## **Ecosystems Strategies, Inc.**

24 Davis Avenue, Poughkeepsie, New York 12603-2332

Environmental Services and Solutions
TEL: 845-452-1658 • FAX: 845-485-7083
• mail@ecosystemsstrategies.com

May 13, 2005

Richard L. DuPilka, P.E. City of Poughkeepsie 62 Civic Center Plaza PO Box 300 Poughkeepsie, NY 12602

via EMAIL: <a href="mailto:rdupilka@cityofpoughkeepsie.com">rdupilka@cityofpoughkeepsie.com</a>

Re: <u>Letter Report of Groundwater Sampling</u> performed on the property known as the

"400 Block", City of Poughkeepsie, Dutchess County, New York

ESI File: CP9920.47

Dear Mr. DuPilka:

This Letter Report of Groundwater Sampling (Letter Report) summarizes the investigative work performed by Ecosystems Strategies, Inc. (ESI) on the above-referenced property to document the presence or absence of petroleum hydrocarbons and RCRA metals in on-site groundwater. On April 13, 2005, ESI personnel sampled four (4) monitoring wells: MW-2R-2, MW-3, MW-4 and MW-6. Monitoring well MW-5 was inoperable and was not sampled (the well currently needs various improvements and needs to be re-surveyed and re-developed before sampling can resume). This Letter Report includes a Fieldwork map (Attachment A), laboratory data tables (Attachment B) and the complete laboratory report (Attachment C).

#### **Summary of Services**

The following services were performed by ESI:

- Field screening and depth of groundwater measurements at each of the four (4) monitoring wells;
- Collection and laboratory analysis of groundwater samples from each well; and,
- Comparison of previous data (from the May 1999 pre-remediation groundwater event and the July 2003, January, April, August and December 2004 post-remediation groundwater events) with current (April 2005) groundwater data.

#### **Fieldwork**

Groundwater samples were collected from monitoring wells MW-2R-2, MW-3, MW-4 and MW-6 on April 13, 2005 (see Fieldwork Map). All wells were sampled utilizing a submersed mechanical pump. At least three (3) well volumes were purged from each well prior to sampling. Purge-water was screened for any visual or olfactory indications of petroleum contamination (see Table 1: Field Observations, below).

All groundwater samples were collected in a manner consistent with New York State Department of Environmental Conservation (NYSDEC) sample collection protocols. All sample collection equipment was properly decontaminated prior to the initiation of sampling and between sample locations to avoid cross-contamination. Each groundwater sample was

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collected into laboratory-

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supplied glassware. After sample collection, the jars were kept cold and transported via overnight delivery to York Analytical Labs, Inc., a New York State Department of Health-approved laboratory (ELAP Certification Number 10854). Appropriate chain-of-custody procedures were followed.

Field screening of the monitoring wells and the purge-water was conducted for petroleum odors or sheen. Field Observations are summarized in the table, below.

#### Field Observations Table

Well ID	Depth of Well	Depth to Groundwater	Observations
MW-2R-2	19.26'	5.62'	Dark brown to light brown purge, good recharge, no evidence of contamination
MW-3	19.55'	11.85'	Light brown to clear purge, moderate recharge, no evidence of contamination
MW-4	22.95'	14.14'	Dark brown to clear purge, moderate recharge, sulfur smell
MW-6	14.60'	5.55'	Light brown to clear purge, moderate recharge, no evidence of contamination

#### **Laboratory Analysis and Discussion**

One groundwater sample was collected at each monitoring well location and submitted for analysis of volatile organic compounds (VOCs) using USEPA Method 8260, polycyclic aromatic hydrocarbons (PAHs) using USEPA Method 8270, and total and dissolved RCRA metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver). Complete laboratory results are included as Attachment C.

The term "guidance level", as defined in this <u>Letter Report</u>, refers to the concentration of a particular contaminant above which remedial actions are considered more likely. The overall objective of setting guidance levels is to assess the integrity of on-site groundwater relative to conditions that are likely to present a threat to public health, given the existing and probable future uses of the site.

The guidance levels identified in this <u>Letter Report</u> for groundwater are determined based on the NYSDEC's <u>Division of Water Technical and Operational Guidance Series</u>, <u>Ambient Water Quality Standards and Guidance levels and Groundwater Effluent Limitations (TOGS) 1.1.1</u>, <u>October 22</u>, <u>1993 (Revised June 1998)</u>. All compounds referenced below are presented with their respective guidance levels.

#### VOCs AND PAHS

Methyl tertiary-butyl ether (MTBE) was detected at a concentration of 19 ppb at monitoring well MW-3, and at a concentration of 1 ppb at monitoring well MW-4 (guidance level of 10 ppb). No other VOCs and no PAHs were detected in any of the groundwater monitoring wells. Table 1 in Attachment B presents a summary of VOCs in on-site monitoring wells.

