



Shaw Environmental, Inc.
(A CB&I Company)
150 Royall Street
Canton, MA 02021
Tel: +1 617 589 5111
Fax: +1 617 589 5495
www.CBI.com

Initial Hazardous Waste Site Workplan

**St. Albans Railyard
2 Federal Street
St. Albans, Vermont**

Site No.: 20124257

Consultant Contact:

Doug Blakeley
Staff Engineer
CB&I / Shaw Environmental

Responsible Party Contact:

Gene Evans
Vice President, Mechanical
Genesee & Wyoming / New England Central Railroad
Butler, PA

TABLE OF CONTENTS

Executive Summary..... 1

1.0 Introduction 2

2.0 Site information 2

 2.1 Site Contacts 2

 2.2 General Site Description 3

 2.3 Hazardous Site Description 4

 2.4 Adjacent Properties 4

3.0 Site Investigation..... 5

 3.1 Site history 5

 3.2 Sources / Contaminants 5

 3.3 Receptor Study / Risk Evaluation 6

4.0 Risk Evaluation 6

 4.1 Initial Conceptual Site Model 6

5.0 Data Evaluation / Sampling..... 7

 5.1 Soil Sampling 7

 5.2 Groundwater 7

 5.3 Surface Water / Sediment..... 7

 5.4 Vapor Intrusion 8

6.0 Proposed Corrective Action / Site Remediation 8

Figures

Figure 1 - Area map

Figure 2 - Property Map

Figure 3 - Site Investigation Map

Appendices

Appendix A – “Initial Letter” from VDEC to NECR dated November 5, 2012

Appendix B – Line Test Results, June, 2010

Appendix C – Location of MW 98-1

Appendix D – Forensic product analysis results from MW 98-1, November, 2010

Appendix E – Quotation for Passive Product Bailer

Executive Summary

The New England Central Railroad (NECR) St Albans Railyard site is associated with a release that occurred from the underground fuel line between the 50,000-gallon heating oil AST and the north end of the Engine House in 2002. The Sites Management Section of the Vermont Department of Environmental Conservation, Waste Management Division (WMD) has assigned the site with a site management tracking number of 20124257.

Several monitoring wells were installed by Central Vermont Properties, Inc. (CVPI) during their investigation related to the larger CV Railways Site (Site 770126) in the area of concern. NECR identified several wells that would be relevant to their investigation and they remain in place. Previous investigations concluded that the geology and hydrogeology in the larger CV Railways Site (inclusive of the St. Albans Railway Site) do not promote migration of dissolved or non-aqueous contaminants. Essentially, the fill soils are "tight" and restrict transport of petroleum contamination. Informal observations of the Stevens Brook (the identified primary sensitive receptor) conducted since 2002 have not yielded any indication that spilled petroleum from the area of concern have impacted the surface water or sediments.

In summation, based on the Conceptual Site Model, CB&I/Shaw believes that no further investigation is necessary in determining the degree and extent of either adsorbed or dissolved contamination in the area of MW91-8. In order for the site to be closed, the LNAPL needs to be removed to the extent consistent with product mobility and risk factors associated with this site; therefore, no assessment of impact to Stevens Brook is necessary. Hence, this work plan will focus on LNAPL monitoring/removal.

The NECR intends to install a passive bailer and conduct periodic monitoring of the product thickness and manual removal, as necessary. If product thickness is found to recover more quickly, Shaw would recommend that a baildown/slug test.

Once the LNAPL has been removed to the limits consistent with the product mobility and risk factors established for the CV Railway site, Shaw will submit a summary report of the LNAPL recovery efforts, including conclusions and recommendations regarding the status of the St Albans Railway site.

If due to the aspect of non-mobile adsorbed-phase contamination remains, then land-use restrictions may be proposed.

This Workplan and subsequent steps will be conducted to bring this site to the discretion of the WMD to secure a Site Management Activity Completed affirmation.

1.0 Introduction

On November 5, 2012, the Sites Management Section (SMS) of the Vermont Department of Environmental Conservation (VDEC), Waste Management Division issued a formal letter to the New England Central Railroad (NECR) documenting contamination associated with a leak from an underground pipeline associated with the 50,000-gallon aboveground storage tank (AST) located in the St. Albans Railyard. As indicated by the SMS, previous investigations conducted to address contamination at the co-located CV Rail Site (Site No. 770126), “there is a limited area of free product present on the water table” in the area of concern. The SMS determined in February, 2012 that this free product contamination was indeed separable from the CV Rail Site contamination (which has since received a “Site Management Activity Completed” declaration from SMS).

A letter of response was submitted on November 30, 2012 to Mr. Michael B. Smith, the SMS Manager for the Site. After the acknowledgement of receipt of the response, Mr. Smith directed NECR to prepare a Work Plan in accordance with the VDEC [“Investigation and Remediation of Contaminated Properties Procedure”](#) (revision effective April, 2012) prior to conducting investigative or remedial work on the Site.

This Workplan has been prepared consistent with the precepts of Section 2.1 of the SMS guidance and will remain a ‘dynamic’ Workplan to be modified if and when information gathered from phases of site investigation determine. This initial Workplan will summarize past activities and provide basic information that will be utilized and expounded upon with the issuance of Site Investigation Report(s) following phases of activities at the Site.

2.0 Site Information

2.1 Site Contacts

The parties involved in this Site include:

Role	Contact
Landowner Representative / Site Operator Representatives	Robert “Bob” Richardson Assistant General Manager New England Central Railroad 2 Federal Street, Suite 201 St. Albans, VT 05478 (802) 527-3415 Robert.Richardson@gwrr.com
Primary Responsible Party Representatives	Eugene “Gene” Evans Vice President, Mechanical Genesee & Wyoming, Inc.

	<p>PO Box 1532 Jct. Route 422 & 68 Butler, PA 16001 (724) 283-8490 Eugene.Evans@gwrr.com</p> <p>Ricki "Rick" Norris Director of Environmental Compliance Genesee & Wyoming, Inc. Jacksonville, FL (904) 900-6249 Ricki.Norris@gwrr.com</p>
<p>Consultant Contact</p>	<p>Doug Blakeley Shaw Environmental, Inc. (a CBI Company) 150 Royall Street Canton, MA (518) 265-7354 Doug.Blakeley@cbi.com</p>

2.2 General Site Description

The NECR conducts train operations as well as locomotive and car maintenance and service activities in a railyard they refer to as the St. Albans Yard. The Yard is in a commercial and industrial area near the center of the City of St. Albans, VT (a.k.a. "Railroad City"). The Yard is oriented north-south and its overall shape resembles a dogleg left. The Yard crosses over Stevens Brook which flows under the Yard in a large corrugated steel multi-plate culvert from west to east just west of the Roundhouse. The overall area is flat with the majority of the Yard being covered by ballasted track area. The St. Albans Yard is the principal locomotive maintenance and service shop for the NECR. In addition to the locomotive mechanical areas focused around the roundhouse in the central part of the Yard (Figure 3), the St. Albans Yard also functions as a car repair shop and switching yard. The Car Repair and Switching activities are located in an area of the Yard referred to as the "Italy" Yard. The Italy Yard is located northwest of the Roundhouse on tracks contiguous to the locomotive service areas. To the south and east of the Roundhouse, the NECR maintains its Headquarters at in an office structure the Yard limits.

