From: Amy Connell <aconnell@ecsconsult.com>
Sent: Wednesday, December 11, 2013 10:52 AM
To: agamide@hotmail.com; Moran, Matt
Cc: Erik Urch
Subject: Spill No.2013 WMD015 1211.Urch.Moran.SmugglersView.Summary.rpt
Attachments: 1211.Urch.Moran.SmugglersView.Summary.rpt.pdf

Please find attached the Smugglers View Summary report. Please contact Erik Urch with any questions or comments. Have a nice afternoon.

--
Amy Beth Connell
Administrative Office Manager
ECS Waterbury
802-241-4131
www.ecsconsult.com

1211.Urch.Moran.SmugglersView.Summary.rpt.pdf

ecs
WHERE BUSINESS AND THE ENVIRONMENT CONVERGE

1 Elm Street, Suite 3, Waterbury, VT 05676 tel 802.241.4131 fax 802.244.6894 www.ecsconsult.com

December 10, 2013
Project No. 08-219853.00

Adam Robarge
575 Smugglers View Road
Jeffersonville, VT 05464

RE: Summary Report
575 Smugglers View Road
Jeffersonville, VT
Spill #2013WMD015

Dear Mr. Robarge:

Environmental Compliance Services, Inc. (ECS) presents this final summary report that details spill response and investigation activities related to a spill of kerosene at your property located at 575 Smugglers View Road, Jeffersonville, VT. Refer to Figure 1 for a site location map and Figure 2 for a site sketch.

BACKGROUND & SPILL RESPONSE ACTIONS

On January 12, 2013, ECS was notified of a spill of approximately 200 gallons of kerosene at your residence at 575 Smuggler's View Road. It is our understanding that you noticed the heater turned off at approximately 3AM upon and then you checked the exterior aboveground storage tank (AST), which is under the deck. The AST was empty and you believed it should have had approximately 200 gallons based the last fuel delivery (end of September 2012) and your estimated consumption rate. It was evident that a recent thaw caused the AST to shift and leak at the fuel filter assembly, and it appeared the kerosene migrated vertically into the subsurface as no overland flow was observed. ENPRO Services, Inc. (ENPRO) mobilized to the site and commenced cleanup actions, which included the use of sorbents on several occasions to collect free product in a small pond adjacent to your residence, hereby referred to as the "upper pond". ENPRO also excavated a sump hole between the dwelling and the upper pond in the area of a slight product seep in the bank. Sorbents were also deployed in this hole to capture product upstream of the upper pond. A total of seven drums of non-hazardous solids, including sorbent materials and personal protective equipment (PPE), were generated and transported off-site by ENPRO. Waste manifests are included in Appendix A.

PRELIMINARY RELEASE ASSESSEMENT

On January 12, 2103, during the initial spill response, ECS performed a preliminary assessment of the release, which consisted of field-screening several structures with a photoionization detector (PID). This included testing the headspace within the septic tank and two perimeter drain cleanouts (PD-1 and PD-2), the basement airspace at the site and the abutting property at 555 Smuggler's View Road (Nielson Residence), and three shallow soil samples collected at the release area (S-1) and downgradient of the upper pond within a small spring area (S-2 and S-3). No other soil samples could be collected for field-screening

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at the time due to frost conditions. Refer to Figure 2 for the locations of these field-screening areas. Table 1 below summarizes the preliminary field-screening results:

TABLE 1:
Preliminary Field-Screening Results

Location	Depth	PID (ppm)	Notes
Septic tank	1 to 5 ft	1.2	Headspace
PD-1	NA	2.4	Headspace
PD-2	NA	0.1	Headspace
Site basement	NA	3.2 to 3.5	Indoor ambient air: Likely polyurethane background due to recent application and signature odor
Nielson basement	NA	0.0	Indoor ambient air
S-1	0 to 3 ft	46.3	Soil
S-2	0 to 1 ft. bgs	0.0	Soil
S-3	0 to 0.6 ft. bgs	0.0	Soil

This data provided the original conceptual model for contaminant transport and fate at the site. It appears the oil entered the subsurface within the spill area and migration may have been influenced at least partially by the septic system and perimeter drain due to the close proximity of these structures and the fact that slight PID headspace signatures (0.1 to 2.4 ppm) were observed in these structures. However, these readings are relatively low, so it appears the majority of the oil migrated in the subsurface to the upper pond, which is corroborated by the emergence of oil on the water surface. The oil did not appear to migrate past the pond based on non-detect (ND) readings in the spring downgradient of the pond (S-2 and S-3). As no further samples could be collected due to frost conditions, the migration footprint from the source area to the pond could not be established at the time. It is also unclear if oil entered the bedrock, and if so, to what extent. A comprehensive geologic investigation utilizing overburden and bedrock monitoring wells would be required to establish this potential impact.