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#### TOTAL RCRA METALS

Lead was detected at concentrations above the NYSDEC guidance level (25 ppb) at wells MW-2R-2 (864 ppb) and MW-4 (58 ppb). Lead was detected at concentrations below the guidance level at wells MW-3 (16 ppb) and MW-6 (18 ppb). Arsenic was detected at concentrations above the guidance level (25 ppb) at well MW-2R-2 (43 ppb), and below the guidance level at well MW-3 (7 ppb). Mercury was detected at concentrations above the guidance level (0.7 ppb) at well MW-2R-2 (9.4 ppb), and below the guidance level at well MW-4 (0.3 ppb). Barium and chromium were detected below guidance levels (1,000 ppb and 50 ppb, respectively) at all wells. No other metals were detected at any of the monitoring wells. Table 2 in Attachment B presents a summary of Total RCRA metals.

#### DISSOLVED RCRA METALS

Dissolved barium was detected at concentrations below the NYSDEC guidance level (1,000 ppb) at all wells and dissolved chromium was detected at concentrations below the guidance level (50 ppb) at all wells except MW-2R-2 (non-detect). Dissolved lead was detected at concentrations below the guidance level (25 ppb) at all wells except MW-6 (non-detect). Dissolved arsenic, cadmium, mercury, selenium and silver were not detected in any of the wells. Table 3 in Attachment B presents a summary of Dissolved RCRA metals.

#### **Comparison with Previous Data**

Groundwater samples were collected in May 1999, July 2003, January, April, August, and December 2004 and April 2005. Samples from all wells were analyzed for VOCs (USEPA Method 8021), PAHs (USEPA Method 8270), and RCRA metals (both total and dissolved). MW-1 was buried and closed in May 2004, access was not available to MW-6 in August of 2004, and MW-5 was destroyed in December 2004 prior to sampling. MW-2R was destroyed during construction activities and MW-2R-2 installed as a replacement. Refusals encountered during the installation of MW-2R-2 however, caused the new well to be installed 20 feet downgradient from the former location of MW-2R; the data from these two wells are therefore not comparable.

#### **VOCs**

In May 1999, five VOCs were detected at well MW-2R at concentrations above NYSDEC guidance levels. Exceedences ranged from 10 ppb for 1,3,5 trimethylbenzene (guidance level of 5 ppb) to 92 ppb for benzene (guidance level of 0.7 ppb). In the July 2003 sampling, well MW-2R exhibited elevated levels of two VOCs, signifying a reduction in contamination. This well was subsequently destroyed and no comparative data is available for that well past the July 2003 sampling round; however, a downgradient well shows no indications of contamination.

MTBE was detected above the NYSDEC guidance level (10 ppb) at well MW-3 (19 ppb) during the current sampling round. MTBE was detected above guidance levels at well MW-3 in each of the past three sampling rounds, and a peak concentration of 27 ppb was detected in August 2004. The trend at this well appears to be one that is generally stable with fluctuating seasonal concentrations (the highest concentrations detected during the summer). MTBE was detected below the guidance level at well MW-6 (1 ppb) in January 2004; however no concentrations

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were detected in subsequent sampling rounds. MTBE was detected below the guidance level at well MW-4 (1 ppb) during the current sampling round; however, there has been no previous indication of contamination at this well. No other VOCs have been detected at any of the monitoring wells during any sampling round (see Attachment B).

#### **PAHs**

No PAHs were detected in any of the groundwater monitoring wells in any sampling round (see Attachment B).

#### TOTAL RCRA METALS

Total lead has been detected above guidance levels (25 ppb) in 24 of 31 (77%) samples submitted for analysis. Total lead was not detected only at wells MW-3 and MW-6 in the January 2004 sampling round. Lead was not detected above guidance levels in the current sampling round at wells MW-3 (16 ppb) and MW-6 (18 ppb) and concentrations of lead at all wells decreased from the previous sampling round.

Total mercury was detected above the NYSDEC guidance level (0.7 ppb) only at well MW-2R-2 (9.4 ppb), however this concentration is lower than the previous sampling round. Mercury concentrations at MW-4 (0.3 ppb) fell below the guidance value and were not detected at wells MW-3 and MW-6. Barium and chromium concentrations have not been detected in any sampling round above their respective guidance levels (1,000 ppb and 50 ppb); barium and chromium concentrations have decreased from the previous sampling round at all wells except MW-6. Arsenic, cadmium and selenium concentrations either decreased or remained constant at all wells except MW-3, where arsenic concentrations increased from non detect to 7 ppb. Silver has not been detected in any of the wells during any sampling round (see Attachment B).

#### DISSOLVED RCRA METALS

No dissolved metals were detected in the current sampling round at concentrations above NYSDEC guidance levels. Dissolved arsenic, cadmium, mercury, selenium and silver remained constant at non-detected levels. Lead concentrations at wells MW-2R-2, MW-3 and MW-4 have all increased from the previous sampling round when lead was not detected. Dissolved barium increased at wells MW-2R-2 and MW-6, decreased at well MW-3 and remained constant at well MW-4. Dissolved chromium decreased at wells MW-2R-2 and MW-3, and increased at wells MW-4 and MW-6. The absence of dissolved metal concentrations relative to total metals indicates that contamination is limited to metal particulates suspended in the groundwater, which are likely to be the result of contaminated soil (see Attachment B).

