mr. Dwain Kasel
Hartzell Manufacturing
2516 Wabash Avenue
St. Paul, Minnesota 55114

Dear Mr. Kasel:

RE: Petroleum Tank Release Site Closure
Site: Hartzell Manufacturing, 2516 Wabash Avenue, St. Paul
Site ID#: LEAK00006348

The Minnesota Pollution Control Agency (MPCA) staff has determined that the cleanup performed in response to the petroleum tank release at the site referenced above has adequately addressed the petroleum contamination, and therefore the file regarding this release will be closed.

On May 5, 1993, a petroleum tank release was reported to the MPCA. Since then, the following corrective actions have been taken in response to the release:

1. B.A. Leisch was retained to conduct a limited investigation at the above-referenced site. In 1988, Bay West Inc., removed one 1,500 gallon underground storage tank (UST) which contained stoddard solvent. Details regarding the tank removal were not documented.

2. B.A. Liesch advanced seven soil borings to determine the extent and magnitude of contamination. Soil boring SB-1, which was advanced through the former tank basin, measured the highest level of soil contamination. Review of the laboratory report indicates that total petroleum hydrocarbons were present at 626 parts per million. Soil boring SB-4, which was advanced eight feet east of SB-1 found no significant contamination below 5 feet.

3. Two ground water samples were collected and analyzed for petroleum aromatics. The laboratory report shows that no petroleum parameters were detected above the method of detection. B.A. Leisch estimates that approximately 150 cubic yards of petroleum contaminated soil remains on site.

4. During a phone conversation between B.A. Liesch and MPCA staff, the findings/conclusions section of the submitted report was discussed. It was agreed that the extent and magnitude of the release did not warrant corrective action. The remaining soil contamination poses no apparent future hazard. Further cleanup of this soil would not constitute an environmental gain.

Based on the currently available information, we concur with the conclusions of B.A. Leisch that these actions have adequately addressed the petroleum tank release. Therefore, MPCA staff does not intend to require any more investigation or cleanup work in response to this release. However, the MPCA reserves the right to reopen this file and require additional work if in the future more work is determined to be necessary, and this letter does not release any party from liability for this contamination.

Because you performed the requested work, the state may reimburse you for a major portion of your costs. The Petroleum Tank Release Cleanup Act establishes a fund which in certain circumstances provides partial reimbursement for petroleum tank release cleanup costs. This fund is administered by the Petro Board. More specific eligibility rules are available from the Petro Board (612/297-1119 or 612/297-4203).

Thank you for your cooperation with the MPCA in responding to this petroleum tank release to protect the public health and the environment of the state of Minnesota. If you have any questions regarding this correspondence, please call me at 612/297-8607.

Sincerely,

James Joslyn
Project Manager
Cleanup Unit II
Tanks and Spills Section

JJ:nh

cc: Robin Hanson, Department of Commerce
Dana Wagner, B.A. Leisch, Minneapolis
Molly O'Rourke, City Clerk, St. Paul
Tim Fuller, Fire Chief, St. Paul

Minnesota Pollution Control Agency

June 2, 1993

Mr. Don Barber
Hartzell Manufacturing
2516 Wabash Avenue
St. Paul, Minnesota 55114

Dear Mr. Barber:

RE: Petroleum Storage Tank Release Investigation and Corrective Action
Site: Hartzell Manufacturing, 2516 Wabash Avenue, St. Paul
Site ID#: LEAK00006348

The Minnesota Pollution Control Agency (MPCA) has received notification that a release of petroleum has occurred from storage tank facilities which you own and/or operate that has resulted in contamination of soil and/or ground water.

Federal and state laws require that persons legally responsible for storage tank releases notify the MPCA of the release, investigate the extent of the release and take actions needed to ensure that the release is cleaned up. A person is considered legally responsible for a tank release if the person owned or operated the tank either during or after the release, unless specifically exempted under the law. See Minn. Stat. § 115C.021 (as amended by Minn. Laws 1992, ch. 414, sec. 2). If you believe that you are not legally responsible for this storage tank release, please provide the MPCA with a written explanation of the grounds for your position within 30 days.

The MPCA staff is requesting you to take the steps necessary to investigate and clean up the release in accordance with the enclosed MPCA technical documents. The MPCA requires that you conduct a site investigation to define the full extent and magnitude of the soil and/or ground water contamination caused by the release. If you know or discover that there is free-floating petroleum on the water table, the MPCA requests that you notify the MPCA within 24 hours. In addition, if any measurable volume of free product is observed in an excavation, borehole, or well, you must IMMEDIATELY begin interim free product recovery (passive hydrophobic/oleophilic collectors, absorbent pads, etc.)

If you are not legally responsible for the release, but hold legal or equitable title to the property where the release occurred, you may volunteer to take corrective action. Responsible persons and volunteers who take corrective action may be eligible for reimbursement for a major portion of the costs of corrective action. The legislature has established the Petroleum Tank Release Cleanup Account to reimburse responsible persons and volunteers. The account is administered by the Petroleum Tank Release Compensation Board (Petro Board). The Petro Board has adopted rules, Minn. Rules ch. 2890, governing application for reimbursement. Questions about eligibility and reimbursement should be directed to the Petro Board at 612/297-1119 or 612/297-4203.

If you have not already done so, the MPCA recommends that you hire a qualified consulting firm that has experience in conducting petroleum release site investigations and in proposing and implementing appropriate corrective actions. The MPCA reserves the right to reject proposed corrective actions if the requirements of the site investigation have not been fulfilled. Please note that, under Minn. Rules pt. 2890.0075, subp. 2, you must solicit a minimum of two competitive proposals on a form prescribed by the Petro Board to ensure that your consulting costs are reasonable.

If you do not respond to this letter within 30 days, the MPCA staff will assume that you do not intend to comply with this request. In this event, the MPCA Commissioner may order you to take corrective action. If you do not comply with the Commissioner's order, it may be enforced in court or, alternatively, the MPCA could spend its own money cleaning up the release and then request the Attorney General to recover its costs from you through legal action. Failure to cooperate with the MPCA in a timely manner will also result in reduced reimbursement from the Petro Board. See Minn. Rules pt. 2890.0065, subp. 1, item C.

MPCA staff has compiled the enclosed factsheets to provide you with the information necessary to complete a successful investigation and cleanup.

If you have any questions concerning this letter or need additional information, contact me at 612/297-8607. Please reference the above LEAK # in all correspondence.

Sincerely,

Mike Nelson

for James Joslyn
Project Manager
Tanks and Spills Section
Hazardous Waste Division

JJ:nh

Enclosures

cc: Molly O'Rourke, City Clerk, St. Paul
Tim Fuller, Fire Chief, St. Paul

LIESCH
B.A. LIESCH ASSOCIATES, INC. 13400 15TH AVE. N. MINNEAPOLIS, MN 55441 612/559-1423 FAX: 612/559-2202

July 28, 1993

Mr. James Joslyn
Minnesota Pollution Control Agency
HW/TS
520 Lafayette Road
St. Paul, MN 55155-3898

RE: Underground Storage Tank Investigation at Hartzell Manufacturing, 2516 Wabash Avenue, St. Paul, Minnesota, Leak ID #00006348

Dear James:

As we discussed, B.A. Liesch Associates, Inc. (Liesch) is writing you to summarize the results of a soil and groundwater investigation completed at Hartzell Manufacturing, Inc., 2516 Wabash Avenue, St. Paul, Minnesota (the Property).

