WEM Waite
Environmental Management, LLC.

DEC 2 9 AM '04

December 1, 2004

Mr. Gerold Noyes
VT DEC / Waste Management Division
103 South Main St.
West Building
Waterbury, Vermont 05671-0404

Re: Soil Screening, Airspace Screening and Water Supply Sampling
King Residence (SMS Site #2003-3154)
1372 Old Stage Road, Williston, Vermont

Dear Gerold:

This report presents the details and results the screening of a soil stockpile, indoor airspace screening, and sampling of a water supply well at the King Residence in Williston, Vermont. This work was conducted by Waite Environmental Management, LLC (WEM) for Mr. Tim King, the owner of the property. Work was conducted in accordance with WEM's work plan dated September 9, 2004. This work plan was approved by the Vermont Department of Environmental Conservation (VT DEC) in your letter to Tim King dated September 14, 2004.

SOIL STOCKPILE SCREENING

As a result of the closure of a 1,000-gallon #2 fuel oil UST On September 12, 2003 at the subject property, approximately 5.0 cubic yards of contaminated soil were polyencapsulated in an onsite stockpile. The soil stockpile has been stored for the past 14 months underneath a double-layer of 4-mil plastic sheeting on a grassy area approximately 60 feet northeast of the King residence (see attached Site Plan). In September 2003, the stockpiled soil had an average VOC concentration of 62 ppm based on screening with a photo-ionization detector (PID). Based on analytical results of a composite soil sample from the stockpile from September 2003, the Total Petroleum Hydrocarbons (diesel range) concentration was reported at 248 milligrams per kilogram (mg/Kg), indicating an overall low-moderate level of petroleum contamination. The soil is primarily clay.

On September 17, 2004, screening with a PID was conducted by WEM. The plastic was removed from the soil stockpile, and a total of nine shallow borings were installed using a shovel and post-hole digger. Boring locations are shown on the attached Soil Pile Schematic. Each soil sample was placed in a Zip-Loc bag, allowed to equilibrate for 5 minutes, and then the headspace air was analyzed for volatile organic compounds (VOCs) by a photo-ionization detector (PID)[1]. Samples were also inspected for visual and olfactory evidence of contamination. Observation and sampling results, in parts per million (ppm), are described in the Table 1 on the following page.

[1] HNU P-101, 10.2 eV bulb, calibrated on the morning of September 17, 2004 to an isobutylene standard.

TEL: 802-860-9400 FAX: 802-860-9440 • mwaite@waiteenv.com • PO Box 4602, Burlington, VT 05406

Table 1: Soil Screening Results

Sample	Depth (in)	Reading (ppm)	Comments
SS-1	11	0.1	No odor; moist/wet
SS-2	11	42	Obvious petrol. odor; damp/moist
SS-3	13	0.1	No odor, damp/moist
SS-4	12	11.8	Slight petrol. odor, damp/moist
SS-5	14	17.0	Slight petrol. odor, damp
SS-6	12	0.2	No odor; damp/moist
SS-7	12	0.1	No odor; moist/wet
SS-8	12	0.1	No odor, dry
	24	8.2	Slight petrol. odor, damp
	30	7.8	Slight petrol. odor, wet
SS-9	12	0.1	No odor, dry
	20	3.8	Slight petrol. odor, damp
	28	5.2	Slight petrol. odor, wet

In general, only the upper soil in the middle portion of the stockpile was observed to be dry; all other soil had noticeable moisture content. The lower soil, collected near the base of the pile, was saturated, likely due to the fact that the clay has not had an adequate chance to dry out. The two borings installed in the middle of the pile (SS-8 and SS-9) show the increase in moisture content, and hence VOC concentration, with depth. To optimize the rate of petroleum biodegradation, the soil should be as dry as possible.

As defined by the *Agency Guidelines for Petroleum Contaminated Soil and Debris* (August 1996), acceptable levels are achieved when vapor levels are non-detectable (<1 part per million) using a PID, and there is no olfactory or visual evidence of contamination. Based on these guidelines, the soil at the Site continues to have unacceptable levels of VOCs and hence cannot yet be thinspread. However, there has been improvement in the overall quality of the soil over the course of the year.