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#### **CONCLUSIONS**

Investigative work was conducted on the property known as the "400 Block" located in the City of Poughkeepsie, Dutchess County, New York to document the presence or absence of petroleum hydrocarbons and RCRA metals in on-site groundwater.

Data support the conclusions that:

- 1. Soil excavation has improved groundwater quality; and,
- 2. On-site dissolved VOC concentrations and the overall condition of the on-site groundwater are generally improving and are not at levels warranting further remediation.

The following actions will be conducted prior to, or during, the next groundwater-sampling event:

1. Monitoring well MW-5 will be reconstructed

The services summarized herein are part of an approved NYSDEC Brownfields <u>Workplan</u>. These groundwater-monitoring services are considered by ESI to satisfy requirements set forth in the approved <u>Workplan</u>. By copy, this <u>Letter Report</u> is being forwarded to the NYSDEC. Please review this information and call me at (845) 452-1658 should you have any questions or comments.

Sincerely,

ECOSYSTEMS STRATEGIES, INC.

Bul to Cetto

Paul H. Ciminello

President

cc: G. Heitzman, NYSDEC - via Email: <a href="mailto:gwheitzm@gw.dec.state.ny.us">gwheitzm@gw.dec.state.ny.us</a>

File

Attachments:

A Fieldwork Map

B Data Summary Tables

C Laboratory Results

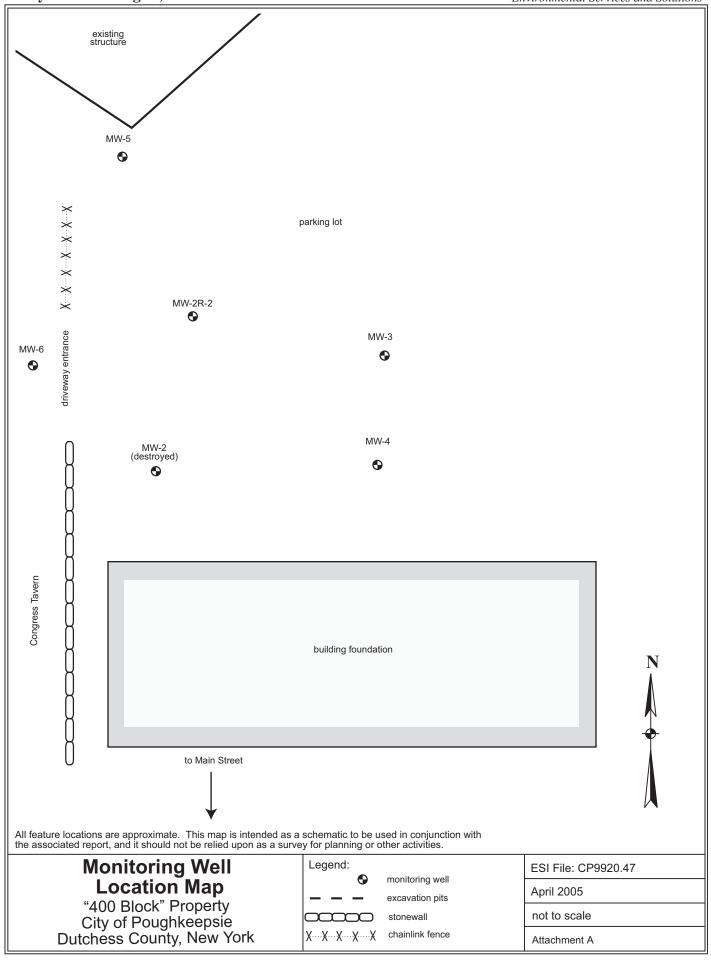


Table 1: Summary of VOCs and PAHs in Groundwater (May 1999, July 2003, January, April, August & December 2004, and April 2005)