During initial phases of cleanup, discoloration consistent with fuel was observed on an additional off-site pond at the Nielson residence (555 Smuggler's View Road), hereby referred to as the "lower pond". All parties involved in the project, including VT DEC, believed that the material in the lower pond was kerosene from the spill based on visual similarities to kerosene that impacted the upper pond. This was also supported by Ms. Nielson's account to Matt Moran of VT DEC that the material was first noted during the morning of the spill. The ice on the lower pond was not competent, and therefore, it was unsafe at the time to conduct close inspection and sampling of the material. However, a few days into the cleanup, it is our understanding that ENPRO was able to collect a small amount of the material from the shore of the lower pond using piping extensions. ENPRO indicated that the material was some kind of natural deposition, likely emanating from the abundant trees in the area. ENPRO based this on the fact that no odors were apparent and the texture was not consistent with kerosene. ENPRO also indicated that similar deposition was observed in a pond in Underhill adjacent to VT Route 15. ECS did not oversee this assessment by ENPRO.

At the request of VT DEC, and under the direction of ECS, on February 1, 2013, ENPRO attempted to collect a sample of the material for laboratory analysis as it was deemed safe to access the deposition area of the lower pond due to a recent deep freeze. However, the deposition material could not be found and it may have dissipated during a previous thaw. Therefore, an ice core was advanced in the estimated area where the material was previously identified and a sample of the pond water beneath the ice was collected for laboratory analysis of volatile organic compounds (VOCs) by US EPA Method 8021B and total

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petroleum hydrocarbons (TPH)-diesel range organics (DRO) by US EPA Method 8015B. Results indicated that all compounds were below laboratory reporting limits (BRL). Based on the above, multiple lines of evidence indicate that the discoloration previously observed in the lower pond was naturally occurring deposition and not kerosene. Additionally, research conducted by VT DEC indicated that the material was likely red algae. It is likely its appearance on the same day as the spill was related to the sudden thaw, which was identified as the cause of the kerosene release.

WATER SUPPLY QUALITY MONITORING

Between January 12, 2013 (the date of original release) and August 20, 2013, ECS collected five samples from the spring water supply well on site, which serves several residences in the area. Samples were stored on ice and submitted for laboratory analysis of drinking water VOCs by US EPA Method 524.2. All results indicated that all VOCs were BRL for all samples, which indicates that the water supply has not been impacted by the spill.

ADDITIONAL INDOOR AIR SCREENING & PRELIMINARY MITIGATION

On March 6, 2013, ECS mobilized to the site to perform additional field-screening of the site basement airspace. This was performed based on our understanding that you had detected kerosene odors in the basement. The basement is a living space and contains one bedroom, an entryway, a storage room, and an open woodstove area. Upon arrival, ECS also detected kerosene odors and utilized a PID to screen the ambient basement air within these rooms. ECS also identified two discrete areas within the storage room where the vapors were likely getting in, including a penetration where the water line enters the building and an obvious crack in the foundation. Table 2 below summarizes the results of field-screening:

TABLE 2:
Additional Site Basement Field-Screening Results

Location	PID (ppm)	Notes
Entryway	5.0	Indoor ambient air
Bedroom	6.0	Indoor ambient air
Storage Room	15	Indoor ambient air
Storage Room – Water Line Orifice	50	Discrete hole
Storage Room – Crack in Foundation	50	Discrete hole

The holes were sealed with silicone caulk and all spaces were field-screened again with a PID, resulting in ND readings throughout. It is ECS' understanding that no additional kerosene odors have been detected since the holes were sealed. It should be noted that the indoor air field-screening conducted at the site does not constitute a comprehensive vapor intrusion assessment. A vapor intrusion assessment consisting of sub-slab soil vapor testing and indoor air testing would be required to determine if the vapor intrusion pathway is completed.