INDOOR AIRSPACE SCREENING

On September 17, 2004, WEM screened the airspace in two rooms within the King residence. The two rooms, a bedroom and a utility closet, are on the western side of the building closest to the former UST grave, as shown in the attached Site Plan. These rooms are on the first floor of the structure; the house is a split-level ranch with the first level partially below grade on the west side. There is no basement underneath this portion of the house (slab foundation). Screening was conducted by WEM using a PID.

After screening these rooms, focusing on the space between the baseboard heating and concrete floor in the bedroom, and on the hole in the concrete wall where the former fuel supply lines enter the utility room, no evidence of VOCs was detected with the PID.

WATER SUPPLY SAMPLING

On September 17, 2004, WEM collected a sample from the King active water supply well. The sample was collected via the outside tap on the east side of the residence; this tap has a direct connection to the well and is not treated/filtered. The sample was collected after allowing the water to run for 10 minutes at a flow of approximately 5 gallons per minute. The sample was collected in pre-approved containers and placed on ice. The sample was transported by WEM to Endyne Laboratory in Williston under chain-of-custody procedures for analysis of VOCs via EPA Method 524.2 and for total petroleum hydrocarbons (TPH) via EPA Method 8015-DRO.

The lab results, provided in the attachment, indicate that VOCs/TPH were not reported above detection limits. There is no evidence to suggest that the active supply well is impacted by the former UST release.

CONCLUSIONS & RECOMMENDATIONS

Based on the work described above, WEM concludes that:

- The soil in the onsite stockpile continues to exhibit a petroleum odor and has unacceptable levels of VOCs as measured with a PID. The average VOC concentration in September 2004 was measured at 7.4 ppm. This is significantly less than the composite sample collected in September 2003, which was measured at 62 ppm.
- The airspace in the first floor of the western portion of the King residence, which abuts the former UST grave, shows no evidence of impact by petroleum vapors.
- The water supply well for the King residence has no reportable levels of VOCs or TPH, indicating that there is no evidence of impact from the fuel oil released from the former UST.

Based on the above conclusions and discussion with Mr. King, WEM recommends that the soil stockpile remain onsite throughout the winter. Mr. King suggested that he would remix the soil pile before the winter to assist in the drying out of the saturated bottom soil. WEM plans to access the stockpile in the spring/summer of 2005 to screen the soil once again. If the soil has degraded to within acceptable limits by that time, then WEM will assist in the thinspreading of soil and eventual closure of this site.

Do not hesitate to call me if you have any questions or concerns about this report. I can be reached at (802) 860-9400 or by email at mwaite@waiteenv.com.