The NECR Roundhouse is located in the central part of the Yard just west of Federal Street approximately 1,300 feet north of Lake Street in the City of St. Albans, VT. The Roundhouse includes locomotive maintenance bays, a locomotive wash bay, storage bays, a maintenance-of-way service bay, and offices. The area around the Roundhouse includes a brick bunk house (vacant), a fuel pumphouse,

locomotive service area (2 tracks), and several small wooden or steel outbuildings. The track running adjacent to the north side of the Roundhouse serves as an Amtrak service area.

2.3 Hazardous Site Description

The area of concern is referred to as the “St. Albans Railyard”, Site No. 20124257. This area is bounded within the NECR St. Albans Yard as defined previously. Specifically, the area of concern is located west of the Roundhouse, in a graveled area that serves as access to the fuel pumphouse. The Roundhouse has an informal street address as Lower Hoyt Street. This area is best accessed off the yard entrance on Aldis Street to the north of the Site.

The Site is an area of defined free product contamination near a fuel transfer and storage area for the NECR. The fuel transfer and storage area consists of pumphouse, tank farm, and above- and below-ground piping. The pumphouse is a single-story brick outbuilding housing fuel pumps. Vendor fuel trucks delivering diesel fuel to the facility park adjacent to the pumphouse and connect at a single fixed pipe, using their on-board fuel pumps to transfer fuel to the 50,000-gallon AST located in the tank farm situated in a depressed area just west of the pumphouse. Fuel piping from the AST runs aboveground to the pumphouse where diesel fuel is then pumped to the service island located within the tracks south of the pumphouse where it is dispensed into locomotives. A ¾-inch pipe is tapped off the main fuel pipeline from the AST and is conveyed underground in a plastic conduit to the Engine House portion of the Roundhouse where it again travels aboveground to a day storage tank used to fuel the heating system at the Roundhouse. This pipeline replaced the previous belowground piping that reportedly ruptured causing the leak that led to the contamination identified by the VDEC.

Several monitoring wells were installed by Central Vermont Properties, Inc. (CVPI) during their investigation related to Site 770126 in the area of concern. NECR identified several wells that would be relevant to their investigation and they remain in place.

2.4 Adjacent Properties

From the Site, properties and uses are described as follows:

Direction	Occupant / Property Use
North	St. Albans Co-Op, Grain Storage and Trailer Parking off Aldis Street
East	St. Albans Co-Op, Main Dairy receiving facility, accessed off Federal Street
South	Residential neighborhood located along Pearl Street and Pine Street, across the NECR mainline tracks.
West	Park/playground located beyond a wooded area and separated from the railyard by Stevens Brook.

3.0 Site Investigation

3.1 Site history

The St Albans Railyard site is associated with a release that occurred from the underground fuel line between the 50,000-gallon heating oil AST and the north end of the Engine House in 2002. As part of the site investigation associated with CV Railway Site, CVPI installed a monitoring well (MW91-8) for routine monitoring. MW91-8 was placed based upon factors other than being proximate to the underground fuel line. In October 2009, measurable light aqueous phase liquid (LNAPL) (greater than 1 foot) was detected for the first time in this well. A sample of the product indicated a middle distillate that had undergone little to no biological degradation. Comparison with product from monitoring well MW96-3 indicated that the samples were unlikely from the same release. For this reason VT DEC, opened a separate Hazardous Waste Site for the release associated with MW91-8.

Upon being informed regarding the product in MW91-8 by CVPI and its consultant Arcadis, NECR took immediate action. NECR personnel put a vacuum on the 1-inch copper line within the double-walled PVC conduit and determined that the line was not leaking. Further visual observations of either end of the PVC conduit did not detect any evidence of a leak. On June 15, 2010, NECR contracted with Tank Testing Services of New England, who confirmed NECR's measurements that the line tested tight. NECR was not aware of any incident from the area that would have resulted in a significant increase in free product in MW91-8. There was no visual evidence of surficial staining in the area that would likely result in such a significant increase in free product.

3.2 Sources / Contaminants

The release event that occurred in 2002 is suspected to be the source of the free product contamination observed during previous investigations and remaining in MW91-8. During the release event, several thousand gallons of diesel fuel were released to the subsurface. This volume was determined partially by estimating the inventory loss from the AST and from the volume of recovered product. Free product was detected during routine observations of the former oil skimming pond located south of the mainline track behind the residences along Pearl Street. This pond received on- and off-site drainage collected in the "stone box culvert". The stone box culvert is a box culvert running parallel with the mainline tracks. There are multiple drainage connections into the culvert as well as observed infiltration. It remains unclear as to the exact subterranean pathway taken by the spilled product that reached the culvert; there are no known drainage structures directly connecting the area of concern with the stone box culvert.

Investigations conducted by CVPI determined that the product in MW91-8 is a "weathered diesel".

There are no other pipelines or transfer activities conducted in or near the area of concern, aside from the periodic removal of recovered oil from routine oil-water separation in an underground separator

located west of the pumphouse and south of the tank farm. Vendor trucks remove oil directly from this separator and there are no reported incidents of product loss from any of these cleaning events. Lubrication oil is conveyed to a service track by active piping, but this above- and below-grade product line is located a sufficient distance east of the Site and no lube oils have been observed in the wells.

3.3 Receptor Study / Risk Evaluation

Previous investigations concluded that the geology and hydrogeology in the larger CV Railways Site (inclusive of the St. Albans Railway Site) do not promote migration of dissolved or non-aqueous contaminants. Essentially, the fill soils are “tight” and restrict transport of petroleum contamination. Informal observations of the Stevens Brook (the identified primary sensitive receptor) conducted since 2002 have not yielded any indication that spilled petroleum from the area of concern have impacted the surface water or sediments. Following the cleanup of the original spill in 2002, there has not been any further slug events indicating that free product continues to migrate from the area of concern to the stone box culvert.

There are no other identified receptors as the Site is bounded within an industrial property that is served by city water and sewer.

