

October 29, 2002

Mr. Carl K. Crawford, P.E. Otter Creek Engineering, Inc. P.O. Box 712 East Middlebury, Vermont 05740

RE: Tri-Town Water Treatment Facility VDEC Site #2001-2878 - Site Status Summary Report

Dear Mr. Crawford:

On behalf of the Tri-Town Water Treatment Facility (TWT), Lincoln Applied Geology, Inc. (LAG) has prepared this update report relative to conditions at the above-referenced Site (Figure 1). In April 2002, a ground water treatment system was installed to mitigate the threat of contaminant impacts to the interior of the TWT facility and the drinking water clear well. This treatment system has been operated on a continuous basis since April 2002 with very little to no dissolved phase contaminant concentrations detected. This report includes bimonthly ground water treatment system monitoring and water quality data, ground water elevation measurements, contaminant vapor monitoring and ground water quality data collected on October 18, 2002. In addition to the routine Site work, LAG also screened the on-site contaminated soil stockpile. All work performed at the Site was recommended and subsequently approved by the Vermont Department of Environmental Conservation (VDEC) in a letter dated September 10, 2002.

Review of the data collected indicates that with the exception of low level detections of Methyl tert-Butly Ether (MtBE) and naphthalene [below State of Vermont Ground Water Quality Enforcement Standards (GQES)], in MW-3 no other wells contained contaminant levels above laboratory method detection limits. Volatile organic compounds (VOCs) were detected by a photoionization detector (PID) in the headspace of MW-5 at a level of 1.0 parts per million (ppm) during the October 18<sup>th</sup> monitoring event. No VOCs were detected in the remaining wells on the same date, indicating limited vadose zone contamination.

With the exception of 5.1 parts per billion (ppb) of MtBE at the influent to the treatment system on October 7<sup>th</sup>, ground water pumped from the perimeter drain sump has not contained any dissolved phase contaminants since July 12, 2002. No exceedences in the Vermont GQES have been reported in any of the treatment system influent samples to date.

During the October 18<sup>th</sup> monitoring event, the edge of Lake Champlain was inspected for any evidence of petroleum related impacts relative to the Site. No petroleum sheens and/or odors were noted during the inspection.

PID data collected during the soil pile evaluation shows that the soils continue to contain VOC concentrations above 1 ppm and therefore can not be thinspread at this time.

Included to facilitate your review of this report are the following attachments:

Table 1 ..... Ground Water Elevation Data;

Mr. Carl Crawford October 29, 2002 Page 2 of 5

1

Table 2	Monitor Well and Sensitive Receptor PID Assay Results;
Table 3	Ground Water Quality Results;
Table 4	Treatment System Flows;
Table 5 Tr	eatment System Compliance Sampling Water Quality Results;
Table 6	On-site Contaminated Soil Stockpile PID Assay Results;
Figure 1	General Location Map;
Figure 2	Ground Water Contours and Water Quality Summary Map for
	October 18, 2002;
Appendix A A	ugust 14 through October 18, 2002 Water Quality Laboratory
	Reports; and
Appendix B	Cost Estimate

#### Ground Water Level and Well Headspace PID Monitoring

On October 18<sup>th</sup>, LAG measured depth to ground water in all monitor wells using an electronic interface probe capable of detecting 0.01 feet of free phase petroleum product. No free phase petroleum product was detected in any of the monitor wells. Historic ground water elevation data are summarized and presented as **Table 1**. Review of these data indicate that depth to ground water ranged between 1.81 feet (MW-1) and 6.45 feet (MW-5) across the Site October 18, 2002.

Ground water elevation data from October 18, 2002 were used to prepare a Ground Water Contour and Water Quality Summary Map (Figure 2) of the unconsolidated shallow ground water aquifer. The figure shows ground water flows across the Site in a northerly direction along a gradient of 0.02 feet/foot between MW-1 and MW-5, and along a steeper gradient of 0.1 feet/foot between MW-3 and MW-5. The order of magnitude increase in horizontal gradient between MW-3 and MW-5 is the result of the significant drop in land surface elevation between the top of the bank and nearby Lake Champlain. The ultimate discharge zone for ground water migrating from the Site is Lake Champlain.

During the October 18<sup>th</sup> monitoring event, LAG assayed the headspace of the five monitor wells and screened the interior of the TWT facility with a PID for the presence of petroleum related VOCs. Historic PID data are included as **Table 2**. Results of the monitoring show that with the exception of 1.0 ppm in the headspace of MW-5 on October 18<sup>th</sup> no other petroleum related VOCs were detected above background (BG) levels. No olfactory evidence of petroleum related impacts were noted in the TWT building.

During the October 18<sup>th</sup> site visit, the edge of Lake Champlain was inspected for any evidence of petroleum related impacts (i.e. sheen or fuel oil odor) relative to the Site. No petroleum related impacts were identified during the Site visit and therefore a surface water sample was not collected.



Mr. Carl Crawford October 29, 2002 Page 3 of 5

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#### Water Quality Sampling

On October 18, 2002, ground water samples were collected from all monitor wells (MW-1 through 5) associated with the Site. The samples were collected using industry accepted methods and transported, on ice, to Green Mountain Laboratories, Inc. (GML) in Montpelier, Vermont, where they were analyzed along with a trip blank for benzene, toluene, ethylbenzene, and xylenes (BTEX), 1,3,5-trimethylbenzene (TMB), 1,2,4-TMB, naphthalene, and Methyl tert-Butly Ether (MtBE) via EPA Method 8260M; and for total petroleum hydrocarbons (TPH) via EPA Method 8015 diesel range organics (DRO). The water quality results are summarized in Table 3 and are spatially depicted on the Ground Water Contour and Water Quality Summary Map (Figure 2). The laboratory analytical reports are included as Appendix A.

Review of the data indicates that with the exception of low level (below the State of Vermont, GQES) detectable concentrations of Napthalene and MtBE in monitor well MW-3, no other petroleum related constituents were quantified in any of the wells associated with the Site. The recent and cumulative water quality data suggests that a limited dissolved phase contaminant plume exists beneath the Site in the vicinity of MW-3 (located approximately 50 feet downgradient of UST #002). The low level detections of dissolved phase petroleum constituents in MW-3 also suggest that some migration of dissolved phase contaminant concentrations in MW-3, we believe that the dissolved phase hydrocarbon plume present beneath the Site does not pose a serious threat to Lake Champlain.

#### Ground Water Treatment System

A ground water treatment system was installed in the foundation drain sump located in the former UST#003 area (see **Figure 2**). The system is designed to prevent contaminated ground water infiltration into the building that could potentially impact the clear well used to store "finished water" for human consumption. Included as **Table 4** is the pumping and treatment system flow data. Fuel oil contaminated ground water from the sump has been pumped through four 180 pound granular activated carbon units consistently since April 10, 2002 under the Vermont Department of Wastewater Management (WWMD) 1272 Order No.3-1250.

LAG has collected influent, middle, and effluent water quality samples for laboratory analysis via EPA Method 8021B and 8015 DRO on a bimonthly basis since system start up. Historic treatment system water quality data is included as **Table 5**. Review of the data shows that treatment system flow rates have ranged between 0.07 to 7.17 gallons per minute (gpm) since April 10<sup>th</sup>.

Laboratory analysis reports for the treatment system samples are included in **Appendix A** and are summarized on **Table 5**. Review of the water quality data shows that with the exception of 5.1 ppb of MtBE (below GQES) at the influent to the system on October



Lincoln Applied Geology, Inc. Environmental Consultants Mr. Carl Crawford October 29, 2002 Page 4 of 5

7<sup>th</sup>, no other dissolved phase petroleum constituents have been quantified since July 12, 2002. Breakthrough in the treatment system has not occurred and therefore no new carbon units have been rotated into the system since the inception of this project.