Sincerely,

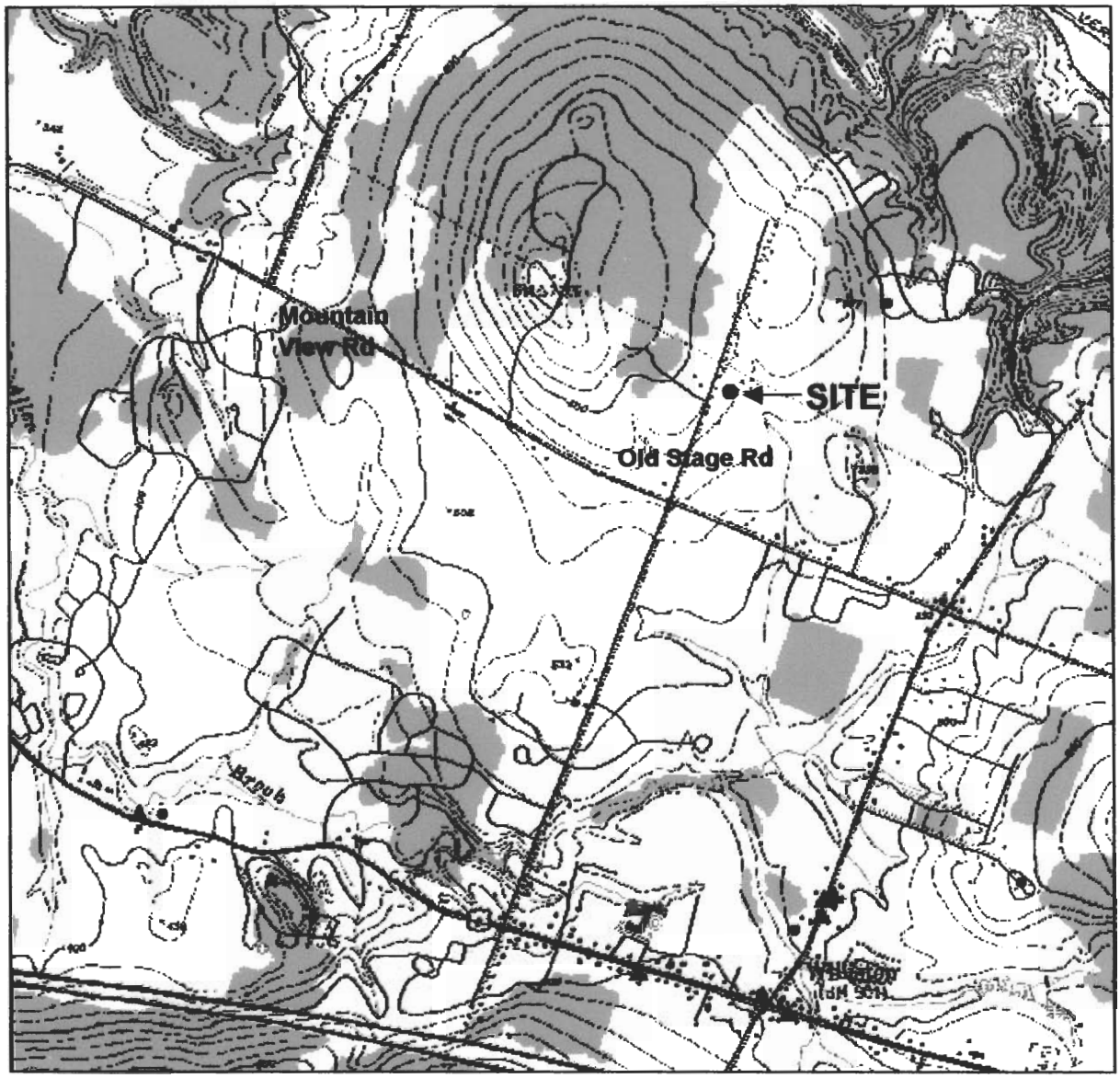
Miles E. Waite, PhD
Principal Hydrogeologist

Attachments

cc: Mr. Tim King.

ATTACHEMENTS

Site Location Map
Site Plan
Soil Pile Schematic
Laboratory Reports



LEGEND

● State-Listed Hazardous Waste Site

▲ Registered Underground Storage Tank

N

WEM Job Number:	*90320009*
Map Source:	*USGS Mapping 7.5 Minute Underhill, Vermont Quadrangle (1983)*
Data Sources:	*Vermont Department of Environmental Conservation; updated 8/03*