Introduction

The investigation was undertaken to assess possible impacts which may have been associated with prior usages. Specifically, the investigation focused upon a former stoddard solvent UST basin located on the southeast side of the building (Figure 1). The 1,500 gallon stoddard solvent UST once located there was removed by Bay West, Inc. (Bay West) in 1988. While no impacts were reportedly identified by Bay West during the UST closure, no documentation existed to confirm that no impacts had occurred.

Because of this and to assess baseline water quality on the Property, Liesch undertook a soil and groundwater investigation for the Property and specifically on and adjacent to the former stoddard solvent UST basin.

For the investigation, Liesch placed seven soil borings on the Property (Figure 1). Three soil borings were placed in anticipated up-and-downgradient positions on the Property and converted to temporary monitoring wells (TW1 - TW3). Four soil borings (SB1 - SB4) were advanced in the vicinity of the former stoddard solvent UST removed by Bay West, Inc. in 1988.

The soil borings were advanced on May 21, 1993 by Liesch Subcontractor Bergerson-Caswell, Inc. (BCI) using a truck mounted 4-1/4 inch I.D. hollow stem auger rig. During advancement of the soil borings split spoon samples were collected and screened for organic vapors using jar headspace analysis procedures and a 10.6 e.V. photoionization detector organic vapor monitor. A brief summary of site lithology has been provided on Table 1. Complete soil boring logs will be submitted upon completion of their transcription.

The results of the field screening indicated that no significant detectable organic vapors were identified in TW1 - TW3. During initial advancement of TW3, auger refusal due to rocks occurred at approximately 15 feet.

Field screening of soil samples from SB1, which was placed in the anticipated center of the former UST basin indicated that significant organic vapors, up to 322 parts per million (ppm), were identified at depths of 18 to 20 feet below grade. Soil samples from a depth of 22 to 25 and 28 to 30 feet revealed the presence of only 6 ppm and 5 ppm of organic vapors respectively. Ground water was encountered at approximately 24 feet and a ground water sample was taken and preserved for laboratory analysis. Soil samples from SB2, which was placed 15 feet south of SB1, were found to contain low levels of organic vapors at a depth of 0 to 2 feet. No other significant detectable organic vapors were identified within SB2. The presence of organic vapors in SB2 may likely be the result of vapors from the source area being released and trapped below the slab. SB3 was placed approximately 10 feet to the north of SB1 and was found to have no significant organic vapors. SB4, which was placed eight feet east of SB1 was found to have organic vapors at concentrations of 119 ppm from 1 to 3 feet; 50 ppm at 3 to 5 feet and 17 ppm at 8 to 10 feet below grade. The impacts identified, owing to their stratigraphic position, appear to be the result of surface spillage which may have occurred during UST filling operations. Headspace analysis results are identified on Table 1.

Soil samples from the anticipated soil/ groundwater interface were collected from SB-2, SB-3 and SB-4 and submitted for petroleum related volatile organic compounds and gasoline related organics analyses. The confirmatory samples were selected to determine if impacts were present at the soil/groundwater interface.

Temporary Wells

TW1 - TW3 were each advanced to depths of 29, 30 and 23 feet below grade, respectively. Upon completion of the soil borings the HSA was withdrawn approximately ten feet and a temporary 10 foot stainless steel, 10 slot screen and a low carbon steel riser were placed. The casing and stem were then fitted with a locking cap and the temporary wells were allowed to recharge. Liesch measured the water level in each temporary well and surveyed the three temporary wells to a common benchmark.

The temporary wells were then developed, stabilized and sampled. The temporary wells were consequently withdrawn and the boreholes abandoned by BCI. The ground water and soil samples collected during the investigation were then hand delivered by Liesch the same day to Minnesota Valley Testing Laboratories in New Ulm, Minnesota.

Ground Water Depth and Flow Direction

Based upon water level measurements the static water levels were 26.56 feet in TW1; 28.04 feet in TW2 and 19.34 feet in TW3. Based upon observations and available data the ground water encountered is believed to represent the true water table. Based upon the survey data and the water levels identified, shallow groundwater flow direction was documented to be toward the south. This flow direction is supported by the anticipated regional shallow ground water flow direction and topography in the area.

Laboratory Analytical Results

The ground water sample from SB1 was submitted for volatile organic analysis using Minnesota Department of Health 465D gas chromatograph/ mass spectrometer (GC/MS) analytical method.

Ground water samples from TW1, TW2 and TW3 were submitted for MDH Method 465D GC/MS analysis and for RCRA dissolved metals analyses. RCRA listed metals include Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver. Soil samples from SB1 (13.5 feet); SB2 (25 to 27 feet); SB3 (23 to 25 Feet) and SB4 (23 to 25 feet) were submitted for confirmatory gasoline related organics (GRO) and petroleum volatile organic compounds (PVOC) analysis.

The analyses indicated that no method 465D listed VOCs were identified above the detection limits within the groundwater sample from SB1. The results of the TW1, TW2, and BW3 groundwater sample analyses indicated that no Method 465D listed VOCs or RCRA metals were detected above the method detection limits.

The soil sample analysis indicated that ethyl benzene (34.8 ppm); xylene (total) (46.9 ppm); 1,2,4-trimethylbenzene (105 ppm), 1,3,5-trimethylbenzene, (46.5 ppm) and gasoline related organics (626 ppm) were identified in the soil sample from SB-1 (13.5 feet). The soil samples analyzed from SB-2, SB-3 and SB-4 were found to not have detectable amounts of petroleum hydrocarbons. Laboratory analytical results have been attached.

Conclusions

The results of the soil and ground water investigation indicate that no documented Method 465D listed VOC or RCRA metals impacts associated with past or current usage of the property were identified in the shallow ground water samples taken at the site.

Analysis of a ground water sample taken from beneath the anticipated area of the stoddard solvent release indicated that no Method 465D listed VOCs were present above the method detection limit. This indicates that VOC impacts from the UST release were not apparent in the ground water. In general, the investigation revealed that the release from the UST appears to be limited to the area of the basin.

Recommendations

The soil types identified within the unsaturated zone are predominantly silty sands with layers of silts, clays and other tight soil types. Below these tighter formations is a sand and gravel unit. This is the apparent water bearing formation. The water table, identified at approximately 24 feet in depth within the UST basin, has a severe gradient and a southerly flow component. Based upon the current limited extent of the impacts identified, Liesch believes that the most cost efficient and technically effective method of remediation would be excavation and thermal treatment of the impacted soils.

Based upon the approximate extent of the impacts as defined by the soil boring investigation, Liesch estimates that approximately 150 yards of impacted soil may be removed. The exact amount will depend upon the ability to excavate soils adjacent to the building. The approximate amount of clean overburden to be removed would be approximately 230 yards. It is believed that this material can be placed back into the excavation.

During the removal, a Liesch representative will be on-site to monitor the excavation progress and to determine the extent of soil impacts using jar headspace procedures and a 10.6 e.V. organic vapor monitor. Soils identified as containing greater than 10 ppm of organic vapors will be stockpiled on and covered with 6 mil plastic. Soils identified as having no visible impacts and less than 10 ppm of detectable organic vapors will be segregated and ultimately placed back into the excavation as fill. Soil samples will be taken from the stockpile per MPCA guidelines and submitted to a certified laboratory for GRO/ PVOC and diesel related organics (DRO) analysis. The stockpiled impacted soil will ultimately be disposed of at a permitted thermal treatment facility. Those soils identified as having less than 10 ppm of organic vapors would be maintained in the excavation. Clean fill will subsequently be brought in and placed in the excavation and an asphalt or concrete patch will be placed.