4.0 Risk Evaluation

4.1 Initial Conceptual Site Model

The following observations are made in developing a conceptual site model (CSM):

1. The St Albans Railway site is a sub-site of the larger CV Railway site;
2. The St Albans Railway site is upgradient of the remainder of the CV Railway site;
3. Following the cessation of remedial activities associated with the CV Railway site (i.e., Groundwater Recovery System [GRS] and absorbent socks in monitoring wells with LNAPL), the Site is now considered “Low Priority”. Although soil and groundwater contamination remains, there is no effect on sensitive receptors as LNAPL has been removed (i.e., site is adequately characterized and considered low risk);
4. The St Albans Railway site is considered “Medium Priority” (sensitive receptors are threatened by contamination). As the St Albans Railway site is within and upgradient of the remainder of the CV Railway site (i.e., the low priority site is situated between the medium priority site and Stevens Brook), there is no means to delineate between any adsorbed or dissolved-phase constituents that may be associated with the MW91-8 product or the contamination allowed to

remain in the CV Railway site. The contaminant of concern is thereby limited to the LNAPL observed in MW91-8;

5. Based on the discussion above, NECR is not aware of any current operations that would have resulted in the observed amount of free product in MW91-8; therefore, it is most likely associated with the 2002 release in this area; and,
6. As the product took upwards of 8 years to reach the monitoring well (2002-2010), product mobility does not appear to be significant.

These observations indicate that the LNAPL in MW91-8 is a localized accumulation of fairly immobile product from a release that occurred about 10 years ago.

5.0 Data Evaluation / Sampling

5.1 Soil Sampling

As the contamination is free product in an area where adsorbed-phase hydrocarbons remain and are indistinguishable from likely adsorbed-phase hydrocarbons associated with the limited extent of the free product location, no soil sampling is proposed to be conducted.

5.2 Groundwater

As the contamination is free product in an area where dissolved-phase hydrocarbons remain and are indistinguishable from likely dissolved-phase hydrocarbons associated with the limited extent of the free product location, no groundwater sampling is proposed to be conducted.

5.3 Surface Water / Sediment

No formal investigation or monitoring of Stevens Brook is proposed. During site activities, personnel will attempt to conduct visual observations of the brook to determine if there is any evidence of intrusion or inflow of petroleum into the brook from the Site. This would include observations west of the tank farm as well as at the oil-water separator receiving drainage from the stone box culvert.

5.4 Vapor Intrusion

There are no occupied structures within the confines of the Site; furthermore, the weathered diesel identified in MW91-8 is not presumed to offer volatile compounds that would pose a health condition within any structure. As such, no indoor air quality or soil gas monitoring is proposed.

VI Evaluation at Petroleum Site

For similar reasons as cited immediately prior, no vapor intrusion is deemed significant warranting further evaluation.

In summation, based on the CSM, CB&I/Shaw believes that no further investigation is necessary in determining the degree and extent of either adsorbed or dissolved contamination in the area of MW91-8. In order for the site to be closed, the LNAPL needs to be removed to the extent consistent with product mobility and risk factors associated with this site; therefore, no assessment of impact to Stevens Brook is necessary. In summation, this work plan will focus on LNAPL monitoring/removal.

6.0 Proposed Corrective Action / Site Remediation

Currently all that is available is in-well equilibrium LNAPL thicknesses. Based upon past observations, the product thickness takes a lengthy period to recover upon bailing. The NECR intends to install a passive bailer and conduct periodic monitoring of the product thickness and manual removal, as necessary. If product thickness is found to recover more quickly, Shaw would recommend that a baildown/slug test consistent with ASTM E2856-11 (*Standard Guide of Estimation of LNAPL Transmissivity*) be conducted on MW91-8. This test would provide the data needed to select a more appropriate LNAPL recovery method.

Once the LNAPL has been removed to the limits consistent with the product mobility and risk factors established for the CV Railway site, Shaw will submit a summary report of the LNAPL recovery efforts, including conclusions and recommendations regarding the status of the St Albans Railway site.

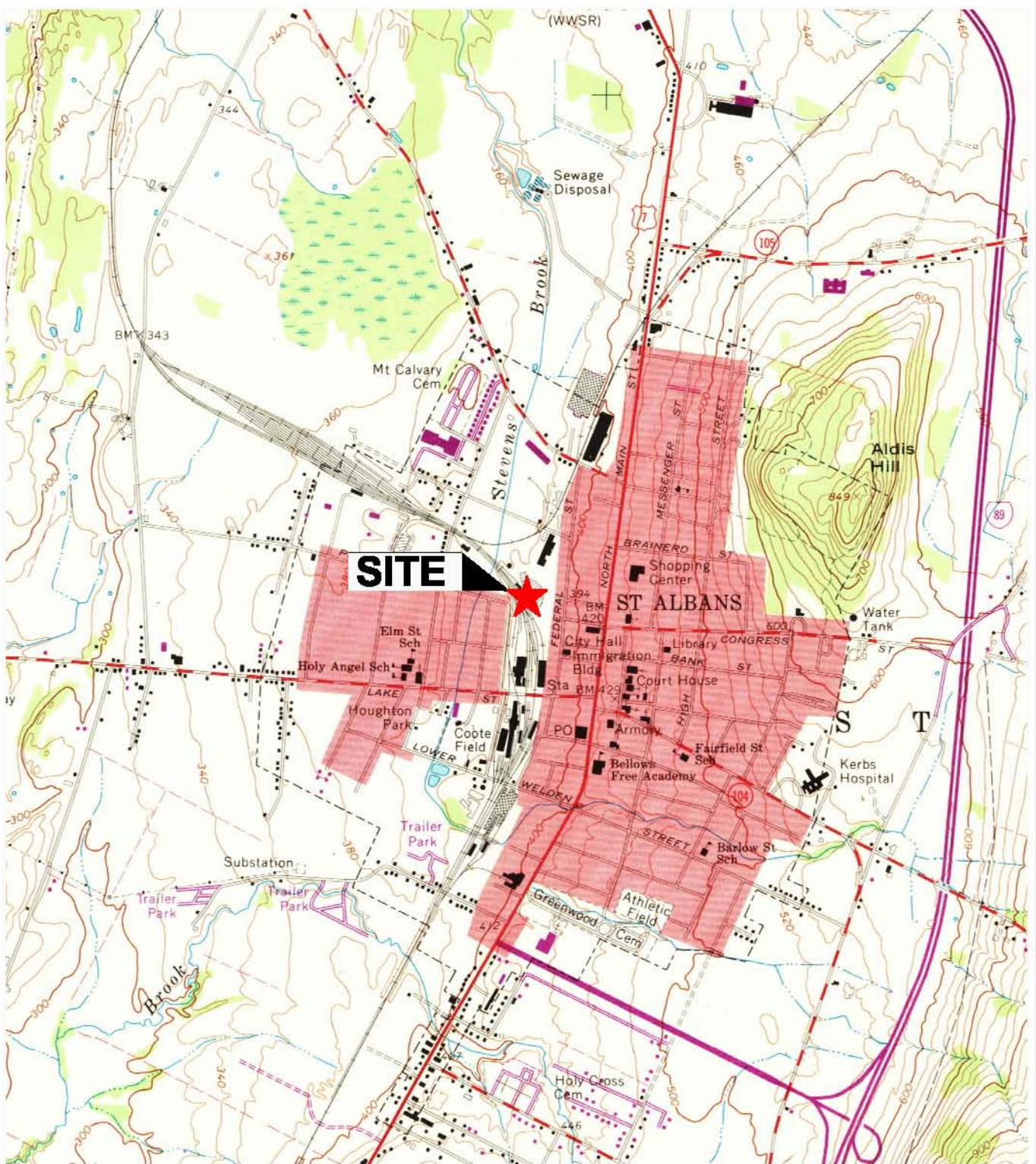
If due to the aspect of non-mobile adsorbed-phase contamination remains, then land-use restrictions may be proposed.