WEM

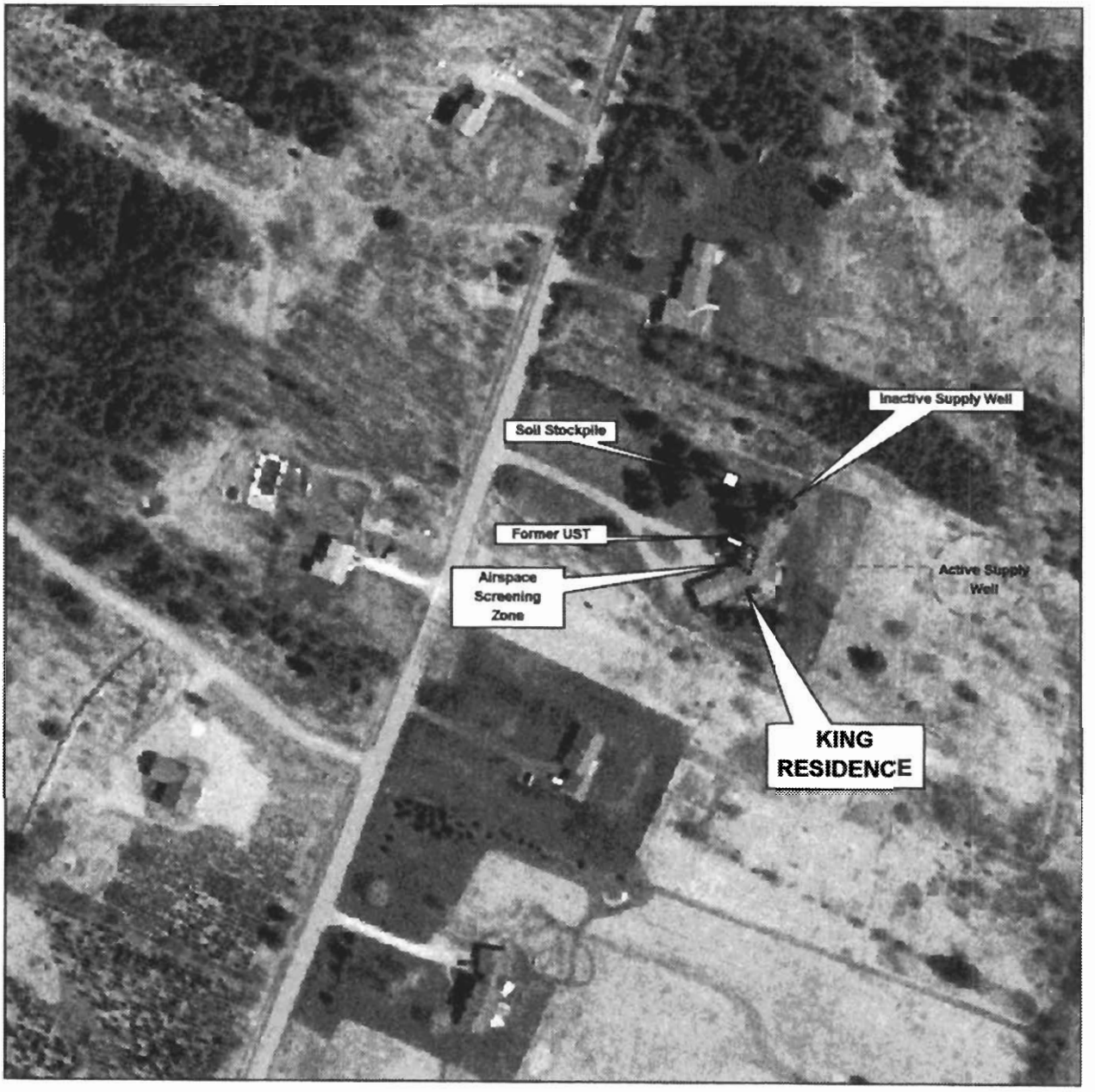
Waite Environmental Management, LLC

SITE LOCATION MAP

King Residence

1372 Old Stage Road, Williston, Vermont

Date: 11/30/04	Drawing No. 1	Scale: 1"=1,200'	By: MEW



WEM Job Number: *90320009*

Map Source: *Vermont Mapping Program, 1999 flight*

WEM

Waite Environmental Management, LLC

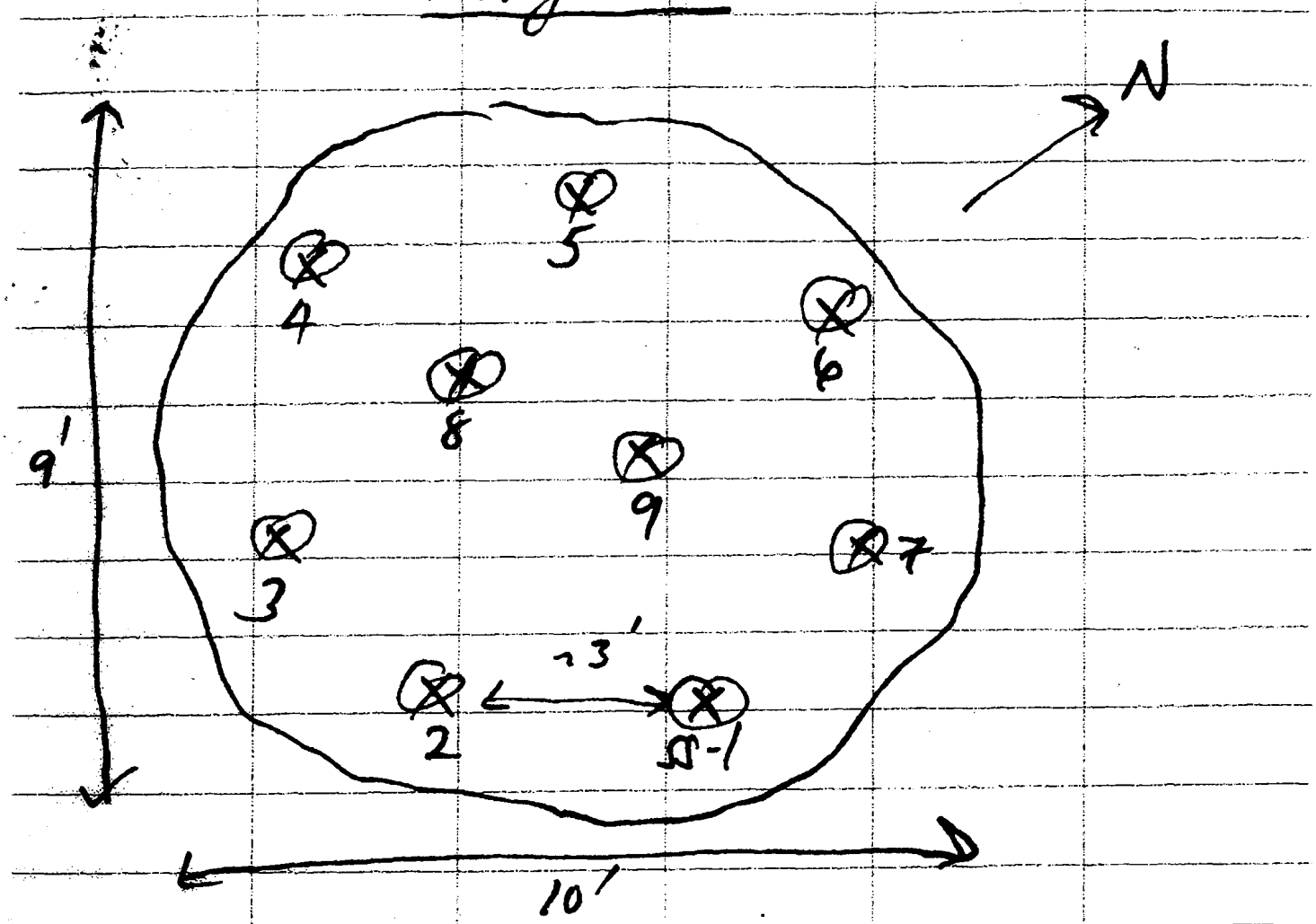
SITE PLAN

King Residence

1372 Old Stage Road, Williston, Vermont

Date: 11/30/04	Drawing No. 2	1 " ~ 200'	By: MEW

King Res



LEGEND

⊗1 Soil Screening Location

WEM Job Number: 0903 2000 9

Source: Fieldwork by WEM, 9/19/04

WEM

Waite Environmental Management, LLC

Figure

SOIL PILE SCHEMATIC
King Residence
Williston, Vermont

Date: 11/30/04 | Scale: NTS | By: MEW

ENDYNE, INC.

Laboratory Services

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

LABORATORY REPORT

Waite Environmental Mgt.
PO Box 4602
Burlington, VT 05406
Attn: Miles Waite

PROJECT: King Residence
ORDER ID: 32419
RECEIVE DATE: September 17, 2004
REPORT DATE: September 24, 2004

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

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 was monitored by laboratory control standards which include matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