All data provided in ppb. Concentration inbold exceed NYSDEC guidance levels

																	5	Sample	Identific	cation																
VOCs (Method 8260)	Guidance		MV	<i>I</i> -1		MW	/-2R		MW-2	R-2					MW-3						MW-4						MW-5							MW-6		
	Levels <sup>1</sup>	5/99	7/03	4/04	8/04	5/99	7/03	4/04	8/04	12/04	4/05	5/99	7/03	1/04	4/04	8/04	12/04	4/05	5/99	7/03	8/04	12/04	4/05	5/99	7/03	1/04	4/04	8/04	12/04	4/05	5/99	7/03	1/04	4/04	8/04	12/04 4/
Benzene	0.7	ND	ND	ND		92	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND		ND	ND		ND N
n-Butylbenzene	5	ND	ND	ND		3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	1 !	ND	ND	1 [	ND N
Bromomethane	5	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<u>e</u>	ND	] !	ND	ND		ND N
Chloroform	7	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ab	ND	1 !	ND	ND	1 [	ND N
Chloromethane	5	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	nse.	ND	1 /	ND	ND	1 F	ND N
Tert-Butylbenzene	5	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Ĩ	ND	1 !	ND	ND	1 [	ND N
1,2-Dichloroethylene (Total)	5	ND	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Je/	ND	ا ۾ ا	ND	ND	1 8	ND N
Ethylbenzene	5	ND	ND	ND	Š	2	8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	rak	ND	Ē	ND	ND	1 & 1	ND N
p-Isopropyltoluene	5	ND	ND	ND	ę ę	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	g	ND	<u>ء</u>	ND	ND	San	ND N
Toluene	5	ND	ND	ND	ō	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Ĕ.	ND	2	ND	ND	1 # [	ND N
Isopropylbenzene	5	ND	ND	ND	E E	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	≟	ND	1 등	ND	ND	1 = 1	ND N
MTBE	10	ND	ND	ND	× .	ND	ND	ND	ND	ND	ND	ND	ND	ND	16	27	17	19	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND	īa	ND		1	ND	¥ e	ND N
Naphthalene	10	ND	ND	ND	i,	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<u>ğ</u>	ND	l ë l	ND	ND	g l	ND N
n-Propylbenzene	5	ND	ND	ND	ito	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	μe	ND	<u>.</u>	ND	ND	- i	ND N
1,2,4-Trimethylbenzene	5	ND	ND	ND	ou	ND	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 =	ND	_ e	ND	ND	瞳	ND N
Tetrachloroethene	5	ND	ND	ND	Σ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ž	ND	- ≥	ND	ND	l≗	ND N
Tetrachloro-ethylene	5	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ë.	ND	1 /	ND	ND	1 [	ND N
1,3,5-Trimethylbenzene	5	ND	ND	ND		10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ģ	ND	1 !	ND	ND	1 1	ND N
o-Xylene	5	ND	ND	ND		79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	e i	ND	1	ND	ND	1 F	ND N
P/m-Xylene	5	ND	ND	ND		15	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	Ž	ND	1	ND	ND	1	ND N
																														]		]				
Total PAHs (Method 8270)	varies	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	l	ND	1 !	ND	ND	I	ND N

<sup>1.</sup> Source: TOGS 1.1.1, October 22, 1993 (Revised June 1998).

ND = Not Detected

Table 2: Summary of Total RCRA Metals in Groundwater (May 1999, July 2003, January, April, August & December 2004, and April 2005)

All data provided in ppb.	Concentrations in <b>bold</b>	exceed NYSDEC guidance levels
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									Sam	ple Identifica	tion							
	Guidance		M\	V-1		MW	/-2R		MW	-2R-2					MW-3			
Metals	Level <sup>1</sup>	May-99	July-03	April-04	Aug-04	May-99	July-03	April-04	Aug-04	Dec-04	Apr-05	May-99	July-03	Jan-04	April-04	Aug-04	Dec-04	Apr-05
Arsenic	25	12	ND	6		31	14	30	48	83	43	10	ND	ND	5	10	ND	7
Barium	1,000	120	173	113	2	1,090	312	652	477	970	518	780	75	60	148	181	251	65
Cadmium	5	ND	ND	ND	=	2	ND	ND	ND	6	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	50	ND	12	12	≱g	ND	17	20	18	29	15	60	7	5	7	10	15	6
Lead	25	59	46	96	£ξ	214	160	1010	683	1860	864	13	46	ND	108	275	574	16
Mercury	0.7	ND	5.7	0.5	율	ND	2	4.3	8	12.7	9.4	ND	5.2	ND	ND	0.8	2.7	ND
Selenium	10	ND	ND	ND	ē	ND	ND	ND	16	22	ND	ND	ND	ND	ND	11	ND	ND
Silver	50	ND	ND	ND	-	ND	ND	ND	ND	ND	ND	20	ND	ND	ND	ND	ND	ND
Notes:																		

Source: <u>TOGS 1.1.1, October 22, 1993 (Revised June 1998)</u>.