This Workplan and subsequent steps will be conducted to bring this site to the discretion of the WMD to secure a Site Management Activity Completed affirmation.

FIGURES

XREF Files: IMAGE Files: CBL_Logo-Color.jpg
 F:\MCR\SPCC\SPCC\SPCC\NECR\118484 - SPCC Plan\139811-01SITELOC.dwg
 Plot Date/Time: Oct 24, 2013 - 4:11pm
 Plotted By: chris.delecto

OFFICE CANTON, MA	DRAWN BY CD	CHECKED BY DB	APPROVED BY ---	DRAWING NUMBER 139811-01SITELOC
	10/23/13	10/23/13		



VERMONT

SOURCE:
 USGS 7.5 TARGET QUAD, 1987
 SCALE: 1:24,000



SHAW ENVIRONMENTAL, INC.,
 A CB&I COMPANY
 150 ROYALL STREET
 CANTON, MASSACHUSETTS
 (617) 589-5111

FIGURE 1
 SITE LOCATION PLAN
 NEW ENGLAND CENTRAL RAILROAD
 ST. ALBANS YARD - ROUNDHOUSE
 ST. ALBANS, VERMONT

XREF Files: IMAGE Files: CBL_Logo-Color.jpg
 F:\MFCR\GIS\SUBMIS\AMERICAN\METEOR\p018494 - SPCC Plan\139811-01SITEAERIAL.dwg
 Plot Date/Time: Oct 24, 2013 - 12:56pm
 Plotted By: chris.desiato

OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
CANTON, MA	CD	DB	--	139811-01SITEAERIAL
	10/23/13	10/23/13		



SHAW ENVIRONMENTAL, INC.,
 A CB&I COMPANY
 150 ROYALL STREET
 CANTON, MASSACHUSETTS
 (617) 589-5111

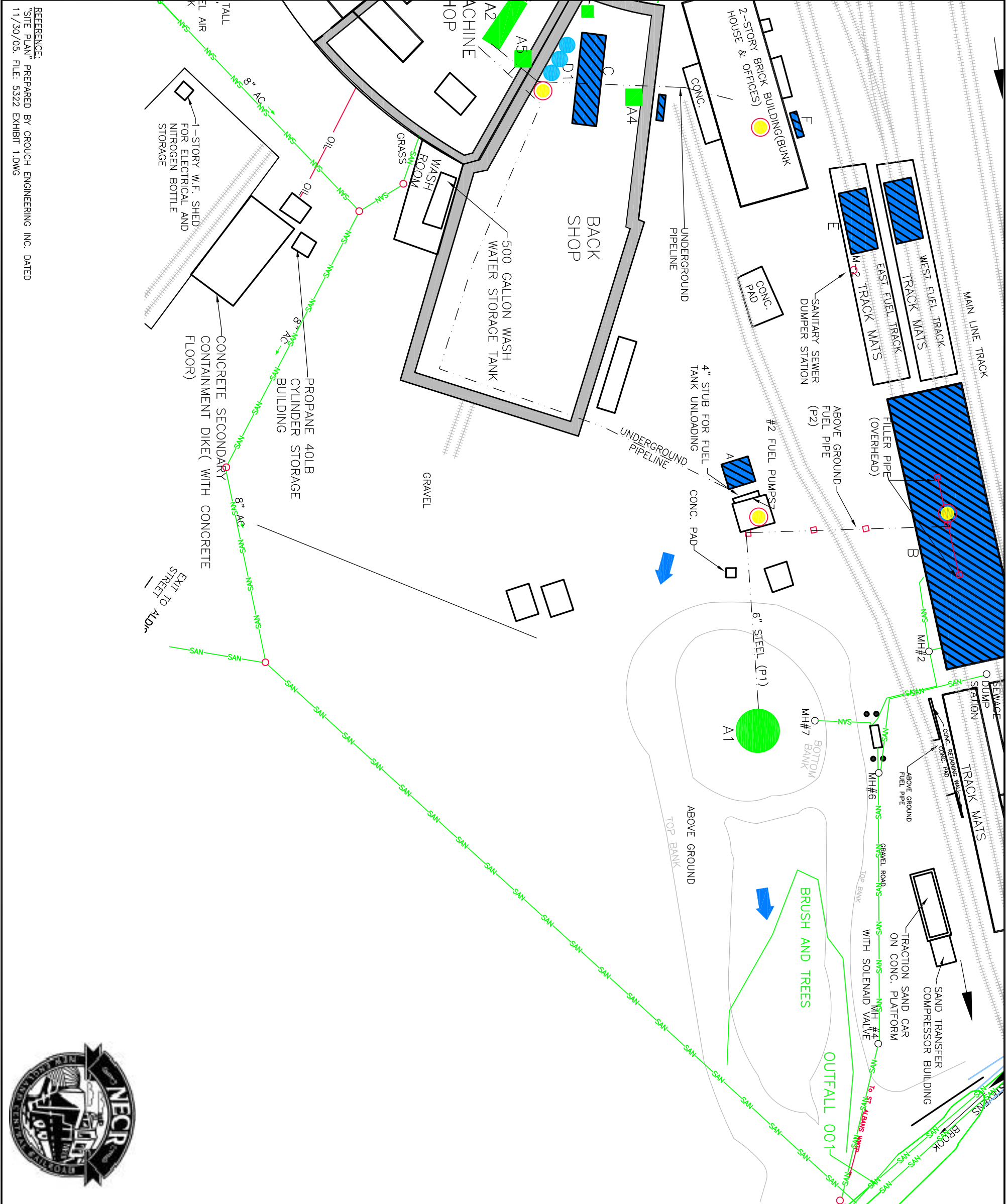
FIGURE 2
 SITE AERIAL PLAN

NEW ENGLAND CENTRAL RAILROAD
 ST. ALBANS YARD - ROUNDHOUSE
 ST. ALBANS, VERMONT

REFERENCE:

PLAN DERIVED FROM GOOGLE EARTH AERIAL IMAGERY
 AND SHAW ENVIRONMENTAL, INC., A CB&I COMPANY,
 FIELD RECONNAISSANCE.

OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
STOUGHTON, MA	CD	10/24/13	DB	10/24/13
				118491-03A.DWG

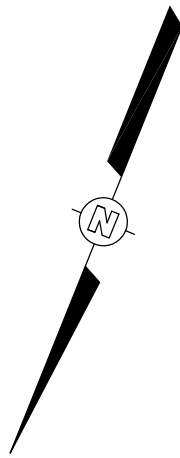


REFERENCE:
 "SITE PLAN" PREPARED BY CROUCH ENGINEERING INC. DATED 11/30/05. FILE: 5322 EXHIBIT 1.DWG



LEGEND

- A1 ABOVEGROUND STORAGE TANK
- SPILL KIT
- D1 DRUM STORAGE
- FLOW DIRECTION
- T1 TRANSFORMER
- OMH CITY OF ST. ALBANS MANHOLE
- A NECR MANHOLE
- A OIL LOADING/OFFLOADING AREA
- A RAILROAD TRACKS
- A SEWER TO BROOK
- A SANITARY SEWER
- A PIPELINE LOCATION
- A FENCELINE



ID	CONTENTS	CAPACITY (GAL)
A1	DIESEL	50,000
A3	LUBE	10,000
A4	USED OIL	1,000
A5	HEATING OIL	500
A6	MOTOR OIL	275
A7	HYDRAULIC OIL	275
A8	DIESEL	500
A9	HEATING OIL	275
A10	HEATING OIL	275
P1	MINERAL SPIRITS	178
P2	DIESEL	130
D1	MOTOR OIL	55 EA (2)
	COMPRESSOR OIL	55 EA (2)
	JOURNAL OIL	55 EA (2)
	LUBE OIL	55 EA (2)
D2	HYDRAULIC OIL	55 EA (1)
	USED OIL	55 EA (1)
T1	DIELECTRIC FLUID	60

N.T.S.

SHAW ENVIRONMENTAL, INC.,
 A CB&I COMPANY
 150 ROYALL STREET
 CANTON, MASSACHUSETTS
 (617) 589-5111

CBI

FIGURE 3
 FACILITY DIAGRAM

NEW ENGLAND CENTRAL RAILROAD
 ST. ALBANS YARD - ROUNDHOUSE
 ST. ALBANS, VERMONT

APPENDICES

State of Vermont
Department of Environmental Conservation
Waste Management Division
103 South Main Street/West Building
Waterbury, VT 05671-0404
(802) 479-8739

michael.b.smith@state.vt.us

5 November 2012

Mr. Rick Norris
New England Central Railroad (NECR)
4945 Main Street
Manchester Center, VT 05255

By email only

Dear Mr. Norris:

The Sites Management Section (SMS) of the Department of Environmental Conservation, Waste Management Division (DEC) has been informed of petroleum related contamination in the subsurface associated with a 50,000 gallon above ground fuel storage tank (AST) located in the St Albans, VT railyard. Work conducted by Heindel and Noyes in 2007 to investigate stained soils near the AST and to redevelop existing monitoring wells, as well as long term groundwater monitoring conducted at this property demonstrate that there is a limited area of free product present on the water table in the vicinity of these wells and the AST. In February 2012, the DEC separated actions to address this contamination from the historical contamination associated with the CV Rail site (being addressed by CN Rail). This separate site is the "St Albans Railyard, and has been assigned the Hazardous Site #20124257.

The SMS requests that the New England Central Railroad (NECR) retain the services of a qualified environmental consultant to perform the following at the St Albans Railyard site:

- Define the degree and extent of petroleum contamination related to releases associated with the AST including:
- further define the degree and extent of contamination to the subsurface soil, including determining if contamination is present in soils both above and below the water table;
- determine the degree and extent of contamination, to groundwater if any;
- assess the potential for contaminant impact on sensitive receptors;



- determine if there is need for long-term treatment and/or monitoring that addresses the contamination; and
- Submit a summary report that outlines the work performed, as well as provides conclusions and recommendations. This report must follow the format detailed in the SMS Site Investigation Procedures.

The investigation and reporting must follow the process detailed in the SMS Site Investigation Procedures that are available at <http://www.anr.state.vt.us/dec/wastediv/sms/pubs/IROCP.pdf>.

Please note that the existing site investigation and monitoring data that already exist for the site may be sufficient to provide the information requested above in a summary report.

Thank you for your help, please contact us within ten business days of receipt of this letter.

Sincerely,



Michael B. Smith
Hydrogeologist

cc: Steve Coombs, NECR
Bob Richardson, NECR
Stella Karnis, Canadian National
Richard Adams, Arcadis

All copies sent by email only.





Estabrook's EZY Check Systems Product Line Tester Data Sheet

James M. Spiller
Certification #: 489629
51 Silkwood Ave. D-2
Belmont, NH 03220

Phone: (603) 393-6507
Fax: (603) 737-0288
E-Mail: jim@ttsne.com

Test Date: June 15, 2010
Site Name: New England Central Railroad
Address: 60 Hoyt St.
City, State: St. Albans, VT 05478
DES FACILITY/SITE ID#: 770126
Lines Tested: Two
Test Pressure: Lube Oil @ 50 PSI & Diesel @ 15 PSI

Product: Lube Oil 20W30			System Type: Pressure		
Time	Data	+/-	GPL	RES	GPH (x4)
1130	60	-	-	0	0
1145	54	-6	.0037	.0222	.0888
1200	51	-3	.0037	.0111	.0444
1215	49	-2	.0037	.0074	.0296
1230	48	-1	.0037	.0037	.0148
1245	48	0	.0037	0	0