Prior to closure of the excavation confirmatory sidewall and bottom excavation soil samples will be taken per MPCA guidelines and submitted for GRO/ PVOC and DRO analysis.

It is hoped that no further action relative to the site would be required upon completion of the impacted soil removal and treatment. However, if the proximity of the excavation to the building threatens to cause possible damage to the building, the excavation will be discontinued and an alternative remedial action may have to be developed.

Jim, as we discussed it is the desire of Hartzell Manufacturing, Inc. to complete the necessary work as soon as practicable. In understanding that this investigation is subject to regulatory oversight and ultimate approval by the MPCA and consequently may be eligible for reimbursement of up to 90% of remedial action costs through the Petrofund, it is Hartzell Manufacturing, Inc.'s desire to secure MPCA approval for the corrective action recommended for the site prior to implementation. Please let me know if you have any questions regarding the information presented or the recommendations made.

Sincerely,

B.A. LIESCH ASSOCIATES, INC.

Dana J. Wagner
Environmental Scientist

cc Mr. Dwain Kasel, Hartzell Manufacturing, Inc.
Mr. Tim Johnson, Goldner Hawn Morrison and Johnson
Mr. Harvey Kaplan, Kaplan Strangis and Kaplan
Mr. Barry Gersick, Maun and Simon

maw:SA/61404/ltr71593.wp

TABLE 1
GEOLOGIC LOG SUMMARY/JAR HEADSPACE ANALYSIS
2516 WABASH AVENUE, ST. PAUL, MINNESOTA

TW-1 Soil Type	Lithologic Interval (feet)	Sample Interval (feet)	Headspace Analysis (ppm)
Tar	0 - .25	3 - 5	0
Red/brown sand	.25 - 8	8 - 10	1
Brown gravelly sand	8 - 16	13 - 15	0
Gray gravelly sand	16 - 17	18 - 20	0
Grey silt	17 - 20	23 - 25	0
Brown silt	20 - 29	27 - 29	0

TW-2 Soil Type	Lithologic Interval (feet)	Sample Interval (feet)	Headspace Analysis (ppm)
Tar	0 - .25	3 - 5	0
Black soil	.25 - 1	8 - 10	0
Brown sand	1 - 5	13 - 15	0
Brown sand	5 - 13	18 - 20	0
Brown sandy silt	13 - 18.2	23 - 25	0
Brown sand	18.2 - 30	28 - 30	0

TW-3 Soil Type	Lithologic Interval (feet)	Sample Interval (feet)	Headspace Analysis (ppm)
Tar	0 - .25	3 - 5	0
Black topsoil	.25 - 2	8 - 10	0
Black/brown silt	2 - 8	13 - 15	0
Red/brown silt	8 - 12	18 - 20	0
Sandy gravel	12 - 23	23 - 25	0

SB-1 Soil Type	Lithologic Interval (feet)	Sample Interval (feet)	Headspace Analysis (ppm)
Cement	0 - .25	0 - 2	12
Brown loamy sand (fill)	.25 - 4	3 - 5	18
		8 - 10	6
Black sandy	4 - 13.5	13 - 15	311
Dark gray stained silt	13.5 - 14	18 - 20	322
Gray clayey silt with sand lenses	14 - 24	22 - 24	6
		28 - 30	5
Gray sand	24 - 28		

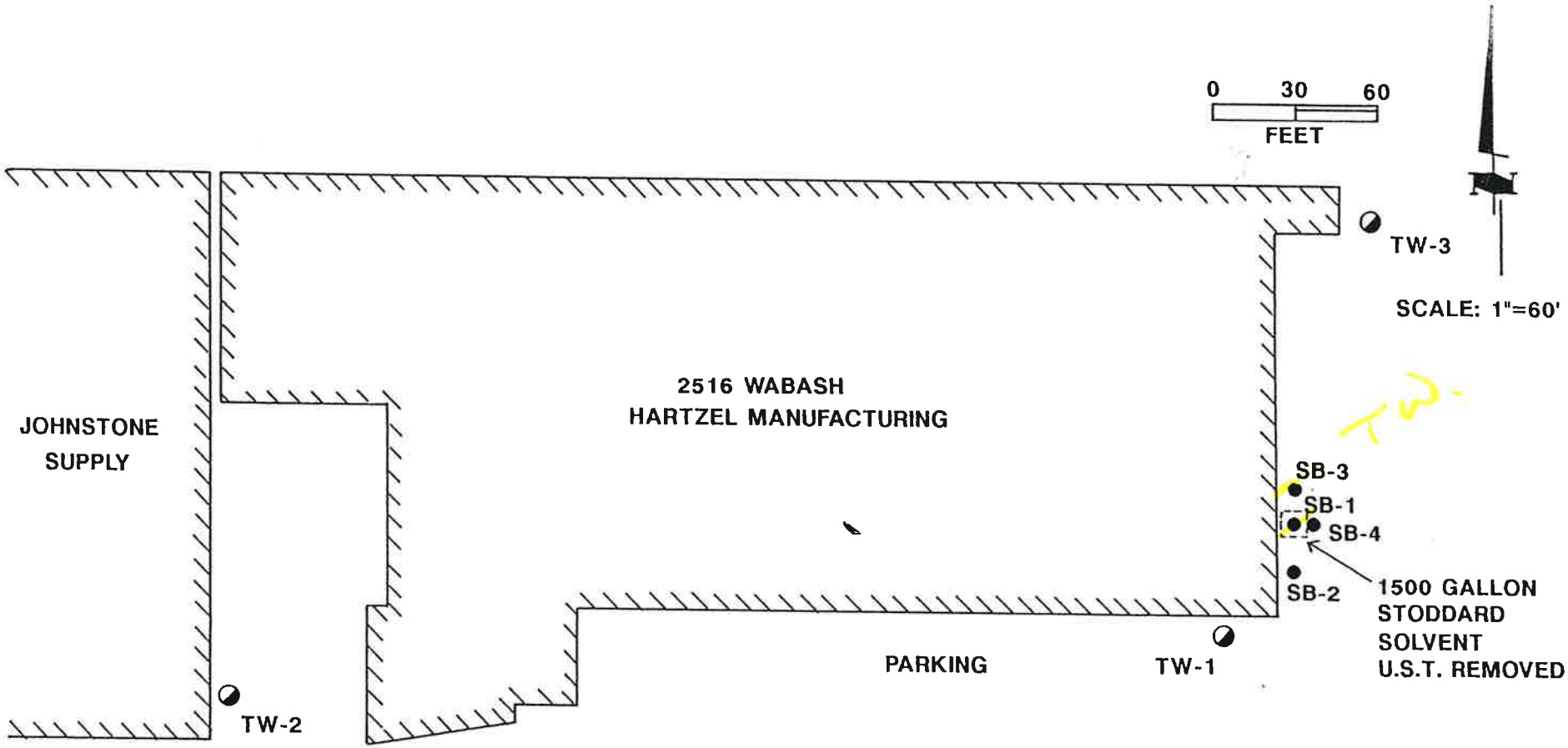
4-13 Ft.