#### Contaminated Soil Stockpile Evaluation

LAG conducted a PID evaluation of the on-site petroleum contaminated soil stockpile on October 18, 2002. The soil pile evaluation consisted of manually installing ten evenly spaced hand auger borings to depths of three to four feet below the surface of the stockpile. While hand augering, soil samples were collected at one foot depth intervals and assayed with a PID. The PID data and a sketch of the contaminated soil stockpile are presented as **Table 6**. Review of the collected data (**Table 6**) indicates that VOC concentrations ranged between BG and 7 ppm. Since VOC concentrations remain greater than 1 ppm, the soil stockpile cannot be thinspread at this time. During the evaluation, it was noted that the contaminated soil stockpile covering has significantly deteriorated. As such, we recommend recovering the pile during an upcoming Site visit. —

#### **Conclusions**

Based on recent data collected, the following conclusions are offered:

- Contaminant vapor monitoring via PID in the monitor well headspaces suggest that the bulk of vadose zone contamination has been removed.
- 2. Ground water in the vicinity of MW-3 continues to contain detectable concentrations of dissolved phase petroleum constituents. However, no dissolved phase petroleum constituents were quantified above GQES on October 18, 2002.
- 3. The foundation drain pump and treatment system has been operated on a continuous basis since April 2002. Bimonthly water quality data clearly show that very little to no dissolved phase constituents at the influent to the granular activated carbon (GAC) treatment system. Furthermore, although low level concentrations of dissolved phase have been occasionally been quantified, petroleum constituents have never been quantified above the GQES at the influent to the system.
- 4. Petroleum sheens have not been reported on Lake Champlain since early October 2001.
- 5. Relatively low PID concentrations continue to be quantified in the contaminated soil stockpile. Since these VOC concentrations remain above 1 ppm, the soil pile can not be thinspread at this time.



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Mr. Carl Crawford October 29, 2002 Page 5 of 5

#### **Recommendations**

Based on the existing Site conditions and the conclusions presented above, the following recommendations are made:

- 1. Remove the GAC treatment system from the outside sump. If the continued operation of the treatment system is required, then an insulated shed will need to be constructed within the next two to three weeks to prevent freezing of the carbon units. In addition, the temporary discharge order is set to expire on December 31, 2002. The most economical approach is to remove, drain, and store the GAC units at the TWT facility in case dissolved phase contaminants are again noted in the outside sump in the future.
- 2. Perform a round of monitoring and ground water sampling (all wells, including the sump) in May of 2003 to verify that no significant migration of the dissolved phase contaminant plume is occurring.
- 3. The petroleum contaminated soils stockpiled (approximately 100 yds<sup>3</sup>) should be screened via PID during the spring 2003 monitoring round. However, the pile should be re-covered using 12 mil thick (6 mil doubled) polyethylene plastic during an upcoming Site visit. If approval is granted to discontinue operation and dismantle the treatment system, the soil pile can be re-covered at this time.
- 4. A brief summary report will be prepared and submitted to the VDEC following our receipt and review of the May 2003 water quality results. If conditions warrant we may be able to recommend to the VDEC SMS that the Site be granted a Site Management Completed Designation (SMAC).

A cost estimate for the recommended work is included as **Appendix B**. If you have any questions or concerns, please do not hesitate to call me or Steven LaRosa, Chief of Operations, at (800) 477-4384. We look forward to your reply and approval of the above recommended work.

> Sincerely, Lincoln Applied Geology, Inc.

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Jason Barnard Staff Geologist

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cc: Charlie Beenis, Chairman Gerald Noyes, VDEC Ed Devino, TTWD F:\CLIENTS\S\TES\Tri-Town Water\WP\SiteStatusUpdateReport1002.wpd



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Data Point	тос	11/02/01	05/29/02	07/22/02	10/18/02
MW-1	111.58	105.38	108.98	105.72	109.77
MW-2	106.78	98.20	102.40	101.00	101.07
MW-3	107.14	98.42	101.35	100.51	101.21
MW-4	107.64	97.23	99.31	98.76	102.09
MW-5	110.32	102.82	103.17	102.82	103.87

#### Ground Water Elevation/Product Level (feet)

Notes: 1 - Elevation datum assumed 2 - Reference elevation is elevation of top of PVC well casing Dark Grey Cell = Dry or Inaccessible Project: Tri-Town Water Treatment Facility Location: Addison, Vermont

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Data Point	10/24/01	11/02/01	05/29/02	07/22/02	10/18/02
MW-1		BG	BG	BG	BG
MW-2		BG	BG	BG	BG
MW-3		BG	BG	BG	BG
MW-4		BG	BG	BG	BG
MW-5		BG	2	BG	1.0
Building 1st Floor	BG	BG	BG	BG	BG
Building Basement	BG	BG	BG	BG	BG
West Floor Drain	BG	BG	BG	BG	BG
East Floor Drain	BG	BG	BG	BG	BG

#### Photoionization Results (PID - ppm)

Notes: BG - Background SL - Saturated Lamp

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Data Point	Compound	*GQES	11/02/01	05/29/02	07/22/02	10/18/02
	Benzene	5	<1	<1		<1
	Toluene	1,000	<1	<1		<1
	Ethylbenzene	700	<1	<1		<1
	Xylenes	10,000	<3	<3		<3
	1,3,5-Trimethylbenzene	4	<2	<2		<2
	1,2,4-Trimethylbenzene	5	<2	<2		<2
	Naphthalene	20	<5	<5		<5
	MTBE	40	<5	· <5		<5
MW-1	BTEX		<6	<6		<6
	BTEX + MTBE		<11	<11		<11
	ТРН		<1	<1		<1
	······································					
	Benzene	5	<1	<1		<1
	Toluene	1,000	<1	<1		<1
	Ethylbenzene	700	<1	<1		<1
	Xylenes	10,000	<3	<3		<3
	1,3,5-Trimethylbenzene	4	<2	<2		<2
	1,2,4-Trimethylbenzene	5	<2	<2		<2
	Naphthalene	20	<5	<5		<5
	MTBE	40	<5	<5		<5
MW-2	BTEX		<6	<6		<6
	BTEX + MTBE		<11	<11		<11
	TPH		<1	<1		<1
	Benzene	5	<1	<1	<1	<1
	Toluene	1,000	<1	1.2	<1	<1
	Ethylbenzene	700	<1	2.2	<1	<1
	Xylenes	10,000	<3	4.1	<3	<3
	1,3,5-Trimethylbenzene	4	<2	24	9,1	<2
	1,2,4-Trimethylbenzene	5	<2	22	4.9	<2
	Naphthalene	20	<5	53	20	11
	MTBE	40	<5	170	130	14
MW-3	BTEX		<6	8.5	<6	<6
	BTEX + MTBE		<11	178.5	136	20
	TPH		<1	<1	<1	<1
	Benzene	5	<1	<1		<1
	Toluene	1,000	<1	<1		<1
	Ethylbenzene	700	<1	<1		<1
•	Xylenes	10,000	<3	<3		<3
	1,3,5-Trimethylbenzene	4	<2	<2	-	<2
	1,2,4-Trimethylbenzene	5	<2	<2		<2
	Naphthalene	20	<5	<5		<5
	MTBE	40	<5	<5		<5
MW-4	BTEX		<6	<6		<6
	BTEX + MTBE		<11	<11		<11
	TPH		<1	<1		<1

#### Ground Water Quality Results (ppb)

#### NOTES:

< - Contaminant not detected at specified detection limit

Light grey cell = constituent exceeds State of Vermont, Ground Water Quality Enforcement Standards (GQES) Dark Grey Cell = Dry or inaccessible