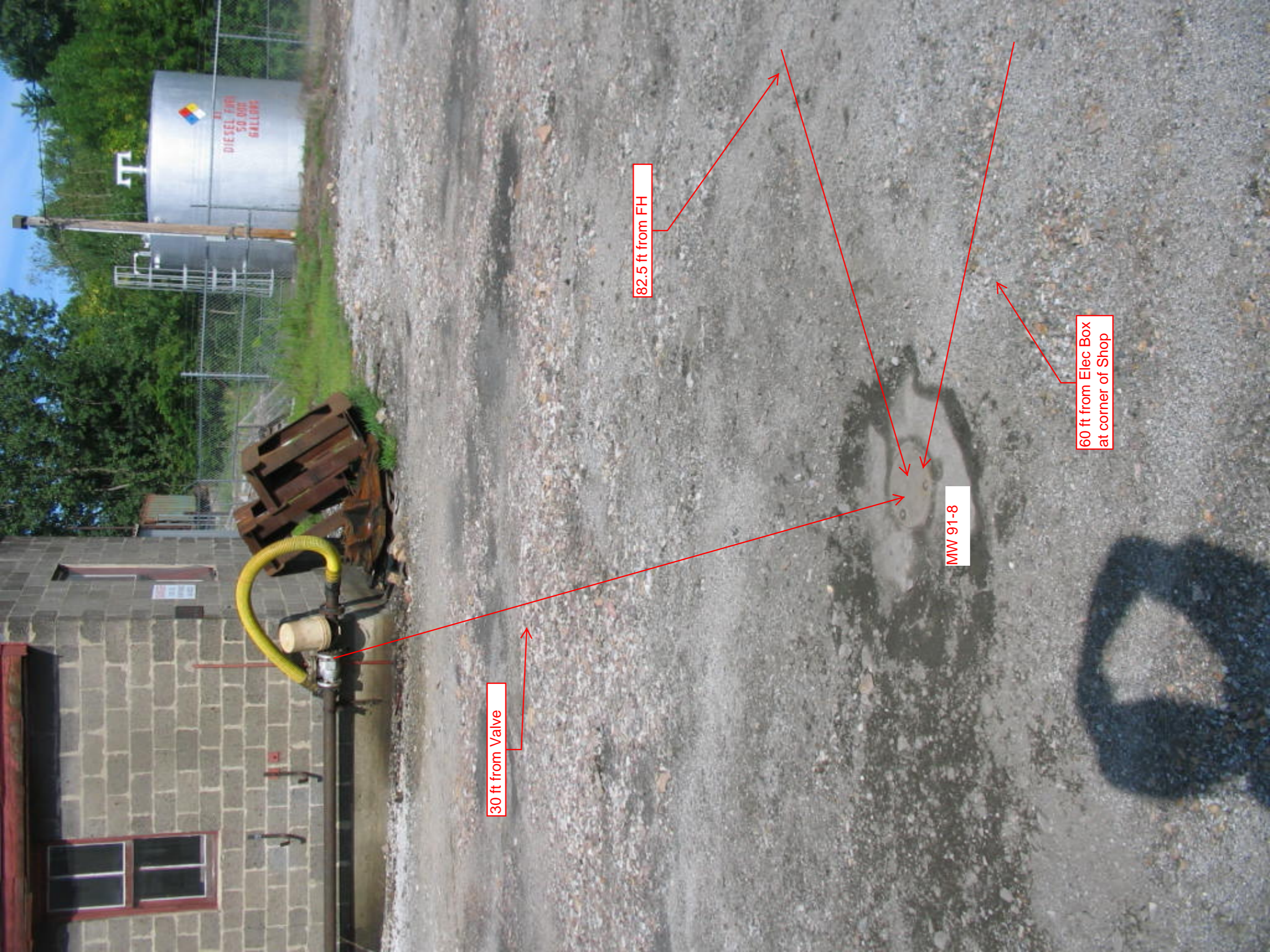
Product: Diesel backup for heating			System Type: Suction		
Time	Data	+/-	GPL	RES	GPH (x4)
1430	75.0	-	-	0	0
1445	75.0	0	.0037	0	0
1500	75.0	0	.0037	0	0

Pass/Fail **PASS**

Pass/Fail **PASS**

Additional Comments: All lines tested tight per manufacturer's protocol and all applicable State and Federal regulations.

Technician Signature: 



30 ft from Valve

82.5 ft from FH

60 ft from Elec Box
at corner of Shop

MW 91-8

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.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

November 3, 2010

Wendy Shellito, Project Manager
Heindel & Noyes, Inc.
434 Shelburne Road
Burlington, VT 05401

Dear Ms. Shellito:

Included are the results from the testing of material submitted on October 18, 2010 from the Arcadis/CVPI 09037/9.1.4, F&BI 010182 project. The product sample submitted for forensic evaluation arrived in good condition. Upon arrival, the sample MW91-8 was placed in a refrigerator maintained at 4°C until removed for sample processing.

The sample MW91-8 was diluted and analyzed using a gas chromatograph with a flame ionization detector (GC/FID). The data generated yielded information on the boiling range and general chemical composition of the material present. The GC/FID traces are enclosed. A GC/FID trace of a standard consisting of normal alkanes is also provided for reference purposes. In addition, the sample MW91-8 was sent to Harris Testing Laboratories for specific gravity testing by method ASTM D-1298. The report generated by HTL is enclosed.

As requested, we have reviewed the reports issued by Friedman and Bruya, Inc. (F&BI) on November 25, 2008 and March 16, 2009 from the CVPI St. Albans VT, F&BI 811228 project. These reports included analytical data generated from the testing of the sample 96-3 Reference. The purpose of this review was to provide a comparison between the material present in the samples 96-3 Reference and MW91-8.

Review of the GC/FID traces generated shows that the samples 96-3 Reference and MW91-8 contain a middle distillate such as diesel fuel No. 2 or heating oil. The general composition of the material present in the sample 96-3 Reference indicates that the middle distillate has undergone substantial biological degradation. The general composition of the material present in the sample MW91-8 indicates that the middle distillate has undergone little to no biological degradation. The relatively undegraded

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Wendy Shellito
November 3, 2010
Page 2

nature of the material present in the sample MW91-8 is consistent with a more recent release. Comparison of the GC/FID traces generated indicates that the material present in the samples 96-3 Reference and MW91-8 are not likely from the same release.

Please contact us if additional consultation is needed by our firm in the interpretation of the analytical results provided. We appreciate this opportunity to be of service to you and hope you will call if you should have any questions. We will hold your samples for 30 days before disposal unless directed otherwise.

Sincerely,

FRIEDMAN & BRUYA, INC.

A handwritten signature in cursive script that reads "Bradley T. Benson".

Bradley T. Benson
Chemist

Enclosures
mcp/BTB
NAA1103R.DOC

Date of Report: 11/03/10
Date Received: 10/18/10
Project: Arcadis/CVPI 09037/9.1.4, F&BI 010182
Date Extracted: 10/20/10
Date Analyzed: 10/20/10

**RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE
FOR FORENSIC EVALUATION
BY CAPILLARY GAS CHROMATOGRAPHY
USING A FLAME IONIZATION DETECTOR (FID)**

Sample ID

GC Characterization

MW91-8

The GC trace using the flame ionization detector (FID) showed the presence of medium boiling compounds. The patterns displayed by these peaks are indicative of a middle distillate such as diesel fuel No. 2 or heating oil.

