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Richmond, Vermont  
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*Environmental, Geotechnical and Materials Professionals*

September 29, 1998

Ms. Mary Scarpa  
Business Manager  
North Country Union High School  
P.O. Box 725  
Newport, VT 05855

RE: Soil Disposal  
North Country Union High School  
Newport, Vermont  
ATC Project #08448-00005  
SMS Site # 97-2241

Dear Mary:

The following letter report summarizes sampling and analysis of soils from the stockpile at the North Country Union High School (NCUHS) in Newport, Vermont. ATC Associates Inc. (ATC) was contracted by NCUHS to perform the services outlined ATC's June 15, 1998 letter to NCUHS.

### **Background**

The soil was excavated on August 11, 1997 during the removal of two underground storage tanks (USTs). The stockpile contains approximately 60 cubic yards. The pile of excavated soils are polyencapsulated in an area with restricted access. The results of the soil screening by photoionization detector (PID) performed on April 23, 1998 are summarized in a letter to Mr. Chuck Schwer of the Vermont Department of Environmental Conservation (VT DEC) prepared by ATC dated May 14, 1998

The results of the PID soil screening indicated volatile organic compound (VOC) concentrations of less than 1 ppm in the stock piled soil. Vermont DEC Soil Guideline Thresholds for on-site polyencapsulated soil treatment options state that soils must exhibit PID readings of less than 1 ppm before thin spreading on-site may take place. As the results of the April 23, 1998 sampling indicated this to be the case, ATC recommended no further soil screening take place and that the soils be thin spread on-site in a location that will have no impact on any potential receptors.

NOV 11 1998

OCT 26 10 35 AM '98

On June 12, 1998, Mr. Joseph Duncan of ATC spoke with Mr. John Schmeltzer of the VT DEC regarding ATC's recommendations presented above. Since the site is a school, Mr. Schmeltzer required that spreading of soils should occur in a restricted access area only. Mr. Schmeltzer considered a restricted access area to be an area that prevents students from accessing that area (i.e. a fenced off area). Mr. Schmeltzer also indicated that if the soils could not be thin-spread in a limited access area on-site, then confirmatory soil samples must be collected for laboratory analysis.

As there were no locations designated by NCUHS to be restricted access areas, ATC was contracted to collect confirmatory samples for analysis by a qualified laboratory in order to determine whether or not the stockpiled soils were suitable for spreading in non-restricted areas of the NCUHS property. According to Mr. Schmeltzer, if the confirmatory sample results indicated concentrations below Vermont Groundwater Enforcement Standards (the State of Vermont does not currently maintain any soil enforcement standards), then the soils could be placed in any area of the NCUHS property.

### **Methodology**

In accordance with Vermont DEC Guidelines for Petroleum Contaminated Soil and Debris, three soil core samples were collected from the stockpile as the total amount of soil did not exceed 100 cubic yards. The soil samples were transported under chain of custody to Endyne, Inc. for analysis. In accordance with DEC requirements, the samples were analyzed for benzene, toluene, ethylbenzene, and xylene (BTEX) compounds via EPA Method 8021B and for total petroleum hydrocarbons (TPH) via EPA Method 8100 modified.

### **Results**

No detectable concentrations of BTEX were found in any of the three samples submitted for analysis. Low concentrations of TPH, however, were detected. Concentrations of 20.4, 17.4 and 21.9 mg/Kg (ppm) were detected in samples SS-01, SS-02, and SS-03, respectively. Copies of the laboratory reports are included as Appendix A.

### **Conclusions and Recommendations**

No detectable BTEX concentrations were found in any of the soil samples. As a result, it appears that the stockpiled soils do not contain BTEX concentrations at levels exceeding Vermont Groundwater Enforcement Standards. Slight concentrations of TPH were detected in each sample.

Ms. Mary Scarpa  
September 29, 1998  
Page 3 of 3

While these concentrations appear low, there is no comparative Groundwater Enforcement Standard for TPH.

ATC recommends that a copy of this report be submitted to the Vermont DEC for review. Following submission, the DEC should be contacted to inquire about the DEC's determination as to the suitability of the stockpiled soils for land spreading.

If you have any questions concerning this correspondence, please feel free to contact us at 802-434-2113.

Sincerely,

ATC ASSOCIATES INC.



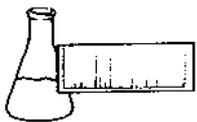
Chad Farrell  
Project Engineer

attachments

CRF/imh/08448 NCUHS/08448-00005 soils/08448-00005 soil analysis ltr

**APPENDIX A**

**Analytical Laboratory Reports**



**ENDYNE, INC.**

Laboratory Services

32 James Brown Drive  
Williston, Vermont 05495  
(802) 879-4333  
FAX 879-7103

REPORT OF LABORATORY ANALYSIS

CLIENT: ATC Associates, Inc.  
PROJECT NAME: NCUHS Soil Monitoring  
DATE REPORTED: September 24, 1998  
DATE SAMPLED: September 17, 1998

PROJECT CODE: ATCA1382  
REF. #: 127,302 - 127,304

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody did not indicate sample preservation.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