TPH quantified in ppm

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Data Point	Compound	*GQES	11/02/01	05/29/02	07/22/02	10/18/02
	Benzene	5		<1	<1	<1
	Toluene	1,000		<1	<1	<1
	Ethylbenzene	700		<1	<1	<1
	Xylenes	10,000		<3	<3	<3
	1,3,5-Trimethylbenzene	4		<2	<2	<2
	1,2,4-Trimethylbenzene	5		<2	<2	<2
	Naphthalene	20		<5	<5	<5
	MTBE	40		<sup>•</sup> <5	<5	<5
MW-5	BTEX			<6	<6	<6
	BTEX + MTBE			<11	<11	<11
	TPH			<1	<1	<1
	Benzene	5	<1	<1		
	Toluene	1,000	<1	<1		
	Ethylbenzene	700	<1	<1		
	Xylenes	10,000	<3	<3		
	1,3,5-Trimethylbenzene	4	<2	<2		
	1,2,4-Trimethylbenzene	5	<2	<2		
SETTLING	Naphthalene	20	<5	<5		
POND	MTBE	40	<5	<5		
COMPOSITE	BTEX		<6	<6		
	BTEX + MTBE		<11	<11		
	TPH			<1		
	Benzene	5	<1	<1		<1
	Toluene	1,000	<1	<1		<1
	Ethylbenzene	700	<1	<1		<1
1	Xylenes	10,000	<3	<3		<3
	1,3,5-Trimethylbenzene	4	<2	<2		<2
	1,2,4-Trimethylbenzene	5	<2	<2		<2
	Naphthalene	20	<5	<5		<5
	MTBE	40	<5	<5		<5
TRIP BLANK	BTEX		<6	<6		<6
	BTEX + MTBE		<11	<11		<11
	TPH			<1		<1

#### **Ground Water Quality Results (ppb)**

NOTES: < - Contaminant not detected at specified detection limit

Light grey cell = constituent exceeds State of Vermont, Ground Water Quality Enforcement Standards (GQES) Dark Grey Cell = Dry or inaccessible

TPH quantified in ppm.

# Project: Tri-Town Water Treatment Facility Location: Addison, Vermont

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#### **Treatment System Flows**

Event	Date	Cumulative Flow Meter Reading (gals)	Interval # of days	Cumulative # of days	Interval Pumped (gals)	Flow (gpd)	Flo <del>w</del> (gpm)
System Started	04/09/02	138,946	0	0	• 0	0	0
New Meter Installed	04/10/02	143,070.0	0	0	0	0	0
	04/30/02	349,560.0	20	20	206,490.0	10,324.50	7.17
	05/01/02	351,722.0	1	21	2,162.0	2,162.00	1.50
	05/29/02	405,068.0	28	49	53,346.0	1,905.21	1.32
	06/14/02	418,520.0	16	65	13,452.0	840.75	0.58
	06/27/02	432,886.0	13	78	14,366.0	1,105.08	0.77
	07/12/02	442,002.0	15	93	9,116.0	607.73	0.42
	07/22/02	444,863.0	10	103	2,861.0	286.10	0.20
	08/14/02	450,116.0	23	126	5,253.0	228.39	0.16
	09/16/02	451,940.0	33	159	1,824.0	55.27	0.04
	09/26/02	452,947.3	10	169	1,007.3	100.73	0.07
	10/07/02	453,946.0	11	180	998.7	90.79	0.06
	10/18/02	456,714.0	11	191	2,768.0	251.64	0.17

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#### 1272 Ground Water Quality Results (ppb)

Data Point	Compound	*GQES	04/10/02	04/22/02	05/01/02	05/29/02	06/14/02	06/27/02	07/12/02	07/22/02	08/14/02	09/16/02	09/25/02	10/07/02	10/18/02
	Benzene	5	<	1 <1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Toluene	1,000	<	i <1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
	Ethylbenzene	700	<	1 <1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Xvienes	10.000	1.	4 <2	<2	<2	<2	<3	<3	<3	<3	<3	<3	<3	<3
	1.3.5-Trimethylbenzene	4	1	1 <1	<1	<1	<1	<2	<2	<2	<2	<2	<2	<2	<2
	1.2.4-Trimathylbanzene	6	2	4 <1	<1	<1	<1	<2	<2		<2	<2	<2	<2	<2
	Naphthalene	20	2	3 <2	<2		<2	<5	<5		<5	<5	<5	<5	<5
	MTBF	40	ā	7 22	41 7			e5	20	-5	-5		<5	51	<5
System Influent	BTEY		<b>4 4</b>	(  <u>~</u>	a	-5	~= ~~		-2		-6			-6	-6
Cystom Banzon			<b></b> -		3		-0	-0	-0	~0	-0	~0	-0	-0	-0
1	DIEX+MIBE		14.	1 2/	20./	</th <th><!--</th--><th>&lt;11</th><th>35</th><th>&lt;11</th><th>&lt;11</th><th>&lt;11</th><th>&lt;11</th><th>11.1</th><th>&lt;11</th></th>	</th <th>&lt;11</th> <th>35</th> <th>&lt;11</th> <th>&lt;11</th> <th>&lt;11</th> <th>&lt;11</th> <th>11.1</th> <th>&lt;11</th>	<11	35	<11	<11	<11	<11	11.1	<11
	[]PH		0.4	3 0.43		<1	<0.40	<1	<1	<1	<1	<1	<1		<1
						1				[					
	Benzene	6	<	1 <1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Toluene	1,000	<	1 <1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Ethylbenzene	700	<	1 <1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Xvienes	10.000	<	1 <2	<2	<2	<2	<3	<3	<3	<3	<3	<3	<3	<3
	1.3.5-Trimethylbenzene	4	<	1 <1	<1	<1	<1	<2	<2	<2	<2	<2	<2	<2	<2
	1.2.4-Trimethylbenzene	6	<	1 <1	<1	<1	<1	<2	<2		<2	<2	<2	<2	<2
	Naphthalana	20	<	1 32	<2	<	<2	<5	<5	<5	<5	<5	<5	<5	<5
	MTRE	40			0		e2		<5		<5	<5	<5	<5	<5
System Effluent	BTEY		e A	-5 <sup>-2</sup>	-5	-6			-6	-6				<6	<6 ···
	DTEV A ACTOR								-44		-0	-0		-0	-44
1				× ×/	</th <th><!--</th--><th>&lt;7</th><th>&lt;11</th><th>&lt;[1]</th><th>&lt;11</th><th>&lt;11 </th><th>&lt;11</th><th>&lt;11 </th><th><u> </u></th><th>&lt;[1]</th></th>	</th <th>&lt;7</th> <th>&lt;11</th> <th>&lt;[1]</th> <th>&lt;11</th> <th>&lt;11 </th> <th>&lt;11</th> <th>&lt;11 </th> <th><u> </u></th> <th>&lt;[1]</th>	<7	<11	<[1]	<11	<11 	<11	<11 	<u> </u>	<[1]
			<0.	4 <0.4		< 1 < 1	<0.40	<1	<1	<1	< 1	<1	<1		<pre></pre>
	Benzene	5	<	1 <1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Toluene	1,000	<	1 <1	100 A	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Ethylbenzene	700	<	1 <1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Xylenes	10,000	<	1 <2		<2	<2	<3	Ş	<3	<3	<3	<3	<3	<3
	1,3,5-Trimethylbenzene	4	<	1 <1	. :	<1	<1	<2	<2	<2	<2	<2	<2	<2	<2
	1,2,4-Trimethylbenzene	5	<	1 <1	· · ·	<1	<1	<2	<2	<2	<2	<2	<2	<2	<2
	Naphthalene	20	<	1 <2	-	<2	<2	<5	<5	<5	<5	<5	<9	<5	<5
	MTBE	40	<	5 <2	<b>^</b>	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5
Middle Train North	BTEX		<4	<5		<5	<5	<6	<6	<6	<6	<6	<6	<6	<6
	BTEX + MTBE		<	9 <7		<7	<7	<11	<11	<11	<11	<11	<11	<11	<11
	TPH		<0	4 <0.4		<1	<0.40	<1	<1	<1	<1	<1	<1	+	<1
			i			<u> </u>				· · · · · · · · · · · ·	· · · ·			+	
· · · · ·	10													1	
	Benzene		<b>*</b>	1 <1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	51
	Towne	1,000	<	1 <1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Ethylbenzene	700	<hr/>	1 <1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Xylenes	10,000	<hr/>	1 <2	<2	<2	2	<3	<3	<3	<3	<3	<3	<3	<3
	1,3,5-Trimethylbenzene	4		1 <1	<1	<1	<1	<2	<2	<2	<2	<2	<2	<2	<2
	1,2,4-Trimethylbenzene	5	<u> </u>	1 <1	<1	<1	<1	<2	<2	<2	<2	<2	<2	<2	<2
	Naphthalene	20	<	1 <2	<2	<2	<2	<5	<	i  <5	<5	<	<	<5	<5
	MTBE	40		5 <2	<2	<2	<2	<5	<5	<5	<5	<5	<	<5	<5
Middle Train South	h BTEX		<4	<5	<5	<5	<5	<6	<6	<6	<6	<6	<6	<6	<6
	BTEX + MTBE		•	9 <7	/ <7	<7	<7	<11	<11	<11	<11	<11	<11	<11	<11
	ТРН		<0	4 <1.4	il .	<1	<0.40	<pre></pre>	<	<1	<1	<1	<1	1	<1
-	1					1							-	1	