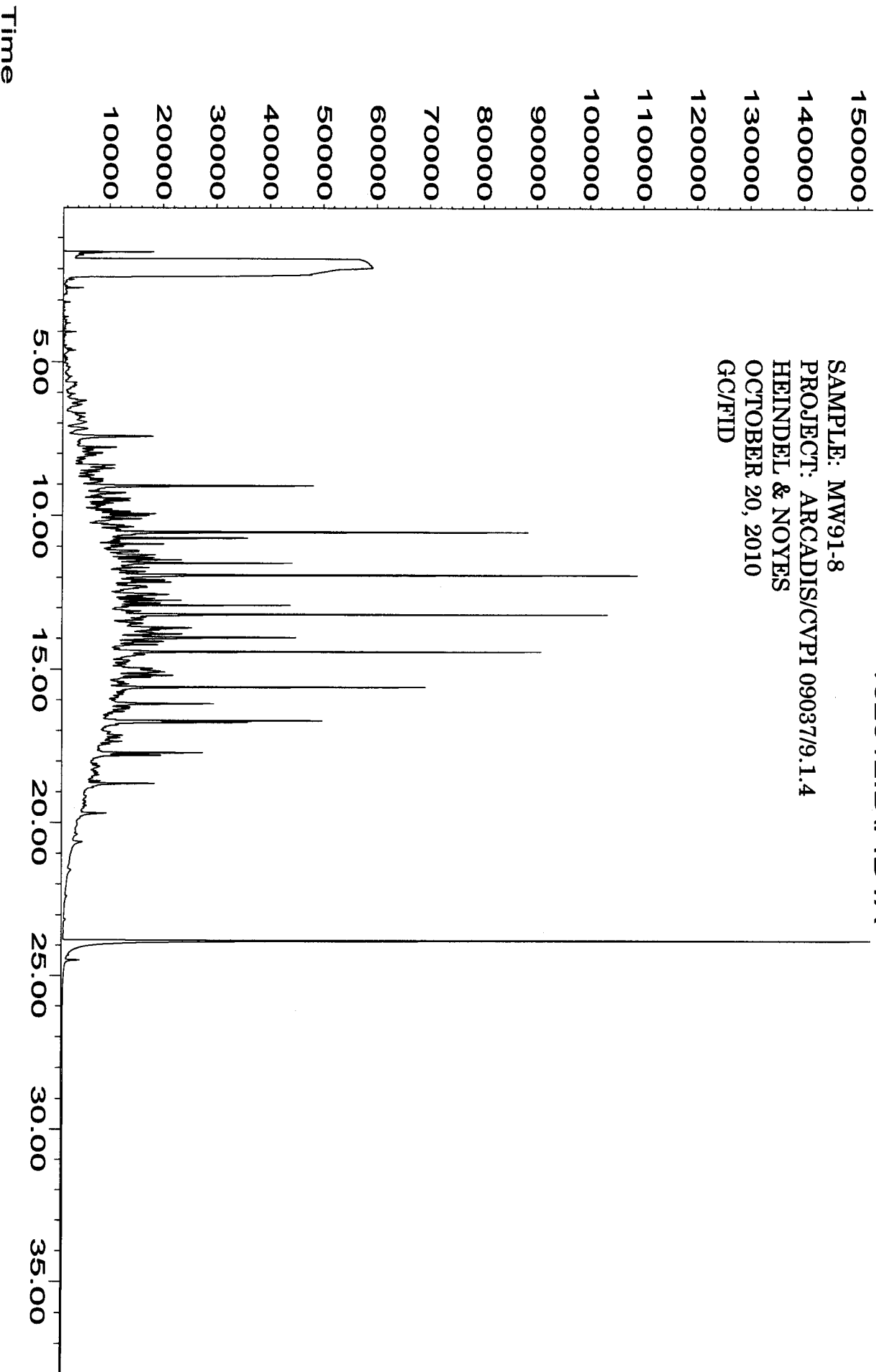
The medium boiling compounds appear as a regular pattern of peaks on top of a broad hump or unresolved complex mixture (UCM). This material elutes from *n*-C₈ to *n*-C₂₄ showing a maximum near *n*-C₁₄. This correlates with a temperature range of approximately 130°C to 390°C with a maximum near 250°C. Within this range, the dominant peaks present are indicative of normal alkanes. Secondary peaks are also present which are indicative of the isoprenoids including norpristane, pristane, and phytane. The relative abundance of the normal alkanes and isoprenoids indicates that little to no biological degradation has occurred to the fuel.

The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis.