TABLE 1
GEOLOGIC LOG SUMMARY/JAR HEADSPACE ANALYSIS
2516 WABASH AVENUE, ST. PAUL, MINNESOTA

SB-2 Soil Type	Lithologic Interval (feet)	Sample Interval (feet)	Headspace Analysis (ppm)
Tar	0 - .25	0 - 2	21
Brown sand	2.5 - 1.8	3 - 5	1
Loamy sandy silt	1.8 - 8.5	8 - 10	0
Brown sand	8.5 - 13	13 - 15	0
Cobble	13 - 13.5	15 - 17	0
Sand	13.5 - 15	17 - 19	0
Clayey gravel	15 - 17	19 - 21	0
Lean brown silty sand	17 - 17.4	23 - 25	0
Gray clayey silt	17.4 - 27	25 - 27	0

SB-3 Soil Type	Lithologic Interval (feet)	Sample Interval (feet)	Headspace Analysis (ppm)
Tar	0 - .5	1 - 3	1
Brown sand with silt	.5 - 1.5	3 - 5	0
Dark brown silty sand	1.5 - 6	8 - 10	0
Dark brown silty sand with rock and gravel	6 - 9	13 - 15	4
		15 - 17	0
Clay	9 - 10	17 - 19	0
Dark brown silty coarse sand	10 - 14	19 - 21	0
Gray silt fine sand	14 - 15	21 - 23	0
Gray sandy lean clay with trace small gravel (till)	15 - 22	23 - 25	0
Gray medium coarse sand with gravel	22 - 27		

SB-4 Soil Type	Lithologic Interval (feet)	Sample Interval (feet)	Headspace Analysis (ppm)
Tar	0 - .5	1 - 3	119
Light brown sand with traces of silt	.5 - 1.5	3 - 5	50
		8 - 10	17
Dark brown silty sand	1.5 - 6	13 - 15	4
Dark brown silty sand with little gravel	6 - 11	15 - 17	1
		17 - 19	0
Gray sand lean clay, trace small gravel	14 - 20	19 - 21	0
Brown/gray clayey sand with gravel	20 - 23.5		
Brown/gray gravelly sand with some silt	23.5 - 27		



EXPLANATION

- TEMPORARY MONITORING WELL
- SOIL BORING

BRUCE A. LIESCH ASSOCIATES, INC.
HYDROLOGISTS • GEOLOGISTS • ENVIRONMENTAL SCIENTISTS
13400 15th Avenue North • Plymouth MN 55441 • 612 559 1423

HARTZEL MANUFACTURING ST. PAUL , MINNESOTA	MAY 93
REMEDIAL ACTIONS	FIG. 1

61395.00

549779

MVTL LABORATORIES, Inc.
P.O. BOX 249, 1126 N. FRONT STREET
NEW ULM, MN 56073-0249
PHONE (507) 354-8517 WATS (800) 782-3557 FAX (507) 359-2890

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

LIQUID ANALYZED FOR VOLATILE ORGANIC HYDROCARBONS

Report To: BRUCE A LIESCH INC
13400 15TH AVE N
PLYMOUTH MN 55441-4532

Project Name: GHMJ HARTZELL PHASE II
Project Number: 61395.00

Submitted by: Minnesota Valley Testing Labs., Inc.
1126 N. Front Street
New Ulm, MN 56073

Kim D. Sjogren, Lab Manager

Jeff G. Olson, Chemist

Work Order #: 21-5518
Date Sampled: 5/24/93
Date Received: 5/25/93
Date Reported: 5/26/93

Account Number: 013269

NQ = Not Present, Qualitative Only
PQ = Present, Qualitative Only
BDL = Below Detection Limits
MDL = Method Detection Limits
ND = Not Determined

Test Method: 624 Purgeables
MDH 465D

MVTL LABORATORIES, Inc.
P.O. BOX 249, 1126 N. FRONT STREET
NEW ULM, MN 56073-0249
PHONE (507) 354-8517 WATS (800) 782-3557 FAX (507) 359-2890

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Lab Number: 93-P1460
Sample Description: SB-1

Analyte	Result	Units	M.D.L.
Purgeable Halocarbons	Date Analyzed: 5/25/93 Dilution Factor: 1.0		
Chloroethane	BDL	ug/L	5.00
Chloromethane	BDL	ug/L	5.00
Bromomethane	NQ	ug/L	PQ
Dichlorodifluoromethane	NQ	ug/L	PQ
Vinyl Chloride	BDL	ug/L	5.00
Methylene Chloride	BDL	ug/L	3.10
Trichlorofluoromethane	BDL	ug/L	5.00
1,1-Dichloroethylene	BDL	ug/L	2.10
1,1-Dichloroethane	BDL	ug/L	1.40
Trans-1,2-Dichloroethylene	BDL	ug/L	1.00
Chloroform	BDL	ug/L	0.70
1,2-Dichloroethane	BDL	ug/L	0.90
1,1,1-Trichloroethane	BDL	ug/L	1.00
Carbon Tetrachloride	BDL	ug/L	2.20
Bromodichloromethane	BDL	ug/L	0.80
1,2-Dichloropropane	BDL	ug/L	0.80
Trans-1,3-Dichloropropene	BDL	ug/L	0.90
1,1,2-Trichloroethylene	BDL	ug/L	0.80
Chlorodibromomethane	BDL	ug/L	1.20
1,1,2-Trichloroethane	BDL	ug/L	1.20
Cis-1,3-Dichloropropene	BDL	ug/L	0.80
Bromoform	BDL	ug/L	3.00
1,1,2,2-Tetrachloroethane	BDL	ug/L	1.80
1,1,2,2-Tetrachloroethylene	BDL	ug/L	1.00
Purgeable Aromatics	Date Analyzed: 5/25/93 Dilution Factor: 1.00		
Chlorobenzene	BDL	ug/L	0.80
Benzene	BDL	ug/L	0.90
Toluene	BDL	ug/L	0.60
Ethyl Benzene	BDL	ug/L	0.90
1,2-Dichlorobenzene	BDL	ug/L	1.50
1,3-Dichlorobenzene	BDL	ug/L	1.30
1,4-Dichlorobenzene	BDL	ug/L	1.20

MVTL LABORATORIES, Inc.
P.O. BOX 249, 1126 N. FRONT STREET
NEW ULM, MN 56073-0249
PHONE (507) 354-8517 WATS (800) 782-3557 FAX (507) 359-2890

WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Lab Number: 93-P1460
Sample Description: SB-1

Analyte	Result	Units	M.D.L.
Non-Priority Pollutants	Date Analyzed: 5/25/93		
	Dilution Factor: 1.00		
cis-1,2-Dichloroethylene	BDL	ug/L	2.10
1,3-Dichloropropane	BDL	ug/L	1.30
1,2,3-Trichloropropane	BDL	ug/L	1.00
Allyl Chloride	BDL	ug/L	2.70
1,2-Dibromoethane	BDL	ug/L	1.00
Methyl Ethyl Ketone	BDL	ug/L	5.80
Methyl Isobutyl Ketone	BDL	ug/L	1.80
Tetrahydrofuran	NQ	ug/L	PQ
m-Xylene & p-Xylene	BDL	ug/L	0.90
o-Xylene	BDL	ug/L	1.00
Cumene	BDL	ug/L	0.90
1,1,1,2-Tetrachloroethane	BDL	ug/L	1.00
1,1-Dichloro-1-propene	BDL	ug/L	0.80
Dichlorofluoromethane	NQ	ug/L	PQ
1,1,2-Trichlorotrifluoroethane	BDL	ug/L	5.00
Ethyl Ether	BDL	ug/L	2.40
Acetone	BDL	ug/L	15.00
Dibromomethane	BDL	ug/L	1.50
2,2-Dichloropropane	BDL	ug/L	2.50
Bromochloromethane	BDL	ug/L	1.00
Methyl tert-butyl Ether	BDL	ug/L	1.40
Styrene	BDL	ug/L	1.00
n-Propylbenzene	BDL	ug/L	0.80
Bromobenzene	BDL	ug/L	0.70
2-Chlorotoluene	BDL	ug/L	0.80
1,3,5-Trimethylbenzene	BDL	ug/L	1.40
4-Chlorotoluene	BDL	ug/L	0.70
t-Butylbenzene	BDL	ug/L	0.60
1,2,4-Trimethylbenzene	BDL	ug/L	1.50
sec-Butylbenzene	BDL	ug/L	2.50
p-Isopropyltoluene	BDL	ug/L	1.40
n-Butylbenzene	BDL	ug/L	1.50
1,2-Dibromo-3-chloropropane	BDL	ug/L	2.30
1,2,4-Trichlorobenzene	BDL	ug/L	1.50
Hexachlorobutadiene	BDL	ug/L	1.70
Naphthalene	BDL	ug/L	2.50
1,2,3-Trichlorobenzene	BDL	ug/L	1.50