FOLLOW-UP SUBSURFACE INVESTIGATION

On August 20, 2013 ECS advanced 16 soil borings (A-P) utilizing a hand auger for the objective of defining the vertical and horizontal extent of overburden contamination at the site, which could not be performed during the initial spill response due to frost conditions. Soil borings were advanced in a general grid pattern downgradient of the release area. Refer to Figure 2 for soil boring locations. The depth of the borings ranged from approximately 0 to 3 feet and borings terminated at the water table or

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refusal. During advancement, soils were field-screened with a PID. Soils were also evaluated for visual and olfactory indications of contamination. Table 3 below summarizes the results of the field-screening:

TABLE 3:
Follow-Up Investigation Field-Screening Results

Boring ID	PID (ppm) 0-1 ft. bgs	PID (ppm) 1-2 ft. bgs	Depth to WT (ft. bgs)	Notes
A	0.0	0.0	NE	No odor, refusal @2 ft. bgs, assumed bedrock
B	0.0	0.0	NE	No odor, refusal @2 ft. bgs, assumed bedrock
C	520	NS	0.8	Strong kerosene odor
D	480	NS	0.5	Strong kerosene odor
E	40	NS	0.3	No odor
F	0.1	NS	0.0	No odor
G	6.0	0.4	1.5	No odor
H	0.5	0.1	NE	No odor
I	0.1	0.1	2.8	No odor
J	0.1	NS	0.5	No odor
K	0.1	NS	0.5	No odor
L	0.0	NS	1.0	No odor
M	0.0	0.0	2.5	No odor
N	0.1	0.1	2.0	No odor
O	0.0	NS	0.4	No odor
P	4.5	NS	0.4	No odor

Results indicate that elevated PID readings (around 500 ppm) with strong kerosene odors were observed in borings C and D, which are located between the site dwelling and the upper pond adjacent to the collection sump excavated by ENPRO. Lower readings (4 to 40 ppm) were observed in borings E, G, and P. All other borings were either ND or <1 ppm. Refer to Figure 2 for a depiction of the extent of soil contamination at the site based on these field-screening results. As indicated by the drawing, subsurface overburden contamination appears to extend from the release area to the upper pond and appears to be confined via a generally narrow configuration. This distribution may have been caused by a secondary conduit from subsurface drain piping[1], bedding material, or a natural depositional feature. No soil samples were submitted for laboratory analyses in accordance with standard practice related to virgin fuel spills in VT.

ECS also removed absorbent booms that were deployed in the upper pond and deposited them in two drums that contain spent sorbent materials as part of the original spill response. The booms removed from the upper pond contained kerosene odors. The booms removed from the spring downgradient of the upper pond did not have a kerosene odor or any visual signs of contamination. Booms and pads were deposited in two 55 gallon drums, which were removed by ENPRO in accordance with appropriate waste manifest procedures. See Appendix A. Upon departure, the upper pond did not show any evidence of oil sheen on the water. However, a heavy biofilm was present, which was likely an indication of anaerobic groundwater entering the pond caused by petroleum biodegradation.

[1] The effluent piping of the perimeter drain system was never established and may have been removed or buried during construction of the shed. The effluent was likely located in this area based on site topography.

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These results indicate that although subsurface contamination remains at the site, oil does not appear to be seeping into the upper pond at the time of the follow-up assessment. This, coupled with the fact that the water supply has not been impacted by the release and odors are no longer detected in the residence, indicates that contamination at this time is not adversely affecting sensitive receptors. However, as stated earlier, a vapor intrusion assessment consisting of sub-slab soil vapor testing and indoor air testing would be required to determine if the vapor intrusion pathway is completed. Additionally, the impact to bedrock aquifer, if any, is not known from the current dataset.

CONCLUSIONS & RECOMMENDATIONS

ECS oversaw spill response actions, performed field-screening activities, and sampled the water supply on several occasions related to the release of kerosene at 575 Smuggler's View Road in Jeffersonville, VT. The extent of overburden contamination appears to have been defined and does not appear at the time of the assessment to adversely affect sensitive receptors; however, potential bedrock contamination was not determined and would require more comprehensive hydrogeologic investigations. Furthermore, precipitation events including snow melt may from time to time mobilize residual contamination. Additionally, a comprehensive vapor intrusion assessment would be required to determine if the vapor intrusion pathway is completed. A limited source removal of grossly impacted shallow soils would minimize potential leaching of contamination in the future and eliminate potential dermal contact or ingestion.

Sincerely,
ENVIRONMENTAL COMPLIANCE SERVICES, INC.