ND = Not Detected

#### Table 2 cont'd

									Sam	ple Identifica	tion									
	Guidance			MW-4						MW-5							MW-6			
Metals	Level <sup>1</sup>	May-99	Jul-03	Aug-04	Dec-04	Apr-05	May-99	July-03	Jan-04	April-04	Aug-04	Dec-04	Apr-05	May-99	July-03	Jan-04	April-04	Aug-04	Dec-04	Apr-05
Arsenic	25	ND	ND	11	ND	ND	17	ND	10	17	10	-	ē	8		ND	9	t	ND	ND
Barium	1,000	320	144	191	141	106	320	195	92	235	212	2	= 8	140	2	28	84	2	94	103
Cadmium	5	1	ND	ND	ND	ND	2	ND	ND	ND	ND	le le	3 € €	ND	=	ND	ND	₽ p	ND	ND
Chromium	50	ND	ND	10	8	6	20	24	8	15	32	å E	ing oran	ND	2 2	7	10	N ed.	11	12
Lead	25	6	10	245	114	58	508	193	27	253	395	ring four	호호호	60	i j	ND	26	amp	38	18
Mercury	0.7	ND	ND	1.2	1	0.3	ND	11.6	4.5	0.5	3.8	gg.	rat te mi	ND	윭	ND	ND	şi şi	ND	ND
Selenium	10	ND	ND	12	ND	ND	ND	ND	ND	ND	13	•	≥ ĕ	ND	•	ND	ND	•	ND	ND
Silver	50	ND	2.1	ND	ND	ND	ND	ND	ND	ND	ND	-	-≘	ND	-	ND	ND	-	ND	ND
Notes:			•											-			•	•		
	1 Source: T	OGS 1 1 1	October 22	1993 (Revis	ed June 199	3)														
	1. Oodi oo. <u>1</u>	000 1.1.1,	OCCUDENT LL	1000 (110110	ca cano roos	4.														
ll l	ND - No	Detected																		

Table 3: Summary of Dissolved RCRA Metals in Groundwater (May 1999, July 2003, January, April, August & December 2004, and April 2005)
All data provided in ppb. Concentrations inbold exceed NYSDEC guidance levels.

									Sam	ple Identifica	tion							
	Guidance		M\	V-1		MW	-2R		MW	-2R-2					MW-3			
Metals	Level <sup>1</sup>	May-99	July-03	April-04	Aug-04	May-99	July-03	April-04	Aug-04	Dec-04	Apr-05	May-99	July-03	Jan-04	April-04	Aug-04	Dec-04	Apr-05
Arsenic	25	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium	1,000	10	65	69	2	480	185	170	96	49	55	700	44	57	111	95	82	58
Cadmium	5	ND	ND	ND	=	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	50	ND	ND	6	å₽	ND	ND	6	5	5	ND	60	ND	ND	ND	6	6	5
Lead	25	ND	ND	ND	foun	1	5	5	ND	ND	5	ND	ND	ND	ND	ND	ND	5
Mercury	0.7	ND	ND	ND	i i	ND	ND	ND	ND	ND	ND	ND	0.9	ND	ND	ND	ND	ND
Selenium	10	ND	ND	ND	ē	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	50	ND	ND	ND	1 -	ND	ND	ND	ND	ND	ND	20	ND	ND	ND	ND	ND	ND
Notes:																		
	1. Source: <u>T</u>	OGS 1.1.1, O	ctober 22, 199	93 (Revised Ju	ıne 1998).													
	ND = Not	Detected																

#### Table 3 cont'd

									Sam	ple Identifica	tion									
	Guidance			MW-4						MW-5							MW-6			
Metals	Level <sup>1</sup>	May-99	Jul-03	Aug-04	Dec-04	Apr-05	May-99	July-03	Jan-04	April-04	Aug-04	Dec-04	Apr-05	May-99	July-03	Jan-04	April-04	Aug-04	Dec-04	Apr-05
Arsenic	25	ND	ND	ND	ND	ND	ND	ND	ND	5	ND		9	ND		ND	ND		ND	ND
Barium	1,000	280	134	90	76	76	120	69	77	12	76	2	= 8	80	2	18	51	è	40	45
Cadmium	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	=	ieea usea	ND	=	ND	ND	₩ p	ND	ND
Chromium	50	ND	ND	5	5	6	ND	6	ND	ND	16	. § ₽	oring porar le/un	1	y B	7	8	§ 6	6	8
Lead	25	ND	ND	ND	ND	6	4	10	8	34	15	든호	onitori tempo srable/	ND	£ g	ND	ND	든 등	ND	ND
Mercury	0.7	ND	ND	ND	ND	ND	ND	0.2	ND	ND	ND	ž	e a a	ND	差	ND	ND	ž,	ND	ND
Selenium	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ē	= ĕ	ND	ē	ND	ND	ē	ND	ND
Silver	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-⊆	ND	_	ND	ND	-	ND	ND
Notes:																				
	1. Source: <u>TC</u>	OGS 1.1.1, O	tober 22, 199	93 (Revised Ju	ne 1998).															
	ND = Not I	Detected																		



# **Technical Report**

prepared for

Ecosystems Strategies, Inc. 24 Davis Avenue Poughkeepsie, NY 12603 Attention: Kevin Wolfe

Report Date: 4/18/2005

Re: Client Project ID: CP9920.40

York Project No.: 05040313

CT License No. PH-0723

New York License No. 10854





Report Date: 4/18/2005 Client Project ID: CP9920.40 York Project No.: 05040313

#### **Ecosystems Strategies, Inc.**

24 Davis Avenue Poughkeepsie, NY 12603 Attention: Kevin Wolfe

### **Purpose and Results**

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on 04/12/05. The project was identified as your project "CP9920.40".

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables .

All samples were received in proper condition meeting the NELAC acceptance requirements for environmental samples except those indicated under the Notes section of this report.