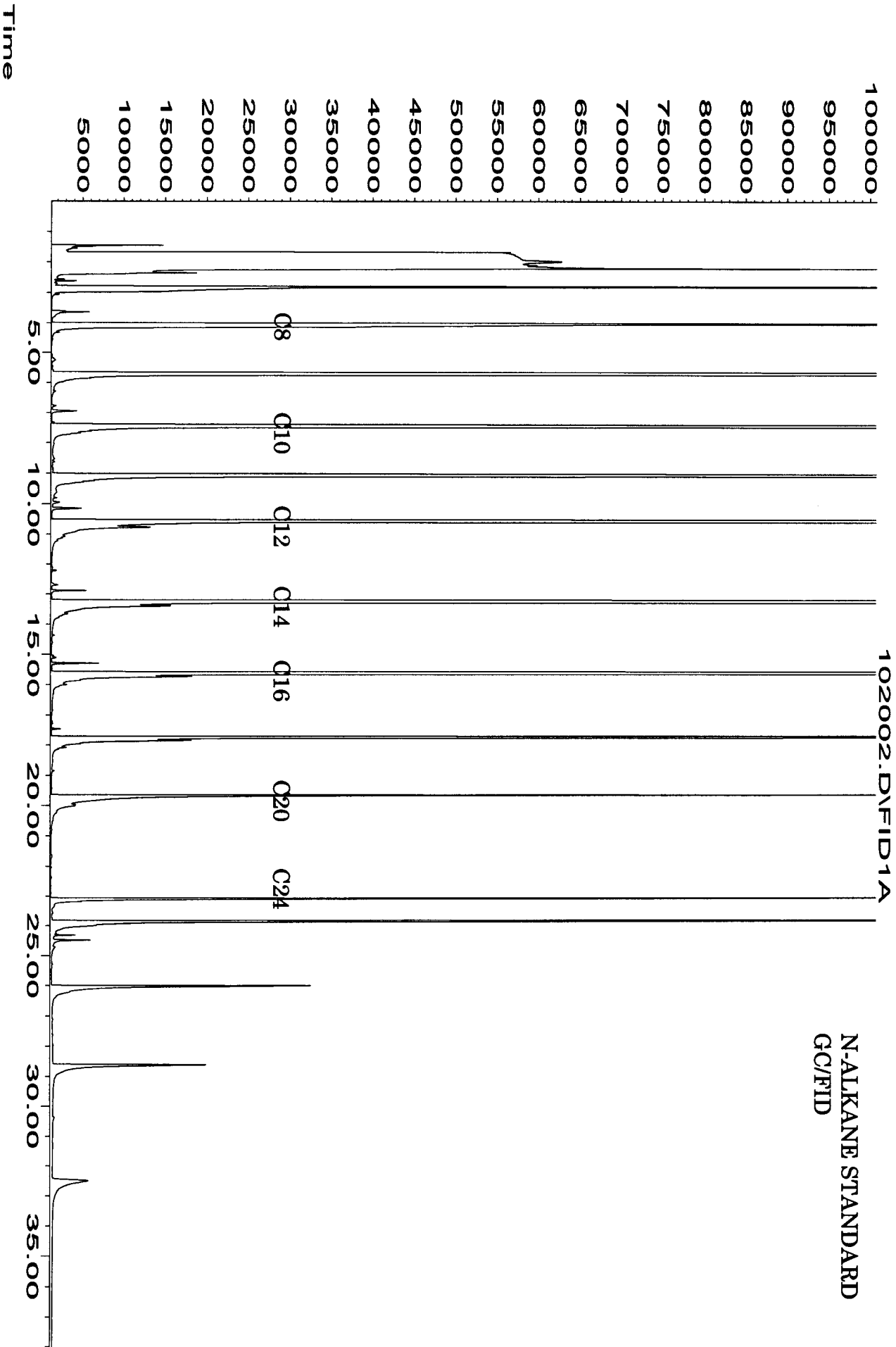
Response_

102012.D\FID1A

SAMPLE: MW91-8
PROJECT: ARCADIS/CVPI 09037/9.1.4
HEINDEL & NOYES
OCTOBER 20, 2010
GC/FID



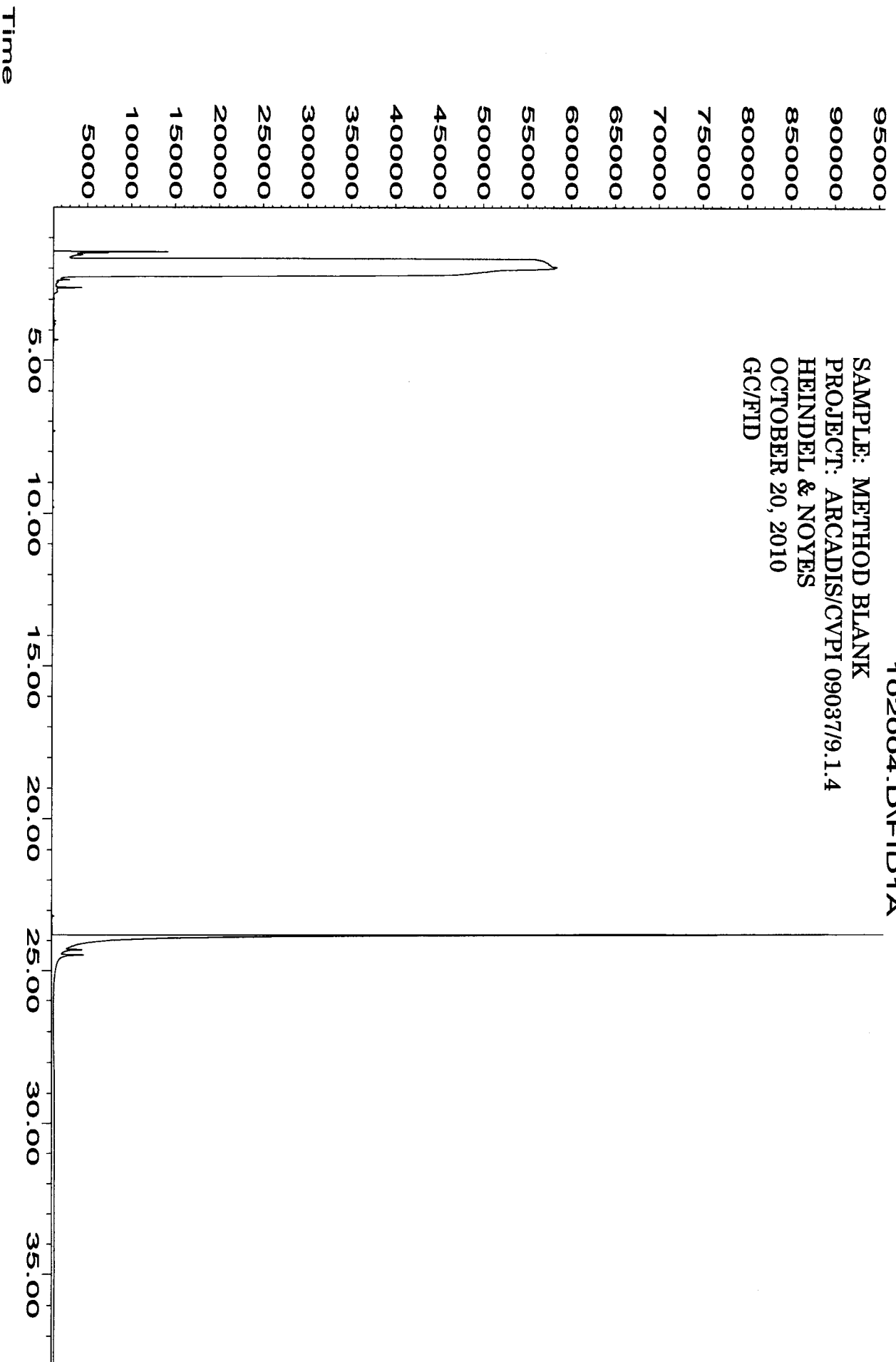
Response_

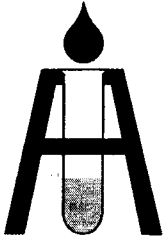


Response_

102004.D\FID1A

SAMPLE: METHOD BLANK
PROJECT: ARCADIS/CVPI 09037/9.1.4
HEINDEL & NOYES
OCTOBER 20, 2010
GC/FID





RECEIVED
OCT 28 2010

HARRIS TESTING LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029

PRODUCT: Unknown

MARKS: MW 91-8, 9/9/10

PROJECT #: 010182

DATE RECEIVED: 10/20/2010

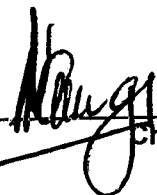
LAB NO: HH1010-2001

SUBMITTED BY: Michele Poquiz

METHOD	TEST	RESULTS	SPECIFICATIONS	
			Min	Max
D-1298	Specific Gravity @ 15.6/15.6 °C	0.8418	XXX	XXX

Comments:

Date issued:
10/26/2010



Chemist

QUOTATION

Burt Process Equipment
 PO BOX 185100
 HAMDEN, CT 06518
 PH: 877 PIC-BURT (742-2878)
 FX: 877 742-2231



Order Number	
1082253	
Order Date	Page
2/8/2011 09:15:42	1 of 1

Bill To:
 SHAW ENVIRONMENTAL
 P.O. BOX 98519
 ATTN: ACCOUNTS PAYABLE
 BATON ROUGE, LA 70884

Ship To:
 SHAW ENVIRONMENTAL
 100 TECHNOLOGY DRIVE
 STOUGHTON, MA 02072

978-691-2125

Requested By: Mr. Doug Blakeley

Customer ID: 22463

Required Date: 2/8/2011 00:00:00

<i>PO Number</i>	<i>Ship Route</i>	<i>Taker</i>
Passive Bailer		DAVECARSON

<i>Quantities</i>					<i>Item ID</i> <i>Item Description</i>	<i>Pricing UOM</i> <i>Unit Size</i>	<i>Unit Price</i>	<i>Extended Price</i>
<i>Ordered</i>	<i>Allocated</i>	<i>Remaining</i>	<i>UOM</i> <i>Unit Size</i>	<i>Disp.</i>				
1	0	1	EA		TR007 Passive bailer Petro Bailer, 4" Diameter well, PVC, 1.66" x 61.50"	EA 1.0	440.0000	440.00

Total Lines: 1

SUB-TOTAL: 440.00
TAX: 27.50
AMOUNT DUE: **467.50**