Erik Urch
Project Manager

cc: Mr. Matt Moran, VT DEC

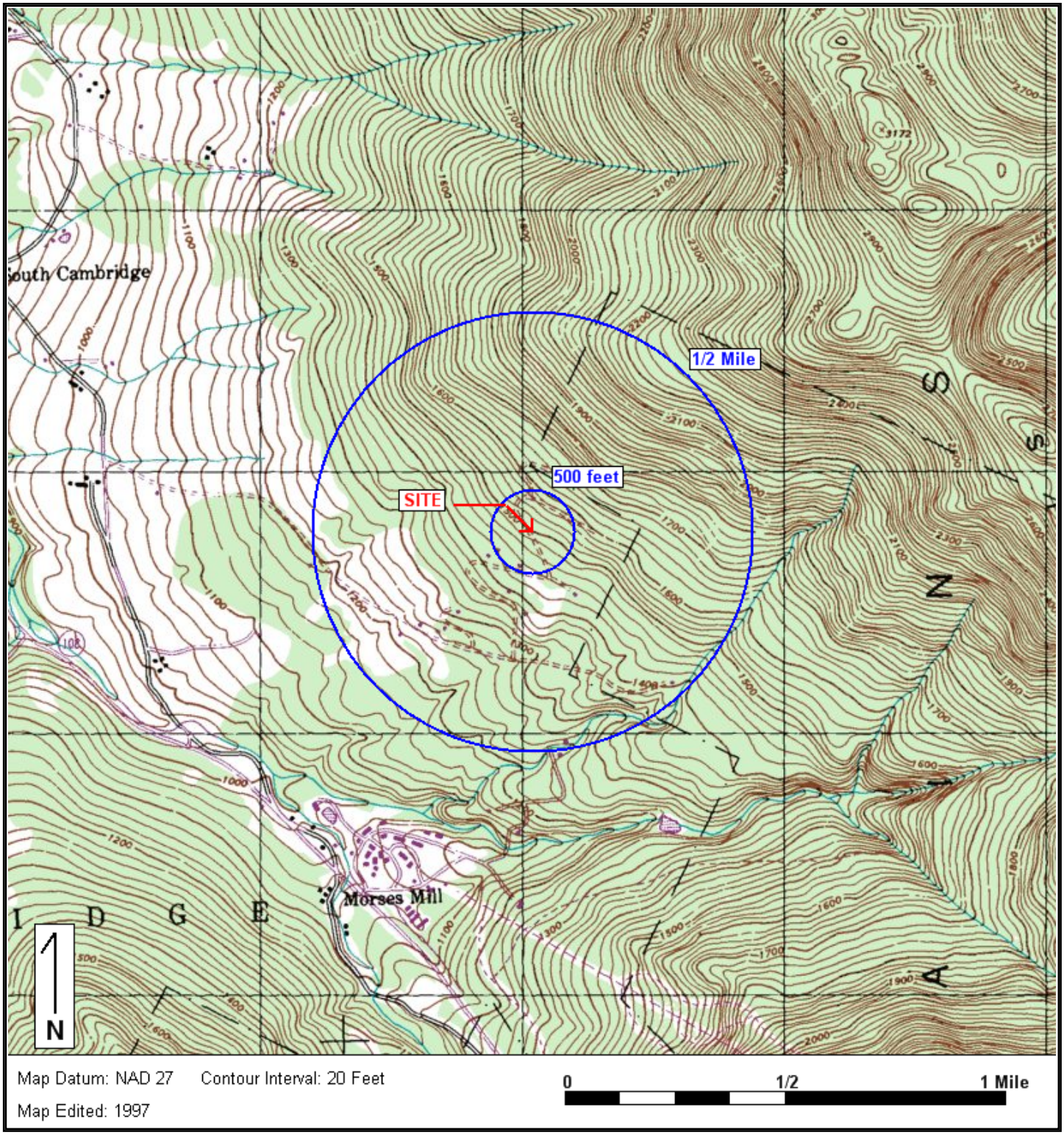
Attachments:

Figure 1 (Site Location Map)
Figure 2 (Site Plan)
Appendix A (Waste Manifests)

Environmental Compliance Services, Inc.
1 Elm Street, Suite 3
Waterbury, VT 05676
Phone 802.241.4131 Fax 802.244.6894
www.ecsconsult.com