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WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Lab Number: 93-P1461
Sample Description: TW-1

Analyte	Result	Units	M.D.L.
Purgeable Halocarbons	Date Analyzed: 5/25/93 Dilution Factor: 1.0		
Chloroethane	BDL	ug/L	5.00
Chloromethane	BDL	ug/L	5.00
Bromomethane	NQ	ug/L	PQ
Dichlorodifluoromethane	NQ	ug/L	PQ
Vinyl Chloride	BDL	ug/L	5.00
Methylene Chloride	BDL	ug/L	3.10
Trichlorofluoromethane	BDL	ug/L	5.00
1,1-Dichloroethylene	BDL	ug/L	2.10
1,1-Dichloroethane	BDL	ug/L	1.40
Trans-1,2-Dichloroethylene	BDL	ug/L	1.00
Chloroform	BDL	ug/L	0.70
1,2-Dichloroethane	BDL	ug/L	0.90
1,1,1-Trichloroethane	BDL	ug/L	1.00
Carbon Tetrachloride	BDL	ug/L	2.20
Bromodichloromethane	BDL	ug/L	0.80
1,2-Dichloropropane	BDL	ug/L	0.80
Trans-1,3-Dichloropropene	BDL	ug/L	0.90
1,1,2-Trichloroethylene	BDL	ug/L	0.80
Chlorodibromomethane	BDL	ug/L	1.20
1,1,2-Trichloroethane	BDL	ug/L	1.20
Cis-1,3-Dichloropropene	BDL	ug/L	0.80
Bromoform	BDL	ug/L	3.00
1,1,2,2-Tetrachloroethane	BDL	ug/L	1.80
1,1,2,2-Tetrachloroethylene	BDL	ug/L	1.00
Purgeable Aromatics	Date Analyzed: 5/25/93 Dilution Factor: 1.00		
Chlorobenzene	BDL	ug/L	0.80
Benzene	BDL	ug/L	0.90
Toluene	BDL	ug/L	0.60
Ethyl Benzene	BDL	ug/L	0.90
1,2-Dichlorobenzene	BDL	ug/L	1.50
1,3-Dichlorobenzene	BDL	ug/L	1.30
1,4-Dichlorobenzene	BDL	ug/L	1.20

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WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Lab Number: 93-P1461
Sample Description: TW-1

Analyte	Result	Units	M.D.L.
Non-Priority Pollutants	Date Analyzed:	5/25/93	
	Dilution Factor:	1.00	
cis-1,2-Dichloroethylene	BDL	ug/L	2.10
1,3-Dichloropropane	BDL	ug/L	1.30
1,2,3-Trichloropropane	BDL	ug/L	1.00
Allyl Chloride	BDL	ug/L	2.70
1,2-Dibromoethane	BDL	ug/L	1.00
Methyl Ethyl Ketone	BDL	ug/L	5.80
Methyl Isobutyl Ketone	BDL	ug/L	1.80
Tetrahydrofuran	NQ	ug/L	PQ
m-Xylene & p-Xylene	BDL	ug/L	0.90
o-Xylene	BDL	ug/L	1.00
Cumene	BDL	ug/L	0.90
1,1,1,2-Tetrachloroethane	BDL	ug/L	1.00
1,1-Dichloro-1-propene	BDL	ug/L	0.80
Dichlorofluoromethane	NQ	ug/L	PQ
1,1,2-Trichlorotrifluoroethane	BDL	ug/L	5.00
Ethyl Ether	BDL	ug/L	2.40
Acetone	BDL	ug/L	15.00
Dibromomethane	BDL	ug/L	1.50
2,2-Dichloropropane	BDL	ug/L	2.50
Bromochloromethane	BDL	ug/L	1.00
Methyl tert-butyl Ether	BDL	ug/L	1.40
Styrene	BDL	ug/L	1.00
n-Propylbenzene	BDL	ug/L	0.80
Bromobenzene	BDL	ug/L	0.70
2-Chlorotoluene	BDL	ug/L	0.80
1,3,5-Trimethylbenzene	BDL	ug/L	1.40
4-Chlorotoluene	BDL	ug/L	0.70
t-Butylbenzene	BDL	ug/L	0.60
1,2,4-Trimethylbenzene	BDL	ug/L	1.50
sec-Butylbenzene	BDL	ug/L	2.50
p-Isopropyltoluene	BDL	ug/L	1.40
n-Butylbenzene	BDL	ug/L	1.50
1,2-Dibromo-3-chloropropane	BDL	ug/L	2.30
1,2,4-Trichlorobenzene	BDL	ug/L	1.50
Hexachlorobutadiene	BDL	ug/L	1.70
Naphthalene	BDL	ug/L	2.50
1,2,3-Trichlorobenzene	BDL	ug/L	1.50

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THE FOLLOWING RESULTS ARE APPROVED BY THE INORGANIC CHEMISTRY LABORATORY

Lab Number: 93-P1461
Sample Description: TW-1

Analyte	Results		Comments
Barium, Dissolved	< 1	mg/L	
Cadmium, Dissolved	< 0.02	mg/L	
Chromium, Dissolved	< 0.1	mg/L	
Lead, Dissolved	< 0.1	mg/L	
Silver, Dissolved	< 0.05	mg/L	
Arsenic, Dissolved (F)	< 2	ug/L	
Mercury, Dissolved	< 0.2	ug/L	
Selenium, Dissolved (F)	< 2	ug/L	

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WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Lab Number: 93-P1462
Sample Description: TW-2