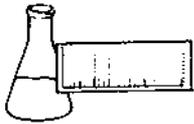
Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy were monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate data was determined to be within Laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.  
Laboratory Director



**ENDYNE, INC.**

Laboratory Services

32 James Brown Drive  
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LABORATORY REPORT

EPA METHOD 8021B COMPOUNDS BY EPA METHOD 8260

CLIENT: ATC Associates, Inc.  
PROJECT NAME: NCUHS Soil Monitoring  
REPORT DATE: September 24, 1998  
DATE SAMPLED: September 17, 1998  
DATE RECEIVED: September 17, 1998  
ANALYSIS DATE: September 22, 1998

PROJECT CODE: ATCA1382  
REF.#: 127,302  
STATION: SS-01 Soil Pile Composite  
TIME SAMPLED: 0945  
SAMPLER: Joe Duncan

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g}/\text{kg}</math>)</u>	<u>Concentration As Received (<math>\mu\text{g}/\text{kg}</math>)</u>
Benzene	10	ND <sup>1</sup>
Ethylbenzene	10	ND
Toluene	10	ND
Xylenes	20	ND
MTBE	20	ND
1,3,5-Trimethylbenzene	10	ND
1,2,4-Trimethylbenzene	10	ND
Naphthalene	50	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

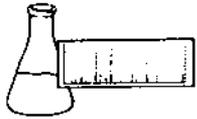
ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 96.%  
Toluene-d8: 96.%  
4-Bromofluorobenzene: 98.%

PERCENT SOLIDS: 88.%

NOTES:

1. None detected



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LABORATORY REPORT

EPA METHOD 8021B COMPOUNDS BY EPA METHOD 8260

CLIENT: ATC Associates, Inc.  
PROJECT NAME: NCUHS Soil Monitoring  
REPORT DATE: September 24, 1998  
DATE SAMPLED: September 17, 1998  
DATE RECEIVED: September 17, 1998  
ANALYSIS DATE: September 22, 1998

PROJECT CODE: ATCA1382  
REF.#: 127,303  
STATION: SS-02 Soil Pile Composite  
TIME SAMPLED: 0948  
SAMPLER: Joe Duncan

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g}/\text{kg}</math>)</u>	<u>Concentration As Received (<math>\mu\text{g}/\text{kg}</math>)</u>
Benzene	10	ND <sup>1</sup>
Ethylbenzene	10	ND
Toluene	10	ND
Xylenes	20	ND
MTBE	20	ND
1,3,5-Trimethylbenzene	10	ND
1,2,4-Trimethylbenzene	10	ND
Naphthalene	50	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

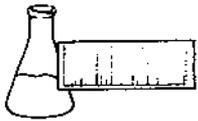
ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 98.%  
Toluene-d8: 97.%  
4-Bromofluorobenzene: 97.%

PERCENT SOLIDS: 87.%

NOTES:

1 None detected



**ENDYNE, INC.**

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LABORATORY REPORT

EPA METHOD 8021B COMPOUNDS BY EPA METHOD 8260

CLIENT: ATC Associates, Inc.  
PROJECT NAME: NCUHS Soil Monitoring  
REPORT DATE: September 24, 1998  
DATE SAMPLED: September 17, 1998  
DATE RECEIVED: September 17, 1998  
ANALYSIS DATE: September 22, 1998

PROJECT CODE: ATCA1382  
REF.#: 127,304  
STATION: SS-03 Soil Pile Composite  
TIME SAMPLED: 0950  
SAMPLER: Joe Duncan

<u>Parameter</u>	<u>Detection Limit (<math>\mu\text{g}/\text{kg}</math>)</u>	<u>Concentration As Received (<math>\mu\text{g}/\text{kg}</math>)</u>
Benzene	10	ND <sup>1</sup>
Ethylbenzene	10	ND
Toluene	10	ND
Xylenes	20	ND
MTBE	20	ND
1,3,5-Trimethylbenzene	10	ND
1,2,4-Trimethylbenzene	10	ND
Naphthalene	50	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: >10

ANALYTICAL SURROGATE RECOVERY:

Dibromofluoromethane: 99.%  
Toluene-d8: 98.%  
4-Bromofluorobenzene: 97.%

PERCENT SOLIDS: 88.%

NOTES:

1 None detected



ENDYNE, INC.