Residence
575 Smugglers View Road
Jeffersonville, VT 05464

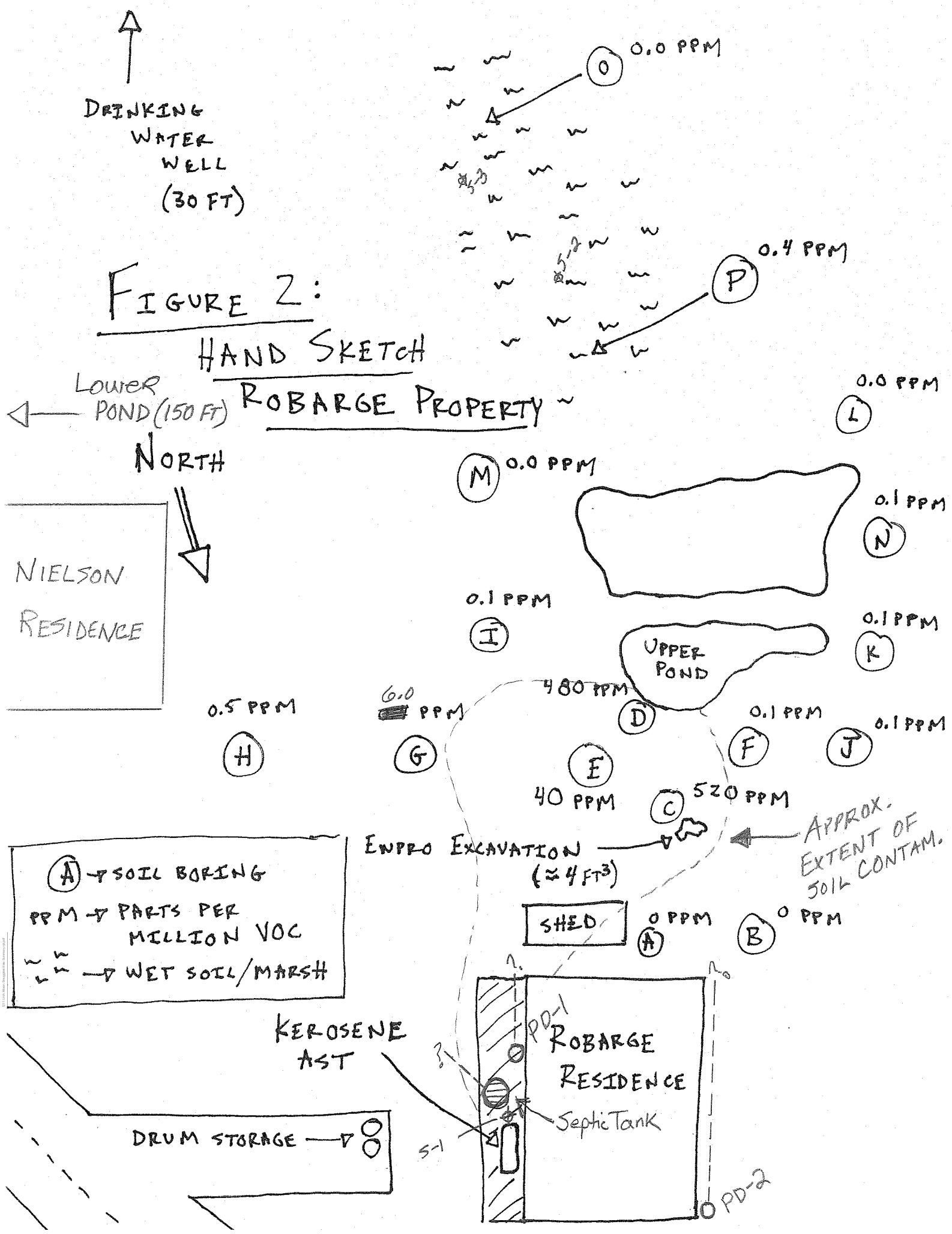
Figure 1: SITE LOCUS



Map Datum: NAD 27 Contour Interval: 20 Feet
Map Edited: 1997

Base Map: U.S. Geological Survey; Quadrangle Location: Mount Mansfield, VT
Lat/Lon: 44° 36' 3" NORTH, 72° 46' 54" WEST - UTM Coordinates: 18 676059.8 EAST / 4940997.5 NORTH
Generated By: Rick Starodoj

FIGURE 2:
HAND SKETCH
ROBARGE PROPERTY



ENPRO

NON HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. | Manifest Document No. 26507 | 2. Page 1 of 1

3. Generator's Name and Mailing Address
Adam Robarge Residence
575 Smugglers View Road
Jeffersonville VT 05464
Attn: Adam Robarge