All the analyses met the method and laboratory standard operating procedure requirements except as indicated under the Notes section of this report, or as indicated by any data flags, the meaning of which is explained in the attachment to this report, if applicable.

The results of the analyses, which are all reported on an as-received basis unless otherwise noted, are summarized in the following table(s).

# Analysis Results

Client Sample ID			MW-1		MW-2R-2	
York Sample ID		•	05040313-01		05040313-02	
Matrix			WATER		WATER	
Parameter	Method	Units	Results	MDL	Results	MDL
Volatiles-8260+MTBE water	SW846-8260	ug/L				
1,1,1,2-Tetrachloroethane			Not detected	1	Not detected	1
1,1,1-Trichloroethane			Not detected	1	Not detected	1
1,1,2,2-Tetrachloroethane			Not detected	1	Not detected	1
1,1,2-Trichloroethane			Not detected	1	Not detected	1
1,1-Dichloroethane			Not detected	1	Not detected	1
1,1-Dichloroethylene			Not detected	1	Not detected	1
1,1-Dichloropropylene			Not detected	1	Not detected	1
1,2,3-Trichlorobenzene			Not detected	1	Not detected	1
1,2,3-Trichloropropane			Not detected	1	Not detected	1
1,2,3-Trimethylbenzene			Not detected	1	Not detected	1
1,2,4-Trichlorobenzene			Not detected	1	Not detected	11
1,2,4-Trimethylbenzene			Not detected	1	Not detected	1
1,2-Dibromo-3-chloropropane			Not detected	1	Not detected	1
1,2-Dibromoethane			Not detected	11	Not detected	1
1,2-Dichlorobenzene			Not detected	1	Not detected	1
1,2-Dichloroethane			Not detected	1	Not detected	1



Client Sample ID			MW-1		MW-2R-2	<del></del>
York Sample ID			05040313-01		05040313-02	
Matrix			WATER		WATER	
Parameter	Method	Units	Results	MDL	Results	MDL
1,2-Dichloroethylene (Total)			Not detected	1	Not detected	1
1,2-Dichloropropane			Not detected	1	Not detected	1
1,3,5-Trimethylbenzene			Not detected	1	Not detected	1
1,3-Dichlorobenzene			Not detected	1	Not detected	1
1,3-Dichloropropane			Not detected	1	Not detected	1
1,4-Dichlorobenzene			Not detected	1	Not detected	1
1-Chlorohexane			Not detected	1	Not detected	1
2,2-Dichloropropane			Not detected	1	Not detected	1
2-Chlorotoluene			Not detected	1	Not detected	1
4-Chlorotoluene			Not detected	1	Not detected	1
Benzene	· · · · · · · · · · · · · · · · · · ·		Not detected	1	Not detected	1
Bromobenzene		·-·-	Not detected	1	Not detected	1
Bromochloromethane			Not detected	1	Not detected	1
Bromodichloromethane			Not detected	1	Not detected	1
Bromoform	·		Not detected	1	Not detected	1
Bromomethane			Not detected	1	Not detected	1
Carbon tetrachloride			Not detected	1	Not detected	1
Chlorobenzene			Not detected	1	Not detected	1
Chloroethane		<del></del>	Not detected	1	Not detected	1
Chloroform			Not detected	1	Not detected	1
Chloromethane			Not detected	1	Not detected	1
cis-1,3-Dichloropropylene	· · · · · · · · · · · · · · · · · · ·		Not detected	1	Not detected	1
Dibromochloromethane	· · · · · · · · · · · · · · · · · · ·		Not detected	1	Not detected	1
Dibromomethane	· · · · · · · · · · · · · · · · · · ·		Not detected	1	Not detected	1
Dichlorodifluoromethane			Not detected	1	Not detected	1
Ethylbenzene	1 1		Not detected	1	Not detected	1
Hexachlorobutadiene			Not detected	1	Not detected	1
Isopropylbenzene			Not detected	1	Not detected	1
Methyl tert-butyl ether (MTBE)			1	1	Not detected	1
Methylene chloride	***		Not detected	1	Not detected	1
Naphthalene			Not detected	1	Not detected	1
n-Butylbenzene			Not detected	1	Not detected	1
n-Propylbenzene	44.		Not detected	1	Not detected	1
o-Xylene			Not detected	1	Not detected	1
p- & m-Xylenes	-		Not detected	1	Not detected	1
p-Isopropyltoluene			Not detected	1	Not detected	1
sec-Butylbenzene			Not detected	1	Not detected	1
Styrene	· · · · · · · · · · · · · · · · · · ·		Not detected	1	Not detected	1
tert-Butylbenzene			Not detected	1	Not detected	1
Tetrachloroethylene			Not detected	i	Not detected	1
Toluene	· · · · · · · · · · · · · · · · · · ·		Not detected	1	Not detected	1
trans-1,3-Dichloropropylene			Not detected	i	Not detected	1
Trichloroethylene	<del></del>	<u> </u>	Not detected	1	Not detected	1
Trichlorofluoromethane			Not detected	1	Not detected	1
Vinyl chloride		<del>                                     </del>	Not detected	1	Not detected	1
Polynuclear Aromatic Hydroc.(BN)	SW846-8270	ug/L				
Acenaphthene			Not detected	1.4	Not detected	1.4
Acenaphthylene		-	Not detected	1.5	Not detected	1.5
Anthracene		<del> </del>	Not detected	1.0	Not detected	1.0
Benzo[a]anthracene			Not detected	1.6	Not detected	1.6
Benzo[a]pyrene		<del> </del>	Not detected	1.0	Not detected	1.0