NOTES:

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< - Contaminant not detected at specified detection limit

Light grey cell = constituent acceeds State of Vermont, Ground Water Quality Enforcement Standards (GQES) Dark Grey Cell = Dry or Inaccessible TPH quantified in ppn.

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Table 6 VDEC Site #2001-2878 Sheet 1 of 1

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#### Tri-Town Water Treatment Facility On-site Contaminated Soil Stockpile Photoionization Detecter (PID) Assay Results

	Γ	18-Oct-02								
Site		0-1'	1-2'	2-3'	3-4'					
	1	1	1	3	5`					
	2	2	4	5	7					
	3	2	3	3	$\geq$					
	4	1	3	5	$\searrow$					
	5	1	1	2	5					
	6	BG	1	1	2.5					
	7	BG	2	6	$\geq$					
	8	BG	4	7	$\geq$					
	9	2	5	5	4					
	10	3	4	4	6					



Notes: PID readings quantified in parts per million (ppm) BG = Background PID reading





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er Mol Point eter E eter F BE C ions (	ND nitoring We t Clevation Clew Direction Contaminant parts per bl	ll on fllion)				
	60	9	ю			
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		822 Add	? Tri-1 dison,	Town Re Vermo	oad ont	
	GRC WAT	DUND N ER QU	ATER ALITY F(	CONT SUM R	TOUR MARY	AND MAP
	Dete	OCT	OBER	18, 2	002	( 5
	JAN 2002	CONTAI	WINATION	INVESTIG	477OW	1" = 30'

# **Appendix A**

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# Water Quality Laboratory Reports August 14 - October 18, 2002

27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

## LABORATORY RESULTS

CLIENT NAME:	Lincoln Applied Geology	REFERENCE NO .:	111071
ADDRESS:	163 Revell Drive	PROJECT NO .:	NA
	Lincoln, VT 05443	DATE OF SAMPLE:	8/14/02
SAMPLE LOCATION:	Tri Town	DATE OF RECEIPT:	8/14/02
SAMPLER:	Joseph Hagan	DATE OF ANALYSIS:	8/14/02
ATTENTION:	Jason Barnard	DATE OF REPORT:	8/15/02

Pertaining to the analyses of specimens submitted under the accompanying chain of custody form, please note the following:

- Water samples submitted for VOC analysis were preserved with HCI.
- Specimens were processed and examined according to the procedures outlined in the specified method.
- Holding times were honored.
- Instruments were appropriately tuned and calibrations were checked with the frequencies required in the specified method.
- Blank contamination was not observed at levels interfering with the analytical results.
- Continuing Calibration standards were monitored at intervals indicated in the specified method. The resulting precision and accuracy were determined to be within method QA/QC acceptance limits.
- The efficiency of analyte recovery for individual samples was monitored by the addition of surrogate analyte to all samples, standards, and blanks. Surrogate recoveries were found to be within laboratory QA/QC acceptance limits, unless noted otherwise.

Reviewed by:

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Raul Sanchez Chemical Services

27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

## LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	111071
SAMPLE ID:	SYSTEM EFFLUENT
ANALYSIS DATE:	08/14/2002
SAMPLE DATE:	08/14/2002
SAMPLE TYPE:	WATER

PARAMETER	PQL (ug/L)	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
MTBE	. 5	, ND .

Surrogate % Recovery:

99 %

ND = Not Detected BPQL = Below Practical Quantitation Limit





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27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

## LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	111071
SAMPLE ID:	MID TRAIN NORTH
ANALYSIS DATE:	08/14/2002
SAMPLE DATE:	08/14/2002
SAMPLE TYPE:	WATER

PARAMETER	PQL (ug/L)	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
мтве	5	ND

Surrogate % Recovery:

99.2 %

ND = Not Detected BPQL = Below Practical Quantitation Limit

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27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

#### LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	111071
SAMPLE ID:	MID TRAIN SOUTH
ANALYSIS DATE:	08/14/2002
SAMPLE DATE:	08/14/2002
SAMPLE TYPE:	WATER





27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

## LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	111071
SAMPLE ID:	SYSTEM INFLUENT
ANALYSIS DATE:	08/14/2002
SAMPLE DATE:	08/14/2002
SAMPLE TYPE:	WATER

PARAMETER	<u>PQL (ug/L)</u>	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
МТВЕ	5 .	ND .
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Surrogate % Recovery:

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98.5 %

ND = Not Detected

BPQL = Below Practical Quantitation Limit



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		www.gre	enmtlab	s.com				2					
S	Client Name Line	dn Ap	plied C	beology.		·		A		Ì			
A	Address 163	Rever 1	K. Linc	oln, 14.	05443			5					GML #
M	Phone / Fax 180	2) 45:	<u>3 - 4384</u>	· · ·			-	I Q					
P	Project Name	Tri-	Tourn					$ \infty $					
L	Project Number						12	I			E		111071
E	Project Manager	Jason	Basnar	6			18	R			ie :		
	Sampler J	oseph i	Hagan		, <b>.</b>								
#	Sample Location	Date	Time	# of Cont.	Pres.	Sample Type					. w vite Finale/V	i	Remarks
T	System Effluent	8-14-02	0945	3 40ml	·HCL	H2D							
2	Mid Train North	1	0950		1	1							·
3	Mid Train South		0955			-							
-4	System Influent	V	1000		V	$\vee$	$ \Psi $	V					- 5
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Tem	cerature Blank:		Vial Lot	ID #:									

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## Green Mountain Laboratories, Inc.