4. Generator's Phone (802) 377-9926

A. Non-Hazardous Manifest Document Number: NHZ001 26507

B. S.G.I. (Gen. Site Address): SAME

5. Transporter 1 Company Name: ENPRO SERVICES, INC.

6. US EPA ID Number: MAD980670004

C. S.T.I. (Lic. Plate #): VT

D. Transporter's Phone: 978-465-1595

7. Transporter 2 Company Name:

8. US EPA ID Number:

E. S.T.I. (Lic. Plate #):

F. Transporter's Phone:

9. Designated Facility Name and Site Address
ENPRO SERVICES OF VERMONT, INC.
54 AVENUE D
WILLISTON VT 05495

10. US EPA ID Number: VTR000517052

G. State Facility's ID: SAME

H. Facility's Phone: 802-860-1200

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Non-RCRA, non-DOT (Debris, Kerosene)	5	DM	550	P	State NONE State VX60
b.					State State
c.					State State
d.					State State

J. Additional Descriptions for Materials Listed Above
(S) Low Level Kerosene contaminated Debris
a. (55) VAP#28495 (VT-0112)
b.
c.
d.

K. Handling Codes for Wastes Listed Above
a. Interim Final
b. Interim Final
c.
d.

15. Special Handling Instructions and Additional Information
ENPRO CONTACT: ENPRO SERVICES, INC. - 24 HOURS - (800) 968-1100
1) ENRPO PO#18811

Point of Departure: ENPRO JOB# 4005-13

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, and all applicable state laws and regulations.

Printed/Typed Name: Rob Bye or Be Hals of Adam Robarge | Signature: [signature] | Month 02 Day 01 Year 13

17. Transporter 1 Acknowledgement of Receipt of Materials | Date

Printed/Typed Name: Robert Bryan | Signature: [signature] | Month 02 Day 01 Year 13

18. Transporter 2 Acknowledgement of Receipt of Materials | Date

Printed/Typed Name | Signature | Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19. | Date

Printed/Typed Name: Kathleen Michelli | Signature: [signature] | Month 02 Day 04 Year 13

ORIGINAL-RETURN TO GENERATOR

www.enpro.com www.tsdf.com www.hazardouswaste.com www.enpro.com www.hazardouswaste.com www.enpro.com www.hazardouswaste.com www.tsdf.com www.hazardouswaste.com

ENPRO

NON HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 26645

2. Page 1 of 1

3. Generator's Name and Mailing Address
Attn: Adam Robarge
Adam Robarge Residence
575 Smugglers View Road
Jeffersonville VT 05464
4. Generator's Phone (802) 377-9825

A. Non-Hazardous Manifest Document Number
NHZ001 26645

B. S.G.I. (Gen. Site Address)
SAME

5. Transporter 1 Company Name
ENPRO SERVICES, INC.

6. US EPA ID Number
MAD980670004

C. S.T.I. (Lic. Plate #) VT

D. Transporter's Phone 978-465-1595

7. Transporter 2 Company Name

8. US EPA ID Number

E. S.T.I. (Lic. Plate #)

F. Transporter's Phone

9. Designated Facility Name and Site Address
ENPRO SERVICES OF VERMONT, INC.
54 AVENUE D
WILLISTON VT 05495

10. US EPA ID Number
VTR000517052

G. State Facility's ID
SAME

H. Facility's Phone 802-860-1200

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
Non-RCRA, non-DOT (Debris, Kerosene)	002	DM	003350	P	State NONE State VX60
b.					State State
c.					State State
d.					State State

J. Additional Descriptions for Materials Listed Above
(S) Low Level Kerosene contaminated Debris
(55) WIP#26495 (VT-0113-11809)
b.
c.
d. ENPROPO#22360

K. Handling Codes for Wastes Listed Above
a. Interim Final
b. Interim Final
c.
d.

15. Special Handling Instructions and Additional Information
ER CONTACT:
ENPRO SERVICES, INC. - 24 HOURS - (800) 966-1102
1)

Point of Departure: ENPRO JOB# 4005-13

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, and all applicable state laws and regulations.

GENERATOR

Printed/Typed Name: J. Guzelak Agent for generator
Signature:
Month Day Year: 09 09 13

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: J. Guzelak
Signature:
Date: Month Day Year: 09 09 13

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Kathleen O Miller
Signature:
Date: Month Day Year: 09 09 13

www.enpro.com www.tsdf.com www.hazardouswaste.com