Analyte	Result	Units	M.D.L.
Purgeable Halocarbons	Date Analyzed: 5/25/93 Dilution Factor: 1.0		
Chloroethane	BDL	ug/L	5.00
Chloromethane	BDL	ug/L	5.00
Bromomethane	NQ	ug/L	PQ
Dichlorodifluoromethane	NQ	ug/L	PQ
Vinyl Chloride	BDL	ug/L	5.00
Methylene Chloride	BDL	ug/L	3.10
Trichlorofluoromethane	BDL	ug/L	5.00
1,1-Dichloroethylene	BDL	ug/L	2.10
1,1-Dichloroethane	BDL	ug/L	1.40
Trans-1,2-Dichloroethylene	BDL	ug/L	1.00
Chloroform	BDL	ug/L	0.70
1,2-Dichloroethane	BDL	ug/L	0.90
1,1,1-Trichloroethane	BDL	ug/L	1.00
Carbon Tetrachloride	BDL	ug/L	2.20
Bromodichloromethane	BDL	ug/L	0.80
1,2-Dichloropropane	BDL	ug/L	0.80
Trans-1,3-Dichloropropene	BDL	ug/L	0.90
1,1,2-Trichloroethylene	BDL	ug/L	0.80
Chlorodibromomethane	BDL	ug/L	1.20
1,1,2-Trichloroethane	BDL	ug/L	1.20
Cis-1,3-Dichloropropene	BDL	ug/L	0.80
Bromoform	BDL	ug/L	3.00
1,1,2,2-Tetrachloroethane	BDL	ug/L	1.80
1,1,2,2-Tetrachloroethylene	BDL	ug/L	1.00
Purgeable Aromatics	Date Analyzed: 5/25/93 Dilution Factor: 1.00		
Chlorobenzene	BDL	ug/L	0.80
Benzene	BDL	ug/L	0.90
Toluene	BDL	ug/L	0.60
Ethyl Benzene	BDL	ug/L	0.90
1,2-Dichlorobenzene	BDL	ug/L	1.50
1,3-Dichlorobenzene	BDL	ug/L	1.30
1,4-Dichlorobenzene	BDL	ug/L	1.20

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WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Lab Number: 93-P1462
Sample Description: TW-2

Analyte	Result	Units	M.D.L.
Non-Priority Pollutants	Date Analyzed: 5/25/93		
	Dilution Factor: 1.00		
cis-1,2-Dichloroethylene	BDL	ug/L	2.10
1,3-Dichloropropane	BDL	ug/L	1.30
1,2,3-Trichloropropane	BDL	ug/L	1.00
Allyl Chloride	BDL	ug/L	2.70
1,2-Dibromoethane	BDL	ug/L	1.00
Methyl Ethyl Ketone	BDL	ug/L	5.80
Methyl Isobutyl Ketone	BDL	ug/L	1.80
Tetrahydrofuran	NQ	ug/L	PQ
m-Xylene & p-Xylene	BDL	ug/L	0.90
o-Xylene	BDL	ug/L	1.00
Cumene	BDL	ug/L	0.90
1,1,1,2-Tetrachloroethane	BDL	ug/L	1.00
1,1-Dichloro-1-propene	BDL	ug/L	0.80
Dichlorofluoromethane	NQ	ug/L	PQ
1,1,2-Trichlorotrifluoroethane	BDL	ug/L	5.00
Ethyl Ether	BDL	ug/L	2.40
Acetone	BDL	ug/L	15.00
Dibromomethane	BDL	ug/L	1.50
2,2-Dichloropropane	BDL	ug/L	2.50
Bromochloromethane	BDL	ug/L	1.00
Methyl tert-butyl Ether	BDL	ug/L	1.40
Styrene	BDL	ug/L	1.00
n-Propylbenzene	BDL	ug/L	0.80
Bromobenzene	BDL	ug/L	0.70
2-Chlorotoluene	BDL	ug/L	0.80
1,3,5-Trimethylbenzene	BDL	ug/L	1.40
4-Chlorotoluene	BDL	ug/L	0.70
t-Butylbenzene	BDL	ug/L	0.60
1,2,4-Trimethylbenzene	BDL	ug/L	1.50
sec-Butylbenzene	BDL	ug/L	2.50
p-Isopropyltoluene	BDL	ug/L	1.40
n-Butylbenzene	BDL	ug/L	1.50
1,2-Dibromo-3-chloropropane	BDL	ug/L	2.30
1,2,4-Trichlorobenzene	BDL	ug/L	1.50
Hexachlorobutadiene	BDL	ug/L	1.70
Naphthalene	BDL	ug/L	2.50
1,2,3-Trichlorobenzene	BDL	ug/L	1.50

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THE FOLLOWING RESULTS ARE APPROVED BY THE INORGANIC CHEMISTRY LABORATORY

Lab Number: 93-P1462
Sample Description: TW-2

Analyte	Results		Comments
Barium, Dissolved	< 1	mg/L	
Cadmium, Dissolved	< 0.02	mg/L	
Chromium, Dissolved	< 0.1	mg/L	
Lead, Dissolved	< 0.1	mg/L	
Silver, Dissolved	< 0.05	mg/L	
Arsenic, Dissolved (F)	< 2	ug/L	
Mercury, Dissolved	< 0.2	ug/L	
Selenium, Dissolved (F)	< 2	ug/L	

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WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Lab Number: 93-P1463
Sample Description: TW-3

Analyte	Result	Units	M.D.L.
Purgeable Halocarbons	Date Analyzed: 5/25/93 Dilution Factor: 1.0		
Chloroethane	BDL	ug/L	5.00
Chloromethane	BDL	ug/L	5.00
Bromomethane	NQ	ug/L	PQ
Dichlorodifluoromethane	NQ	ug/L	PQ
Vinyl Chloride	BDL	ug/L	5.00
Methylene Chloride	BDL	ug/L	3.10
Trichlorofluoromethane	BDL	ug/L	5.00
1,1-Dichloroethylene	BDL	ug/L	2.10
1,1-Dichloroethane	BDL	ug/L	1.40
Trans-1,2-Dichloroethylene	BDL	ug/L	1.00
Chloroform	BDL	ug/L	0.70
1,2-Dichloroethane	BDL	ug/L	0.90
1,1,1-Trichloroethane	BDL	ug/L	1.00
Carbon Tetrachloride	BDL	ug/L	2.20
Bromodichloromethane	BDL	ug/L	0.80
1,2-Dichloropropane	BDL	ug/L	0.80
Trans-1,3-Dichloropropene	BDL	ug/L	0.90
1,1,2-Trichloroethylene	BDL	ug/L	0.80
Chlorodibromomethane	BDL	ug/L	1.20
1,1,2-Trichloroethane	BDL	ug/L	1.20
Cis-1,3-Dichloropropene	BDL	ug/L	0.80
Bromoform	BDL	ug/L	3.00
1,1,2,2-Tetrachloroethane	BDL	ug/L	1.80
1,1,2,2-Tetrachloroethylene	BDL	ug/L	1.00
Purgeable Aromatics	Date Analyzed: 5/25/93 Dilution Factor: 1.00		
Chlorobenzene	BDL	ug/L	0.80
Benzene	BDL	ug/L	0.90
Toluene	BDL	ug/L	0.60
Ethyl Benzene	BDL	ug/L	0.90
1,2-Dichlorobenzene	BDL	ug/L	1.50
1,3-Dichlorobenzene	BDL	ug/L	1.30
1,4-Dichlorobenzene	BDL	ug/L	1.20

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WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Lab Number: 93-P1463
Sample Description: TW-3