32 James Brown Drive  
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(802) 879-4333

ATCA 1383

CHAIN-OF-CUSTODY RECORD

27267

127,302 - 127,307

Project Name: <i>NLUHS Soil Monitoring</i>	Reporting Address: <i>PO Box 3</i>	Billing Address: <i>ATC</i>
Site Location: <i>NLUHS, Newport, VT</i>	<i>Richmond VT 05477</i>	<i>PO Box 3</i> <i>Richmond VT 05477</i>
Endyne Project Number: <i>ATCA1382</i>	Company: <i>ATC Associates Inc</i>	Sampler Name: <i>Lee Derrin</i>
	Contact Name/Phone #: <i>M. Vick Fuller / 434-2113</i>	Phone #: <i>434-2113</i>

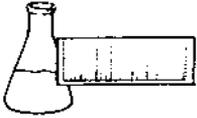
Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
127,302	SS-01 Soil Pile Composite	Soil		✓	0915 9/17/98	1	802		8021B		
127,303	SS-02 Soil Pile Composite			✓	0948 9/17/98	1	802		↓		
127,304	SS-03 Soil Pile Composite			✓	0950 9/17/98	1	802		↓		
	SS-01			✓	0945 9/17/98	1	802		8100 mod field TPAH		
	SS-02			✓	0948 9/17/98	1	802		↓		
	SS-03			✓	0950 9/17/98	1	802		↓		

Relinquished by: Signature <i>[Signature]</i>	Received by: Signature <i>[Signature]</i>	Date/Time <i>9/17/98 12:45</i>
Relinquished by: Signature	Received by: Signature	Date/Time

New York State Project: Yes  No

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8030 Pest/PCB
4	Nitrite N	9	BOD <sub>5</sub>	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify): <i>8021B and 8100 mod field</i>										



**ENDYNE, INC.**

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(802) 879-4333  
FAX 879-7103

REPORT OF LABORATORY ANALYSIS

CLIENT: ATC Associates, Inc.  
PROJECT NAME: NCUHS Soil Monitoring  
DATE REPORTED: September 25, 1998  
DATE SAMPLED: September 17, 1998

PROJECT CODE: ATCA1383  
REF. #: 127,305 - 127,307

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody indicated sample preservation upon arrival at the laboratory.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy were monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Reviewed by,

Harry B. Locker, Ph.D.  
Laboratory Director

enclosures



**ENDYNE, INC.**

Laboratory Services

32 James Brown Drive  
Williston, Vermont 05495  
(802) 879-4333  
FAX 879-7103

LABORATORY REPORT

TOTAL PETROLEUM HYDROCARBONS (TPH) BY MODIFIED EPA METHOD 8100

DATE: September 25, 1998  
CLIENT: ATC Associates, Inc.  
PROJECT: NCUHS Soil Monitoring  
PROJECT CODE: ATCA1383  
COLLECTED BY: Joe Duncan  
DATE SAMPLED: September 17, 1998  
DATE RECEIVED: September 17, 1998

Reference #	Sample ID	Concentration (mg/kg) <sup>1</sup>
127,305	SS-01; 9:45	20.4
127,306	SS-02; 9:48	17.4
127,307	SS-03; 9:50	21.9

Notes:

- 1 Values quantitated based on the response of #2 Fuel Oil. Method detection limit is 5.0 mg/kg.

**CHAIN-OF-CUSTODY RECORD**

27267

Project Name: <i>NCUHS Soil Monitoring</i>	Reporting Address: <i>PO Box 3</i>	Billing Address: <i>ATC</i>
Site Location: <i>NCUHS, Newport, VT</i>	<i>Richmond VT 05477</i>	<i>PO Box 3</i>
Endyne Project Number: <i>ATCA1383</i>	Company: <i>ATC Associates Inc</i>	Sampler Name: <i>Joe Dunham</i>
	Contact Name/Phone #: <i>Mark Fuller / 434-2113</i>	Phone #: <i>434-2113</i>

Lab #	Sample Location	Matrix	G R A B	C O M P	Date/Time	Sample Containers		Field Results/Remarks	Analysis Required	Sample Preservation	Rush
						No.	Type/Size				
	<i>SS-01 Soil Pile Composite</i>	<i>Soil</i>		<input checked="" type="checkbox"/>	<i>0945 9/17/98</i>	<i>1</i>	<i>8oz</i>		<i>80213</i>		
	<i>SS-02 Soil Pile Composite</i>			<input checked="" type="checkbox"/>	<i>0948 9/17/98</i>	<i>1</i>	<i>8oz</i>				
	<i>SS-03 Soil Pile Composite</i>			<input checked="" type="checkbox"/>	<i>0950 9/17/98</i>	<i>1</i>	<i>8oz</i>				
<i>187,305</i>	<i>SS-01</i>			<input checked="" type="checkbox"/>	<i>0945 9/17/98</i>	<i>1</i>	<i>8oz</i>		<i>8100 mod. field</i>	<i>TPH</i>	
<i>187,306</i>	<i>SS-02</i>			<input checked="" type="checkbox"/>	<i>0948 9/17/98</i>	<i>1</i>	<i>8oz</i>				
<i>187,307</i>	<i>SS-03</i>			<input checked="" type="checkbox"/>	<i>0950 9/17/98</i>	<i>1</i>	<i>8oz</i>				

Relinquished by: Signature <i>[Signature]</i>	Received by: Signature <i>[Signature]</i>	Date/Time <i>9/17/98 12:45</i>
Relinquished by: Signature	Received by: Signature	Date/Time

New York State Project: Yes  No

Requested Analyses											
1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD <sub>5</sub>	14	Turbidity	19	BTEX	24	EPA 608 Pcs/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify): <i>80213 and 8100 mod. field</i>										