27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004 www.greenmtlabs.com

#### LABORATORY RESULTS

CLIENT NAME:	Lincoln Applied Geology	GML REFERENCE #:	111071
CLIENT ADDRESS:	163 Revell Drive	PROJECT NO.:	NA
	Lincoln, VT 05443	DATE OF SAMPLE:	08/14/2002
PROJECT NAME:	Tri-Town	DATE OF RECEIPT:	08/14/2002
SAMPLER:	Joseph Hagan	DATE OF ANALYSIS:	08/19/2002
ATTENTION:	Jason Barnard	DATE OF REPORT:	08/22/2002

#### Total Petroleum Hydrocarbons (TPH) by EPA Method 8100M (mg/L - ppm)

Sample	PQL	TPH Results
System Effluent	1.0	<1.0
Mid Train North	1.0	<1.0
Mid Train South	1.0	<1.0
System Influent	1.0	<1.0

PQL= Practical Quantitation Limit BPQL = Below Practical Quantitation Limit

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Reviewed by:

Raul Sanchez Chemical Services

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	Phone (802) 249-6278						İ		· · ·			ł	[		ŀ
	V Client Nome	Www.greenmtlabs.com						HC							
3	Addross (3)	an Ap	plied C	lo 34	06442		-				•			GML #	
M	Phone / Fax	NEVEN D	4384		05175			15							
P	Project Name	<u>171-73</u>	<u>, oci 1207</u>					$\widetilde{\otimes}$							
Ĺ	Project Number						17	T						111071	
E	Project Manager	Jason	Basnar	2				P						///	
	Sampler Jo	oseph t	lacan				]~~					194			
#.	Sample Location	Date	Time	#of	Pres.	Sample	1				· ·			Remarks	
		Duto		Cont.		Туре									
	System Effluent	8-14-02	0945	- V00-5	HCL	H2 D	_ _								`. 
2	Mid Train North		0950												
3	Mid Train South		0955							· ·					-
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27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

#### LABORATORY RESULTS

CLIENT NAME:	Lincoln Applied Geology	REFERENCE NO .:	111097
ADDRESS:	163 Revell Drive	PROJECT NO.:	
	Lincoln, VT 05443	DATE OF SAMPLE:	9/16/02
SAMPLE LOCATION:	Tri-Town	DATE OF RECEIPT:	9/17/02
SAMPLER:	Jeremy Revell	DATE OF ANALYSIS:	9/18/02
ATTENTION:	Jason Barnard	Holding times were hond	r <b>e</b> #23/02

Pertaining to the analyses of specimens submitted under the accompanying chain of custody form, please note the following:

- Water samples submitted for VOC analysis were preserved with HCI.
- Specimens were processed and examined according to the procedures outlined in the specified method.
- Holding times were honored.
- Instruments were appropriately tuned and calibrations were checked with the frequencies required in the specified method.
- Blank contamination was not observed at levels interfering with the analytical results.
- Continuing Calibration standards were monitored at intervals indicated in the specified method. The resulting precision and accuracy were determined to be within method QA/QC acceptance limits.
- The efficiency of analyte recovery for individual samples was monitored by the addition of surrogate analyte to all samples, standards, and blanks. Surrogate recoveries were found to be within laboratory QA/QC acceptance limits, unless noted otherwise.

Reviewed by:

Raul Sanchez Chemical Services



27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

## LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	111097
SAMPLE ID:	EFFLUENT
ANALYSIS DATE:	09/18/2002
SAMPLE DATE:	09/16/2002
SAMPLE TYPE:	WATER

PARAMETER	PQL (ug/L)	<u>RESULT (ug/L)</u>
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
МТВЕ	5	. ND
1		1

Surrogate % Recovery:

107 %

ND = Not Detected BPQL = Below Practical Quantitation Limit



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#### LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	111097
SAMPLE ID:	MID TRAIN NORTH
ANALYSIS DATE:	09/18/2002
SAMPLE DATE:	09/16/2002
SAMPLE TYPE:	WATER

PARAMETER	PQL (ug/L)	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
МТВЕ	. 5	. ND

Surrogate % Recovery:

105 %

ND = Not Detected BPQL = Below Practical Quantitation Limit



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27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

#### LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	111097
Sample ID:	INFLUENT
ANALYSIS DATE:	09/18/2002
SAMPLE DATE:	09/16/2002
SAMPLE TYPE:	WATER

PARAMETER	PQL (ug/L)	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
МТВЕ	5	ND
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Surrogate % Recovery:

106 %

ND = Not Detected BPQL = Below Practical Quantitation Limit

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#### LABORATORY RESULTS

CLIENT NAME:	Lincoln Applied Geology	GML REFERENCE #:	111097
CLIENT ADDRESS:	163 Revell Drive	PROJECT NO.:	NA
	Lincoln, VT 05443	DATE OF SAMPLE:	09/16/2002
PROJECT NAME:	Tri-Town	DATE OF RECEIPT:	09/16/2002
SAMPLER:	Jeremy Revell	DATE OF ANALYSIS:	09/21/2002
ATTENTION:	Jason Barnard	DATE OF REPORT:	09/23/2002

#### Total Petroleum Hydrocarbons (TPH) by EPA Method 8100M (mg/L - ppm)

Sample	PQL	TPH Results			
Effluent	1.0	<1.0			
Mid Train North	1.0	<1.0			
Mid Train South	1.0	<1.0			
Influent	1.0	<1.0			

PQL= Practical Quantitation Limit BPQL = Below Practical Quantitation Limit

Reviewed by:

Raul Sanchez Chemical Services



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S	Client Name Lincoln Applied	Geology	•									.	• •
A	Address 163 Revell Dr. Lin	coln Yt	05443			J V							GML #
M	Phone / Fax (802) 453-4384/(	802) 453	-5399		· · · · · · · · · · · · · · · · · · ·	0							
P	Project Name Tri - Town		•			+							•
Γ.	Project Number				-								11/097
E	Project Manager Jason B	onon	ل	•	·	5							
1	Sampler Jeremy Revell			·	- <u></u>								
,#	Sample Location Date	Time	# of Cont.	Pres.	Sample Type	N							Remarks
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27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

## LABORATORY RESULTS

CLIENT NAME:	Lincoln Applied Geology	REFERENCE NO.:	111112
ADDRESS:	163 Revell Drive	PROJECT NO .:	
	Lincoln, VT 05443	DATE OF SAMPLE:	9/26/02
SAMPLE LOCATION:	Tri-Town	DATE OF RECEIPT:	9/30/02
SAMPLER:	Jeremy Revell	DATE OF ANALYSIS:	10/03-10/04/02
ATTENTION:	Jason Barnard	DATE OF REPORT:	10/8/02

Pertaining to the analyses of specimens submitted under the accompanying chain of custody form, please note the following:

- · Water samples submitted for VOC analysis were preserved with HCI.
- Specimens were processed and examined according to the procedures outlined in the specified method.
- Holding times were honored.
- Instruments were appropriately tuned and calibrations were checked with the frequencies required in the specified method.
- Blank contamination was not observed at levels interfering with the analytical results.
- Continuing Calibration standards were monitored at intervals indicated in the specified method. The resulting precision and accuracy were determined to be within method QA/QC acceptance limits.
- The efficiency of analyte recovery for individual samples was monitored by the addition of surrogate analyte to all samples, standards, and blanks. Surrogate recoveries were found to be within laboratory QA/QC acceptance limits, unless noted otherwise.

Reviewed by:

Raul Sanchez Chemical Services

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27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

## LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	111112
SAMPLE ID:	EFFLUENT
ANALYSIS DATE:	10/04/2002
SAMPLE DATE:	09/26/2002
SAMPLE TYPE:	WATER

PARAMETER	<u>PQL (ug/L)</u>	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
МТВЕ	5	ND.