Client Sample ID			MW-1		MW-2R-2	
York Sample ID			05040313-01		05040313-02	
Matrix			WATER		WATER	
Parameter	Method	Units	Results	MDL	Results	MDL
Benzo[b]fluoranthene	, , , , ,		Not detected	1.1	Not detected	1.1
Benzo[g,h,i]perylene			Not detected	1.7	Not detected	1.7
Benzo[k]fluoranthene			Not detected	1.3	Not detected	1.3
Chyrsene			Not detected	1.4	Not detected	1.4
Dibenz[a,h]anthracene			Not detected	1.4	Not detected	1.4
Fluoranthene			Not detected	1.2	Not detected	1.2
Fluorene			Not detected	1.8	Not detected	1.8
Indeno[1,2,3-cd]pyrene			Not detected	1.6	Not detected	1.6
Naphthalene			Not detected	1.2	Not detected	1.2
Phenanthrene			Not detected	1.2	Not detected	1.2
Pyrene			Not detected	1.7	Not detected	1.7
Total RCRA Metals	SW846-6010B	mg/L				
Arsenic, total			Not detected	0.004	0.043	0.004
Barium, total			0.106	0.005	0.518	0.005
Cadmium, total			Not detected	0.005	Not detected	0.005
Chromium, total			0.006	0.005	0.015	0.005
Lead, total			0.058	0.003	0.864	0.003
Selenium, total			Not detected	0.005	Not detected	0.005
Silver, total			Not detected	0.005	Not detected	0.005
Mercury	SW846-7470	mg/L	0.0003	0.0004	0.0094	0.0004
Dissolved RCRA Metals	SW846	mg/L				
Arsenic, dissolved			Not detected	0.010	Not detected	0.010
Barium, dissolved			0.076	0.005	0.055	0.005
Cadmium, dissolved			Not detected	0.005	Not detected	0.005
Chromium, dissolved			0.006	0.005	Not detected	0.005
Lead, dissolved			0.006	0.005	0.005	0.005
Selenium, dissolved			Not detected	0.010	Not detected	0.010
Silver, dissolved			Not detected	0.005	Not detected	0.005
Mercury, Dissolved	SW-846-7470	mg/L	Not detected	0.0004	Not detected	0.0004

Client Sample ID			MW-3		MW-6	
York Sample ID			05040313-03		05040313-04	
Matrix			WATER		WATER	
Parameter	Method	Units	Results	MDL	Results	MDL
Volatiles-8260+MTBE water	SW846-8260	ug/L				
1,1,1,2-Tetrachloroethane			Not detected	1	Not detected	1
1,1,1-Trichloroethane			Not detected	1	Not detected	1
1,1,2,2-Tetrachloroethane			Not detected	1	Not detected	1
1,1,2-Trichloroethane			Not detected	1	Not detected	1
1,1-Dichloroethane			Not detected	1	Not detected	1
1,1-Dichloroethylene			Not detected	1	Not detected	1
1,1-Dichloropropylene			Not detected	1	Not detected	1
1,2,3-Trichlorobenzene			Not detected	1	Not detected	1
1,2,3-Trichloropropane			Not detected	1	Not detected	1
1,2,3-Trimethylbenzene			Not detected	1	Not detected	1
1,2,4-Trichlorobenzene			Not detected	1	Not detected	1
1,2,4-Trimethylbenzene			Not detected	1	Not detected	1
1,2-Dibromo-3-chloropropane			Not detected	1	Not detected	1
1,2-Dibromoethane			Not detected	1	Not detected	1