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ELAP 11263

ENDYNE, INC.

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160 James Brown Drive
Williston, Vermont 05495
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LABORATORY REPORT

EPA 524.2

CLIENT: Waite Environmental Mgt.
PROJECT: King Residence
SITE: Outside Tap
DATE RECEIVED: September 17, 2004
REPORT DATE: September 24, 2004
ANALYSIS DATE: September 22, 2004

ORDER ID: 32419
REFERENCE NUMBER: 238677
DATE SAMPLED: September 17, 2004
TIME SAMPLED: 11:15 AM
SAMPLER: MW
ANALYST: 725

Parameter	Result ug/L
Benzene	< 0.5
Bromobenzene	< 0.5
Bromochloromethane	< 0.5
Bromomethane	< 0.5
n-Butylbenzene	< 0.5
sec-Butylbenzene	< 0.5
tert-Butylbenzene	< 0.5
Carbon tetrachloride	< 0.5
Chlorobenzene	< 0.5
Chloroethane	< 0.5
Chloromethane	< 0.5
4-Chlorotoluene	< 1.0
2-Chlorotoluene	< 1.0
Dibromomethane	< 1.0
1,2-Dichlorobenzene	< 0.5
1,3-Dichlorobenzene	< 0.5
1,4-Dichlorobenzene	< 0.5
Dichlorodifluoromethane	< 0.5
1,1-Dichloroethane	< 0.5
1,2-Dichloroethane	< 0.5
1,1-Dichloroethene	< 0.5
cis-1,2-Dichloroethene	< 0.5
trans-1,2-Dichloroethene	< 0.5
Dichloromethane	< 1.0
1,2-Dichloropropane	< 0.5
1,3-Dichloropropane	< 0.5
2,2-Dichloropropane	< 0.5
1,1-Dichloropropene	< 0.5
cis-1,3-Dichloropropene	< 0.5
trans-1,3-Dichloropropene	< 0.5
Ethylbenzene	< 0.5