Analyte	Result	Units	M.D.L.
Non-Priority Pollutants	Date Analyzed: 5/25/93		
	Dilution Factor: 1.00		
cis-1,2-Dichloroethylene	BDL	ug/L	2.10
1,3-Dichloropropane	BDL	ug/L	1.30
1,2,3-Trichloropropane	BDL	ug/L	1.00
Allyl Chloride	BDL	ug/L	2.70
1,2-Dibromoethane	BDL	ug/L	1.00
Methyl Ethyl Ketone	BDL	ug/L	5.80
Methyl Isobutyl Ketone	BDL	ug/L	1.80
Tetrahydrofuran	NQ	ug/L	PQ
m-Xylene & p-Xylene	BDL	ug/L	0.90
o-Xylene	BDL	ug/L	1.00
Cumene	BDL	ug/L	0.90
1,1,1,2-Tetrachloroethane	BDL	ug/L	1.00
1,1-Dichloro-1-propene	BDL	ug/L	0.80
Dichlorofluoromethane	NQ	ug/L	PQ
1,1,2-Trichlorotrifluoroethane	BDL	ug/L	5.00
Ethyl Ether	BDL	ug/L	2.40
Acetone	BDL	ug/L	15.00
Dibromomethane	BDL	ug/L	1.50
2,2-Dichloropropane	BDL	ug/L	2.50
Bromochloromethane	BDL	ug/L	1.00
Methyl tert-butyl Ether	BDL	ug/L	1.40
Styrene	BDL	ug/L	1.00
n-Propylbenzene	BDL	ug/L	0.80
Bromobenzene	BDL	ug/L	0.70
2-Chlorotoluene	BDL	ug/L	0.80
1,3,5-Trimethylbenzene	BDL	ug/L	1.40
4-Chlorotoluene	BDL	ug/L	0.70
t-Butylbenzene	BDL	ug/L	0.60
1,2,4-Trimethylbenzene	BDL	ug/L	1.50
sec-Butylbenzene	BDL	ug/L	2.50
p-Isopropyltoluene	BDL	ug/L	1.40
n-Butylbenzene	BDL	ug/L	1.50
1,2-Dibromo-3-chloropropane	BDL	ug/L	2.30
1,2,4-Trichlorobenzene	BDL	ug/L	1.50
Hexachlorobutadiene	BDL	ug/L	1.70
Naphthalene	BDL	ug/L	2.50
1,2,3-Trichlorobenzene	BDL	ug/L	1.50

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THE FOLLOWING RESULTS ARE APPROVED BY THE INORGANIC CHEMISTRY LABORATORY

Lab Number: 92-P1463
Sample Description: TW-3

Analyte	Results		Comments
Barium, Dissolved	< 1	mg/L	
Cadmium, Dissolved	< 0.02	mg/L	
Chromium, Dissolved	< 0.1	mg/L	
Lead, Dissolved	< 0.1	mg/L	
Silver, Dissolved	< 0.05	mg/L	
Arsenic, Dissolved (F)	< 2	ug/L	
Mercury, Dissolved	< 0.2	ug/L	
Selenium, Dissolved (F)	< 2	ug/L	

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WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Lab Number: 93-P1464
Sample Description: TRIP BLANK

Analyte	Result	Units	M.D.L.
Purgeable Halocarbons	Date Analyzed: 5/25/93 Dilution Factor: 1.0		
Chloroethane	BDL	ug/L	5.00
Chloromethane	BDL	ug/L	5.00
Bromomethane	NQ	ug/L	PQ
Dichlorodifluoromethane	NQ	ug/L	PQ
Vinyl Chloride	BDL	ug/L	5.00
Methylene Chloride	BDL	ug/L	3.10
Trichlorofluoromethane	BDL	ug/L	5.00
1,1-Dichloroethylene	BDL	ug/L	2.10
1,1-Dichloroethane	BDL	ug/L	1.40
Trans-1,2-Dichloroethylene	BDL	ug/L	1.00
Chloroform	BDL	ug/L	0.70
1,2-Dichloroethane	BDL	ug/L	0.90
1,1,1-Trichloroethane	BDL	ug/L	1.00
Carbon Tetrachloride	BDL	ug/L	2.20
Bromodichloromethane	BDL	ug/L	0.80
1,2-Dichloropropane	BDL	ug/L	0.80
Trans-1,3-Dichloropropene	BDL	ug/L	0.90
1,1,2-Trichloroethylene	BDL	ug/L	0.80
Chlorodibromomethane	BDL	ug/L	1.20
1,1,2-Trichloroethane	BDL	ug/L	1.20
Cis-1,3-Dichloropropene	BDL	ug/L	0.80
Bromoform	BDL	ug/L	3.00
1,1,2,2-Tetrachloroethane	BDL	ug/L	1.80
1,1,2,2-Tetrachloroethylene	BDL	ug/L	1.00
Purgeable Aromatics	Date Analyzed: 5/25/93 Dilution Factor: 1.00		
Chlorobenzene	BDL	ug/L	0.80
Benzene	BDL	ug/L	0.90
Toluene	BDL	ug/L	0.60
Ethyl Benzene	BDL	ug/L	0.90
1,2-Dichlorobenzene	BDL	ug/L	1.50
1,3-Dichlorobenzene	BDL	ug/L	1.30
1,4-Dichlorobenzene	BDL	ug/L	1.20

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WE ARE AN EQUAL OPPORTUNITY EMPLOYER

Lab Number: 93-P1464
Sample Description: TRIP BLANK

Analyte	Result	Units	M.D.L.
Non-Priority Pollutants	Date Analyzed: 5/25/93		
	Dilution Factor: 1.00		
cis-1,2-Dichloroethylene	BDL	ug/L	2.10
1,3-Dichloropropane	BDL	ug/L	1.30
1,2,3-Trichloropropane	BDL	ug/L	1.00
Allyl Chloride	BDL	ug/L	2.70
1,2-Dibromoethane	BDL	ug/L	1.00
Methyl Ethyl Ketone	BDL	ug/L	5.80
Methyl Isobutyl Ketone	BDL	ug/L	1.80
Tetrahydrofuran	NQ	ug/L	PQ
m-Xylene & p-Xylene	BDL	ug/L	0.90
o-Xylene	BDL	ug/L	1.00
Cumene	BDL	ug/L	0.90
1,1,1,2-Tetrachloroethane	BDL	ug/L	1.00
1,1-Dichloro-1-propene	BDL	ug/L	0.80
Dichlorofluoromethane	NQ	ug/L	PQ
1,1,2-Trichlorotrifluoroethane	BDL	ug/L	5.00
Ethyl Ether	BDL	ug/L	2.40
Acetone	BDL	ug/L	15.00
Dibromomethane	BDL	ug/L	1.50
2,2-Dichloropropane	BDL	ug/L	2.50
Bromochloromethane	BDL	ug/L	1.00
Methyl tert-butyl Ether	BDL	ug/L	1.40
Styrene	BDL	ug/L	1.00
n-Propylbenzene	BDL	ug/L	0.80
Bromobenzene	BDL	ug/L	0.70
2-Chlorotoluene	BDL	ug/L	0.80
1,3,5-Trimethylbenzene	BDL	ug/L	1.40
4-Chlorotoluene	BDL	ug/L	0.70
t-Butylbenzene	BDL	ug/L	0.60
1,2,4-Trimethylbenzene	BDL	ug/L	1.50
sec-Butylbenzene	BDL	ug/L	2.50
p-Isopropyltoluene	BDL	ug/L	1.40
n-Butylbenzene	BDL	ug/L	1.50
1,2-Dibromo-3-chloropropane	BDL	ug/L	2.30
1,2,4-Trichlorobenzene	BDL	ug/L	1.50
Hexachlorobutadiene	BDL	ug/L	1.70
Naphthalene	BDL	ug/L	2.50
1,2,3-Trichlorobenzene	BDL	ug/L	1.50

MVTL LABORATORIES, Inc.
P.O. BOX 249, 1126 N. FRONT STREET
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SOIL ANALYSIS REPORT

DANA WAGNER
BRUCE A LIESCH INC
13400 15TH AVE N
PLYMOUTH MN 55441-4532

Work Order #: 21-5518
Client Account Number: 013269

Project Name: GHMJ HATZELL PHASE II
Project Number: 61395.00

Terrance W. Baumgart, Chemist

Date Reported: 5/26/93
Date Sampled: 5/21/93
Date Received: 5/25/93
Temperature at Receipt: 4 DEGREES C

NQ = Not Present, Qualitative Only
PQ = Present, Qualitative Only
BDL = Below Detection Limits
MDL = Method Detection Limits
ND = Not Determined

Test Methods

SW846 - 8020 / 5030 Modified

Comments: The chromatography of SB-1,13.5'-
was not typical of gasoline.