Surrogate % Recovery:

**1**10 %

ND = Not Detected BPQL = Below Practical Quantitation Limit



27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

### LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	111112
SAMPLE ID:	MID TRAIN NORTH
ANALYSIS DATE:	10/03/2002
SAMPLE DATE:	09/26/2002
SAMPLE TYPE:	WATER

PARAMETER	<u>PQL (ug/L)</u>	<u>RESULT (ug/L)</u>
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
МТВЕ .	5 .	ND .
1		

Surrogate % Recovery:

109 %

ND = Not Detected BPQL = Below Practical Quantitation Limit

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27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

## LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	111112
SAMPLE ID:	MID TRAIN SOUTH
ANALYSIS DATE:	10/03/2002
SAMPLE DATE:	09/26/2002
SAMPLE TYPE:	WATER

PARAMETER	<u>PQL (ug/L)</u>	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
МТВЕ	. 5	. ND
1		l

Surrogate % Recovery:

110 %

ND = Not Detected BPQL = Below Practical Quantitation Limit



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27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

## LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	111112
SAMPLE ID:	INFLUENT
ANALYSIS DATE:	10/03/2002
SAMPLE DATE:	09/26/2002
SAMPLE TYPE:	WATER

PARAMETER	PQL (ug/L)	<u>RESULT (ug/L)</u>
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
мтве	.5	. ND

Surrogate % Recovery:

110 %



ND = Not Detected BPQL = Below Practical Quantitation Limit

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## Green Mountain Laboratories, Inc.

27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004 www.greenmtlabs.com

#### LABORATORY RESULTS

CLIENT NAME:	Lincoln Applied Geology	GML REFERENCE #:	111112
	163 Revell Drive	PROJECT NO.:	NA
	Lincoln, VT 05443	DATE OF SAMPLE:	09/26/2002
PROJECT NAME:	Tri-Town	DATE OF RECEIPT:	09/30/2002
SAMPLER:	Jeremy Revell	DATE OF ANALYSIS:	10/08/2002
ATTENTION:	Jason Barnard	DATE OF REPORT:	10/09/2002

#### Total Petroleum Hydrocarbons (TPH) by EPA Method 8100M (mg/L - ppm)

Sample	PQL	TPH Results
Effluent	1.0	<1.0
Mid Train North	1.0	<1.0
Mid Train South	1.0	<1.0
Influent	1.0	<1.0

PQL= Practical Quantitation Limit BPQL = Below Practical Quantitation Limit

Reviewed by:

Raul Sanchez Chemical Services



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A	Address 163 Revell Dr. Lin	Geology	05442			- 5				à			GMI #
M	Phone / Fax (802) 453-4384/(	802) 453	-5399			-+-				S		• •	GML #
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L	Project Number			·		12			2.2				11/12
E	Project Manager Juson Born	morel			<u> </u>								
	Sampler Jeremy Revell					-8					•		
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<u> </u>	Mightrain South					┥╄╌┼							· · ·
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27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

## LABORATORY RESULTS

CLIENT NAME: ADDRESS:	Lincoln Applied Geology 163 Revell Drive	REFERENCE NO.: PROJECT NO.:	102A
	Lincoln, VT 05443	DATE OF SAMPLE:	10/7/02
SAMPLE LOCATION:	Tri-Town	DATE OF RECEIPT:	10/11/02
SAMPLER:	Jeremy Revell	DATE OF ANALYSIS:	10/11/02
ATTENTION:	Jason Barnard	DATE OF REPORT:	10/14/02

Pertaining to the analyses of specimens submitted under the accompanying chain of custody form, please note the following:

- Water samples submitted for VOC analysis were preserved with HCI.
- Specimens were processed and examined according to the procedures outlined in the specified method.
- Holding times were honored.
- Instruments were appropriately tuned and calibrations were checked with the frequencies required in the specified method.
- Blank contamination was not observed at levels interfering with the analytical results.
- Continuing Calibration standards were monitored at intervals indicated in the specified method. The resulting precision and accuracy were determined to be within method QA/QC acceptance limits.
- The efficiency of analyte recovery for individual samples was monitored by the addition of surrogate analyte to all samples, standards, and blanks. Surrogate recoveries were found to be within laboratory QA/QC acceptance limits, unless noted otherwise.

Reviewed by:

Raul Sanchez



27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

## LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	102A
SAMPLE ID:	EFFLUENT
ANALYSIS DATE:	10/11/2002
SAMPLE DATE:	10/07/2002
SAMPLE TYPE:	WATER

PARAMETER	PQL (ug/L)	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
МТВЕ	5.	. ND
		1

Surrogate % Recovery:

91.4 %

ND = Not Detected BPQL = Below Practical Quantitation Limit



27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

## LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	102A
SAMPLE ID:	MID TRAIN NORTH
ANALYSIS DATE:	10/11/2002
SAMPLE DATE:	10/07/2002
SAMPLE TYPE:	WATER

PARAMETER	PQL (ug/L)	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
МТВЕ .	5 .	ND .

Surrogate % Recovery:

92.5 %

ND = Not Detected BPQL = Below Practical Quantitation Limit

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27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

#### LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	102A
SAMPLE ID:	MID TRAIN SOUTH
ANALYSIS DATE:	10/11/2002
SAMPLE DATE:	10/07/2002
SAMPLE TYPE:	WATER

RESULT (ug/L)	<u>PQL (ug/L)</u>	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
мтве	. 5 .	ND .

Surrogate % Recovery:

93.5 %

ND = Not Detected



27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

## LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	102A
SAMPLE ID:	INFLUENT
ANALYSIS DATE:	10/11/2002
SAMPLE DATE:	10/07/2002
SAMPLE TYPE:	WATER

PARAMETER	PQL (ug/L)	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
МТВЕ	. 5	. 5.1
		l i

Surrogate % Recovery:

92.5 %



ND = Not Detected BPQL = Below Practical Quantitation Limit

## Green Mountain Laboratories, Inc.

27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004 www.greenmtlabs.com

#### LABORATORY RESULTS

CLIENT NAME:	Lincoln Applied Geology	GML REFERENCE #:	102A
CLIENT ADDRESS:	163 Revell Drive	PROJECT NO .:	NA
	Lincoln, VT 05443	DATE OF SAMPLE:	10/07/2002
PROJECT NAME:	Tri-Town	DATE OF RECEIPT:	10/11/2002
SAMPLER:	Jeremy Revell	DATE OF ANALYSIS:	10/11/2002
ATTENTION:	Jason Barnard	DATE OF REPORT:	10/14/2002

#### Total Petroleum Hydrocarbons (TPH) by EPA Method 8100M (mg/L - ppm)

Sample	PQL	TPH Results
Effluent	1.0	<1.0
Mid Train North	1.0	<1.0
Mid Train South	1.0	<1.0
Influent	1.0	<1.0

PQL= Practical Quantitation Limit BPQL = Below Practical Quantitation Limit

Reviewed by:

Raul Sanchez

Chemical Services

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G     27, Cross Road       Middlesex, Vermont 05602       Phone (802) 223-1488       E-mall: GML@together.net       S       Cillent Name       Lincoln Applied Geology       Address     163 Revall Dr. Lincoln Ve 05443       M       Phone / Fax       (602) 453-4384/(802) 453-5399       P'       Project Name       Project Namager       Sample       V       Sample Location       Date       Time       #       Sample Location       Date       Time       #       Sample Location       Date       Time       #       GH/drain       #       Sample Location       Date       Time       #       Middrain       Social       Cliption       Maiddrain       Social       Middrain       Social       Middrain       Middrain       Middrain       Barlow       Middrain       Social       Middrain       Middrain       Middrain       Middrain       Middrain       Middrain <th>ŀ</th> <th>Green M</th> <th>ountair</th> <th>1 Labo</th> <th>ratorie</th> <th>s, Inc.</th> <th></th> <th></th> <th>Ar</th> <th>nalys</th> <th>sls F</th> <th>lequ</th> <th>estə</th> <th>d</th> <th></th> <th></th>	ŀ	Green M	ountair	1 Labo	ratorie	s, Inc.			Ar	nalys	sls F	lequ	estə	d		
S       Ciliant Name       Lincoln Applied Geology         A       Address       163 Revel3 Dr. Lincoln Vt. 05443         P       Project Name       Tri-76un         L       Project Name       Tri-76un         L       Project Manager       Sample         Sampler       Jercey Revel1       #         #       Sample       Cont.         Sample       Cont.       Pres.         Sample       Cont.       Pres.         *       Sample       Cont.         *       Sample       Cont.         *       Sample       Cont.         *       Mid from Soch.       *         *       Mid from Soch.       *         *       Mid from Soch.       *         *       *       *         *       *       *         *       *       *         *       *       *         *       *       *         *       *       *         *       *       *         *       *       *         *       *       *         *       *       *         *       * <td>G M L</td> <td>Mi Phone (802 E-</td> <td>27 Cr iddlesex, 223-146 mall: GM</td> <td>oss Roa Vermon 8 Fa L@toget</td> <td>d t 05602 x (802) : :her.net</td> <td>223-8688</td> <td></td> <td>608</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Page /</td>	G M L	Mi Phone (802 E-	27 Cr iddlesex, 223-146 mall: GM	oss Roa Vermon 8 Fa L@toget	d t 05602 x (802) : :her.net	223-8688		608								Page /
Address       163 Reveil Dr. Lincoln VE 05443       CML#         M       Phono / Fax       (802) 453-4384/(802) 453-5399       To         Project Name       Init - Town       Init - Town       Init - Town         L       Project Name       Init - Town       Init - Town         L       Project Name Init - Town       Init - Town       Init - Town         L       Project Name Init - Town       Init - Town       Init - Town         #       Sampler       Jersey Revell       Remarks         #       Sample Jersey Revell       Init - Town       Init - Town         *       GML # of the fax of	S	Client Name Lincoln	Applied	Geology				5								
M Phone / Fax (302) 453-4384/(802) 453-5399 P Project Name Tri-Town Froject Number E Project Manager Son Sonrot Sampler Jereny Revel1  # Sample Location Date Time # of Pres. Sample Cont. Pres. Type 7 EPflicent h / 702 / 010 2 Hcl Ha0 / 1  * Mid Frain North * * * * * * * * * * * * * * * * * * *	A	Address 163 Revel:	Dr. Lin	coln Vt	05443			1-1-1						1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -		GML #
Project Name       Project Name       Project Number         E       Project Manager       Som       Somorch         Sampler       Jereny Revell       Remarks         #       Sample Location       Date       Time       # of         *       Sample Location       Date       Time       # of       Remarks         *       Child train North       Image: Somore       Image: Somore       Image: Somore       Image: Somore         *       Mid train North       Image: Somore       Image: Somore       Image: Somore       Image: Somore         *       Mid train North       Image: Somore       Image: Somore       Image: Somore       Image: Somore         *       Mid train North       Image: Somore       Image: Somore       Image: Somore       Image: Somore         *       Image: Somore       Image: Somore       Image: Somore       Image: Somore       Image: Somore         *       Image: Somore       Image: Somore       Image: Somore       Image: Somore       Image: Somore         *       Image: Somore       Image: Somore       Image: Somore       Image: Somore       Image: Somore         *       Image: Somore       Image: Somore       Image: Somore       Image: Somore       Image: Somore	M	Phone/Fax (802) 4	53-4384/(	802) 453	-5399		<u></u>	5								
L Project Nanager Deon Sorrand Sampler Jereny Revell # Sample Location Date Time # of Cont. Pres. Sample 7 Effluent 6/702 /010 D Hcl Ho C / Remarks 7 Mod frain North 6 Mid frain Sorth 4 Time / / / / / / / / / / / / / / / / / / /	Р	Project Name Ini-	own		·									. /		
E       Project Manager Jeson Som Col         Sampler Jeremy Revell       Remarks         #       Sample Location       Date       Time       # of       Pres.       Sample         7       E/Flivent       Ison North       Ison	<u>.</u> ۲.	Project Number													· .	112A
Sampler       Jereny Revel1         #       Sample Location       Date       Time       # of Cont.       Pres.       Sample Type       Remarks         /       ////////////////////////////////////	E	Project Manager - Joso	n Isan	nonch		•		-18							-	0.5
#       Sample Location       Date       Time       # of Cont.       Pres.       Sample Type       Remarks         /       Effluent       /s/702       /s10       Itcl       Had       /       /         /       Mick frain North       /s       /s       /s       /s       /s       /s         /       Mick frain North       /s       /s       /s       /s       /s       /s         /       Mick frain North       /s       /s       /s       /s       /s       /s         /       Mick frain North       /s       /s       /s       /s       /s       /s         /       Mick frain North       /s       /s       /s       /s       /s       /s         /       /s       /s       /s       /s       /s       /s       /s       /s         /       /s         /       /s       /		Sampler Jeremy Reve	-11 .	r <del> </del>	·	······································										
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27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

#### LABORATORY RESULTS

CLIENT NAME:	Lincoln Applied Geology	REFERENCE NO.:	115A
ADDRESS:	163 Revell Drive	PROJECT NO.:	
	Lincoln, VT 05443	DATE OF SAMPLE:	10/18/02
SAMPLE LOCATION:	Tri - Town	DATE OF RECEIPT:	10/18/02
SAMPLER:	Joseph Hagan	DATE OF ANALYSIS:	10/20-10/21/02
ATTENTION:	Jason Barnard	DATE OF REPORT:	10/23/02

Pertaining to the analyses of specimens submitted under the accompanying chain of custody form, please note the following:

- Water samples submitted for VOC analysis were preserved with HCI. The trip blank was prepared by the client with reagent water supplied by the laboratory.
- Specimens were processed and examined according to the procedures outlined in the specified method.
- Holding times were honored.
- Instruments were appropriately tuned and calibrations were checked with the frequencies required in the specified method.
- Blank contamination was not observed at levels interfering with the analytical results.
- Continuing Calibration standards were monitored at intervals indicated in the specified method. The resulting precision and accuracy were determined to be within method QA/QC acceptance limits.
- The efficiency of analyte recovery for individual samples was monitored by the addition of surrogate analyte to all samples, standards, and blanks. Surrogate recoveries were found to be within laboratory QA/QC acceptance limits, unless noted otherwise.

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Reviewed by:

Raul Sanchez

Chemical Services

27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

## LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	115A
SAMPLE ID:	TRIP BLANK
ANALYSIS DATE:	10/21/2002
SAMPLE DATE:	10/18/2002
SAMPLE TYPE:	WATER

PARAMETER	<u> PQL (ug/L)</u>	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
МТВЕ	. 5	. NÐ
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Surrogate % Recovery:

96.8 %

ND = Not Detected

27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

## LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	115A
SAMPLE ID:	SYSTEM EFFLUENT
ANALYSIS DATE:	10/20/2002
SAMPLE DATE:	10/18/2002
SAMPLE TYPE:	WATER

PARAMETER	PQL (ug/L)	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
МТВЕ	5	ND
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96.9 %

ND = Not Detected BPQL = Below Practical Quantitation Limit

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27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

## LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	115A
SAMPLE ID:	MID TRAIN SOUTH
ANALYSIS DATE:	10/20/2002
SAMPLE DATE:	10/18/2002
SAMPLE TYPE:	WATER

PARAMETER	<u>PQL (ug/L)</u>	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
мтве	5 .	ND .
1	L	

96.2 %

ND = Not Detected

BPQL = Below Practical Quantitation Limit

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27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

## LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	115A
SAMPLE ID:	MID TRAIN NORTH
ANALYSIS DATE:	10/20/2002
SAMPLE DATE:	10/18/2002
SAMPLE TYPE:	WATER

PARAMETER	<u>PQL (ug/L)</u>	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
МТВЕ	5	. ND
	l .	