Parameter	Result ug/L
Hexachlorobutadiene	< 0.5
Isopropylbenzene	< 0.5
4-Isopropyltoluene	< 0.5
MTBE	< 1.0
Naphthalene	< 1.0
n-Propylbenzene	< 0.5
Styrene	< 0.5
1,1,1,2-Tetrachloroethane	< 0.5
1,1,2,2-Tetrachloroethane	< 1.0
Tetrachloroethene	< 0.5
Toluene	< 0.5
1,2,3-Trichlorobenzene	< 0.5
1,2,4-Trichlorobenzene	< 0.5
1,1,1-Trichloroethane	< 0.5
1,1,2-Trichloroethane	< 0.5
Trichloroethene	< 0.5
Trichlorofluoromethane	< 1.0
1,2,3-Trichloropropane	< 0.5
1,2,4-Trimethylbenzene	< 0.5
1,3,5-Trimethylbenzene	< 0.5
Vinyl Chloride	< 0.5
Xylenes, Total	< 1.0
Bromodichloromethane	< 0.5
Bromoform	< 0.5
Chloroform	< 0.5
Dibromochloromethane	< 0.5
Total Trihalomethanes	< 0.5
Surrogate 1	102.%
Surrogate 2	106.%
UIP's	0.

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LABORATORY REPORT

Waite Environmental Mgt.
PO Box 4602
Burlington, VT 05406
Attn: Miles Waite

PROJECT: King Residence
ORDER ID: 32419
RECEIVE DATE: September 17, 2004
REPORT DATE: October 1, 2004

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

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Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

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LABORATORY REPORT

CLIENT: Waite Environmental Mgt.
PROJECT: King Residence
REPORT DATE: October 1, 2004

ORDER ID: 32419
DATE RECEIVED: September 17, 2004
SAMPLER: MW
ANALYST: 333

Ref. Number: 238677 | Site: Outside Tap | Date Sampled: September 17, 2004 Time: 11:15 AM

Parameter	Result	Unit	Method	Analysis Date
TPH 8015 DRO	< 0.40	mg/L	SW 8015B	9/22/04

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ENDYNE, INC.
160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333

CHAIN-OF-CUSTODY-RECORD

59118

Special Reporting Instructions:

Project Name: King Residence	Reporting Address: Waite Environmental Mgt P.O. Box 4602 Burlington, VT 05406	Billing Address: W.E.M.
Endyne Order ID: (Lab Use Only) 32419 — 2-O, -I, -S	Company: W.E.M. 860-9400 Contact Name/Phone #: Miles Waite	Sampler Name: Miles Waite Phone #:

Ref # (Lab Use Only)	Sample Identification	Matrix	GRAB	COMP	Date/Time 9/17/04	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
	Outside Tap	H_2O	X		11:15	3	VOA		23, 29	HCl, cool	

Relinquished by:	Date/Time	Received by:	Date/Time	Received by:	Date/Time
Miles Waite	9/17/04 1:37		9/17/04 1:37		

New York State Project: Yes _____ No ✓

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Sulfate	21	1664 TPH/FOG	26	8270 PAH
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	8015 GRO	27	PP13 Metals
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	8015 DRO	28	RCRA8 Metals
4	Nitrite N	9	BOD	14	Turbidity	19	8021B	24	8260/8260B	29	524.2
5	Nitrate N	10	Alkalinity	15	Conductivity	20	8010/8020	25	8270 B/N or Acid	30	

31 Metals (As Is, Total, Diss.) Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Tl, V, Zn

32 TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides) 33

34 Other

LAB USE ONLY
Delivery: Chest
Temp: 18.4
Comment:

(White, Yellow, Pink Copy - Laboratory / Goldenrod Copy - Client)