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SOIL ANALYZED FOR PVOC'S

Lab Number: 93-Q665
Sample Description: SB-3 23-25'

GRO Dilution Factor: 1

Analyte	Result		MDL		Date Analyzed
Methyl Tert-Butyl Ether	BDL	ppb	500.0	ppb	5/25/93
Benzene	BDL	ppb	500.0	ppb	5/25/93
Toluene	BDL	ppb	500.0	ppb	5/25/93
Ethyl Benzene	BDL	ppb	375.0	ppb	5/25/93
Xylenes (Total)	BDL	ppb	375.0	ppb	5/25/93
1,2,4-Trimethylbenzene	BDL	ppb	125.0	ppb	5/25/93
1,3,5-Trimethylbenzene	BDL	ppb	125.0	ppb	5/25/93
Sample Concentration GRO	BDL	ppm	7.5	ppm	5/25/93

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SOIL ANALYZED FOR PVOC'S

Lab Number: 93-Q666
Sample Description: SB-2 25-27'

GRO Dilution Factor: 1

Analyte	Result		MDL		Date Analyzed
Methyl Tert-Butyl Ether	BDL	ppb	500.0	ppb	5/25/93
Benzene	BDL	ppb	500.0	ppb	5/25/93
Toluene	BDL	ppb	500.0	ppb	5/25/93
Ethyl Benzene	BDL	ppb	375.0	ppb	5/25/93
Xylenes (Total)	BDL	ppb	375.0	ppb	5/25/93
1,2,4-Trimethylbenzene	BDL	ppb	125.0	ppb	5/25/93
1,3,5-Trimethylbenzene	BDL	ppb	125.0	ppb	5/25/93
Sample Concentration GRO	BDL	ppm	7.5	ppm	5/25/93

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SOIL ANALYZED FOR PVOC'S

Lab Number: 93-Q667
Sample Description: SB-4 23-25'

GRO Dilution Factor: 1

Analyte	Result		MDL		Date Analyzed
Methyl Tert-Butyl Ether	BDL	ppb	500.0	ppb	5/25/93
Benzene	BDL	ppb	500.0	ppb	5/25/93
Toluene	BDL	ppb	500.0	ppb	5/25/93
Ethyl Benzene	BDL	ppb	375.0	ppb	5/25/93
Xylenes (Total)	BDL	ppb	375.0	ppb	5/25/93
1,2,4-Trimethylbenzene	BDL	ppb	125.0	ppb	5/25/93
1,3,5-Trimethylbenzene	BDL	ppb	125.0	ppb	5/25/93
Sample Concentration GRO	BDL	ppm	7.5	ppm	5/25/93

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SOIL ANALYZED FOR PVOC'S

Lab Number: 93-Q664
Sample Description: SB-1 13.5'

GRO Dilution Factor: 10

Analyte	Result		MDL		Date Analyzed
Methyl Tert-Butyl Ether	BDL	ppb	5000	ppb	5/25/93
Benzene	BDL	ppb	5000	ppb	5/25/93
Toluene	BDL	ppb	5000	ppb	5/25/93
Ethyl Benzene	34800	ppb	3750	ppb	5/25/93
Xylenes (Total)	46900	ppb	3750	ppb	5/25/93
1,2,4-Trimethylbenzene	105000	ppb	1250	ppb	5/25/93
1,3,5-Trimethylbenzene	46500	ppb	1250	ppb	5/25/93
Sample Concentration GRO	626	ppm	75.0	ppm	5/25/93

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SOIL ANALYZED FOR PVOC'S

Lab Number: 93-Q668
Sample Description: METHANOL BLANK

GRO Dilution Factor: 1

Analyte	Result		MDL		Date Analyzed
Methyl Tert-Butyl Ether	BDL	ppb	500.0	ppb	5/25/93
Benzene	BDL	ppb	500.0	ppb	5/25/93
Toluene	BDL	ppb	500.0	ppb	5/25/93
Ethyl Benzene	BDL	ppb	375.0	ppb	5/25/93
Xylenes (Total)	BDL	ppb	375.0	ppb	5/25/93
1,2,4-Trimethylbenzene	BDL	ppb	125.0	ppb	5/25/93
1,3,5-Trimethylbenzene	BDL	ppb	125.0	ppb	5/25/93
Sample Concentration GRO	BDL	ppm	7.5	ppm	5/25/93

(612)559-1423 21-5518

BRUCE A. LIESCH ASSOCIATES, INC.
HYDROLOGISTS • GEOLOGISTS • ENVIRONMENTAL SCIENTISTS
13400 15th Avenue North • Plymouth, MN 55441 • 612-559-1423

CHAIN OF CUSTODY RECORD

FIELD COORDINATOR: DIANA WAGNER

PROJ. NO.: 6395.00
PROJECT NAME: GHMJ Hartzell Phase II
SAMPLERS (Signature): Scott Iverson

FAX RESULTS TO:
DIANA WAGNER
FAX # (612) 559-2202

REMARKS: ASAP - TURN AROUNDS

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NUMBER OF CONTAINERS	GRO/PVOC	MDH 465D 6 CMS RCRA METALS	DRO/WT.			REMARKS
SB-1	5/24	10:40 am		X	SB-1	4		✓				* THIS SAMPLE DIRTY WATER SAMPLE P-1460
TW-1	5/24	11:30 am		X	TW-1	5		✓ ✓				" P-1461
TW-2	5/24	12:10 pm		X	TW-2	5		✓ ✓				" P-1462
TW-3	5/24	12:30 pm		X	TW-3	5		✓ ✓				" P-1463
SB-1	5/21	10:30 am		X	SB-1 13.5'	2	✓		✓			SOIL SAMPLES 93-Q-1664
SB-3	5/24	12:00 pm		X	SB-3 23-25'	2	✓		✓			" 93-Q-1665
SB-2	5/21	11:30 AM		X	SB-2 25-27'	2	✓		✓			" 93-Q-1666
SB-4	5/24	1:30 pm		X	SB-4 23-25'	2	✓		✓			" 93-Q-1667
SB-1	5/21	10:32 am		X	SB-1 22-24'	2						SOIL SAMPLES EXTRACT BUT DO NOT ANALYZE 93-Q-1669
SB-1	5/21	10:38 am		X	SB-1 28-30'	2						" 93-Q-1670
TW-1	5/21	11:31 am		X	TW-1 27'	2						" 93-Q-1671
—	—	—	—	—	TRIP BLANK	2		✓				TRIP BLANK P-1464
—	—	—	—	—	MEOH TRIP BLANK	1	✓					TRIP BLANK 93-Q-1668

Relinquished by:(Signature)	Date	Time	Received by:(Signature)	Received by:(Signature)	Date	Time	Received by:(Signature)
Scott Iverson	5/24/93		M. Simonds		5/25/93	0815	
Relinquished by:(Signature)	Date	Time	Received by:(Signature)	Received by:(Signature)	Date	Time	Received by:(Signature)
Relinquished by:(Signature)	Date	Time	Received for Laboratory by: (Signature)	Date	Time	Remarks	

5/91

DISTRIBUTION: Original Accompanies Shipment; Copy to Coordinator Field Files