Surrogate % Recovery:

95.7 %

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ND = Not Detected

27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

#### LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	115A
SAMPLE ID:	SYSTEM INFLUENT
ANALYSIS DATE:	10/20/2002
SAMPLE DATE:	10/18/2002
SAMPLE TYPE:	WATER

PARAMETER	<u>PQL (ug/L)</u>	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
МТВЕ	5	ND
	l	l

Surrogate % Recovery:

97.7 %

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ND = Not Detected

27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

### LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	115A
SAMPLE ID:	MW-1
ANALYSIS DATE:	10/20/2002
SAMPLE DATE:	10/18/2002
SAMPLE TYPE:	WATER

PARAMETER	<u>PQL (ug/L)</u>	<u>RESULT (ug/L)</u>
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
МТВЕ	5 ,	ND
		1

Surrogate % Recovery:

96.6 %

Ser 1

ND = Not Detected

27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

### LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	115A
SAMPLE ID:	MW-2
ANALYSIS DATE:	10/20/2002
SAMPLE DATE:	10/18/2002
SAMPLE TYPE:	WATER

PARAMETER	<u>PQL (ug/L)</u>	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthaiene	5	ND
мтве	5 .	ND .
		l

Surrogate % Recovery:

95.7 %

ND = Not Detected BPQL = Below Practical Quantitation Limit

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27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

## LABORATORY RESULTS

#### GC/MS METHOD - 8260M

115A
MW-3
10/20/2002
10/18/2002
WATER

PARAMETER	PQL (ug/L)	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	11
МТВЕ	5	. 14
	l	I

Surrogate % Recovery:

97.5 %

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ND = Not Detected

27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

#### LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	115A
SAMPLE ID:	MW-4
ANALYSIS DATE:	10/21/2002
SAMPLE DATE:	10/18/2002
SAMPLE TYPE:	WATER

PARAMETER	PQL (ug/L)	RESULT (ug/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
МТВЕ	, 5	. ND
	I	1

Surrogate % Recovery:

96.2 %

ND = Not Detected BPQL = Below Practical Quantitation Limit

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27 Cross Road Middlesex, Vermont 05602 Phone (802) 262-2004

#### LABORATORY RESULTS

#### GC/MS METHOD - 8260M

GML REF. # :	115A
SAMPLE ID:	MW-5
ANALYSIS DATE:	10/21/2002
SAMPLE DATE:	10/18/2002
SAMPLE TYPE:	WATER

PARAMETER	<u> PQL (ug/L)</u>	<u>RESULT (ug/L)</u>
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
1,3,5-Trimethylbenzene	2	ND
1,2,4-Trimethylbenzene	2	ND
Xylenes	3	ND
Naphthalene	5	ND
МТВЕ	5	ND.
		l

Surrogate % Recovery:

95.7 %

ND = Not Detected

ŀ	- Green Mountain	Laboratorie	s, Inc.			AI	halys	ls Red	quest	ed		
G	27. Cro	oss Road								.		Page
M	Middlesex, V	Vermont 05602				Í						1.1
L	Phone (802) 223-1468	Fax (802) 2	223-8688				j					- <u>+</u> 01 <del>-!</del> -
	E-mall: GML	.@together.net				0						
S	Client Name Lincoln Applied G	Geology				È				-	ŀ .	
A	Address 163 Revell Dr. Linc	oin Vt 05443		· · · · · · · · · · · · · · · · · · ·	1	0						GML #
M.	Phone/Fax (802) 453-4384/(8	302) 453-5399				$\mathcal{V}$			5	į.		115 A.
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## Green Mountain Laboratories, Inc.

27 Cross Road Middlesex, Vermont 05802 Phone (802) 262-2004 www.greenmtlabs.com

#### LABORATORY RESULTS

CLIENT NAME: CLIENT ADDRESS:	Lincoln Applied Geology 163 Revell Drive	GML REFERENCE #: PROJECT NO.:	115A NA
	Lincoln, VT 05443	DATE OF SAMPLE:	10/18/2002
PROJECT NAME:	Tri -Town	DATE OF RECEIPT:	10/18/2002
SAMPLER:	Joseph Hagan	DATE OF ANALYSIS;	10/21/2002
ATTENTION:	Jason Barnard	DATE OF REPORT:	10/22/2002

Total Petroleum Hydrocarbons (TPH) by EPA Method 8100M (mg/L - ppm)

Sample	PQL	TPH Results
Trip Blank	1.0	<1.0
System Effluent	1.0	<1.0
Mid Train South	1.0	<1.0
Mid Train North	1.0	<1.0
System Influent	1.0	<1.0
MW-1	1.0	<1.0
MW-2	1.0	<1.0
MW-3	1.0	<1.0
MW-4	1.0	<1.0
MW-5	1.0	<1.0

PQL= Practical Quantitation Limit BPQL = Below Practical Quantitation Limit

Reviewed by:

Raul Sanchez

Chemical Services

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# **Appendix B**

# **Cost Estimate**

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#### Tri-Town Water Treatment Facility 822 Tri-Town Road, Addison, Vermont October 29, 2002

<u>Task A.</u>	Treatment System Dismantling and On-site Contaminated Sol	l Stockpi	ie Recovering				
	Project Manager -	0.5	hr(s)@	\$55.00	per hour	\$	27.50
	Senior Field Technician -	7	hr(s) @	\$45.00	per hour	\$	315. <b>0</b> 0
	Plastic -	1	roli(s)	\$132.50	each	\$	132.50
	Mileage -	150	mile(s) @	\$0.35	per mile	\$	52.50
					Subtotal Task A	\$	500.00
<u>Task B.</u>	Site Monitoring and Ground Water Sampling (Spring 2003)			•			
	Project Manager -	0.5	hr(s)@	\$55.00	perhour	\$	27.50
	Senior Field Technician -	8	hr(s)@	\$45.00	per hour	Ŝ	360.00
	PID and Interface Probe -	1	dav(s) @	\$75.00	perday	\$	75.00
	Disposable Bailer (0.75")	5	bailer(s)@	\$8.89	each	Ŝ	44.45
	VOCs via EPA 8021B - (5-wells, 1-sump well & 1-trip blank)	7	sample(s) @	\$60.00	each	\$	420.00
	Mileage - (includes trip to lab)	150	mile(s) @	\$0.35	per mile	\$	52.50
	Sampling Equipment -	1	day(s) @	\$110.00	per day	\$	110.00
					Subtotal Task B	\$	1,089.45
Task C.	Annual Contaminated Soil Stockpile PID Evaluation (to be don	e with Ta	<u>isk B)</u>				
	Senior Field Technician -	1	hr(s) @	\$45.00	per hour	\$	45.00
					Subtotal Task C	\$	45.00
<u>Task D.</u>	Preparation of Summary Report						
	Senior Project Manager -	0.5	hr(s) @	\$75.00	per hour	\$	37.50
	Geologist/Site Manager -	4	hr(s) @	\$55.00	per hour	\$	220.00
	Computer/CAD Technician -	1	hr(s) @	\$55.00	per hour	\$	55.00
	Administrative Assistant -	1	hr(s) @	\$35.00	per hour	\$	35.00
				An	nual Subtotal Task D	\$	347.50
				Ап	nual Grand Total >>>[	\$	1,981.95

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#### Note: Subcontractor costs include 10% markup.

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