York Sample ID Matrix	<del>'</del>		MW-3		MW-6	l
			05040313-03		05040313-04	
AT A SECOND AT A S			WATER		WATER	
Parameter	Method	Units	Results	MDL	Results	MDL
1,2-Dichlorobenzene			Not detected	1	Not detected	1
1,2-Dichloroethane			Not detected	1	Not detected	1
1,2-Dichloroethylene (Total)			Not detected	1	Not detected	1
1,2-Dichloropropane	<del> </del>		Not detected	1	Not detected	1
1,3,5-Trimethylbenzene			Not detected	1	Not detected	1
1,3-Dichlorobenzene			Not detected	1	Not detected	1
1,3-Dichloropropane			Not detected	1	Not detected	1
1,4-Dichlorobenzene			Not detected	1	Not detected	1
1-Chlorohexane			Not detected	1	Not detected	1
2,2-Dichloropropane			Not detected	1	Not detected	1
2-Chlorotoluene			Not detected	1	Not detected	1
4-Chlorotoluene			Not detected	1	Not detected	1
Benzene			Not detected	1	Not detected	1
Bromobenzene			Not detected	1	Not detected	1
Bromochloromethane			Not detected	1	Not detected	1
Bromodichloromethane	* * * * * * * * * * * * * * * * * * * *		Not detected	1	Not detected	1
Bromoform	······································		Not detected	1	Not detected	1
Bromomethane			Not detected	1	Not detected	i
Carbon tetrachloride			Not detected	1	Not detected	1
Chlorobenzene			Not detected	1	Not detected	1
Chloroethane			Not detected	1	Not detected	<u>-</u>
Chloroform			Not detected	1	Not detected	<u>-</u>
Chloromethane	-,-,-,,-		Not detected	1	Not detected	1
cis-1,3-Dichloropropylene			Not detected	1	Not detected	1
Dibromochloromethane			Not detected	1	Not detected	1
Dibromomethane			Not detected	1	Not detected	1
Dichlorodifluoromethane			Not detected	1	Not detected	1
Ethylbenzene			Not detected	1	Not detected	1
Hexachlorobutadiene			Not detected	1	Not detected	1
Isopropylbenzene			Not detected	1	Not detected	1
Methyl tert-butyl ether (MTBE)			19	1	Not detected	1
Methylene chloride			Not detected	1	Not detected	1
Naphthalene			Not detected	1	Not detected	1
n-Butylbenzene			Not detected	1	Not detected	1
n-Propylbenzene		<del></del>	Not detected	1	Not detected	1
o-Xylene			Not detected	1	Not detected	1
p- & m-Xylenes			Not detected	1	Not detected	1
p-Isopropyltoluene			Not detected	1	Not detected	1
sec-Butylbenzene			Not detected	1	Not detected	1
Styrene			Not detected	1	Not detected	1
tert-Butylbenzene			Not detected	1	Not detected	1
Tetrachloroethylene			Not detected	1	Not detected	1
Toluene		1	Not detected	1	Not detected	1
trans-1,3-Dichloropropylene			Not detected	1	Not detected	1
Trichloroethylene			Not detected	1	Not detected	1
Trichlorofluoromethane		<del>                                     </del>	Not detected	1	Not detected	1
Vinyl chloride			Not detected	1	Not detected	<del>i</del>
Polynuclear Aromatic Hydroc.(BN)	SW846-8270	ug/L				
Acenaphthene	2,10100210	,	Not detected	1.4	Not detected	1.4
Acenaphthylene		-	Not detected	1.5	Not detected	1.5
Anthracene		<u> </u>	Not detected  Not detected	1.0	Not detected  Not detected	1.0



Client Sample ID			MW-3		MW-6	-
York Sample ID			05040313-03		05040313-04	
Matrix Matrix			WATER		WATER	
Parameter	Method	Units	Results	MDL	Results	MDL
Benzo[a]anthracene			Not detected	1.6	Not detected	1.6
Benzo[a]pyrene			Not detected	1.0	Not detected	1.0
Benzo[b]fluoranthene			Not detected	1.1	Not detected	1.1
Benzo[g,h,i]perylene			Not detected	1.7	Not detected	1.7
Benzo[k]fluoranthene			Not detected	1.3	Not detected	1.3
Chyrsene			Not detected	1.4	Not detected	1.4
Dibenz[a,h]anthracene			Not detected	1.4	Not detected	1.4
Fluoranthene			Not detected	1.2	Not detected	1.2
Fluorene			Not detected	1.8	Not detected	1.8
Indeno[1,2,3-cd]pyrene			Not detected	1.6	Not detected	1.6
Naphthalene			Not detected	1.2	Not detected	1.2
Phenanthrene			Not detected	1.2	Not detected	1.2
Pyrene			Not detected	1.7	Not detected	1.7
Total RCRA Metals	SW846-6010B	mg/L				
Arsenic, total			0.007	0.004	Not detected	0.004
Barium, total			0.065	0.005	0.103	0.005
Cadmium, total			Not detected	0.005	Not detected	0.005
Chromium, total			0.006	0.005	0.012	0.005
Lead, total			0.016	0.003	0.018	0.003
Selenium, total			Not detected	0.005	Not detected	0.005
Silver, total			Not detected	0.005	Not detected	0.005
Mercury	SW846-7470	mg/L	Not detected	0.0004	Not detected	0.0004
Dissolved RCRA Metals	SW846	mg/L				
Arsenic, dissolved			Not detected	0.010	Not detected	0.010
Barium, dissolved			0.058	0.005	0.045	0.005
Cadmium, dissolved			Not detected	0.005	Not detected	0.005
Chromium, dissolved			0.005	0.005	0.008	0.005
Lead, dissolved			0.005	0.005	Not detected	0.005
Selenium, dissolved			Not detected	0.010	Not detected	0.010
Silver, dissolved			Not detected	0.005	Not detected	0.005
Mercury, Dissolved	SW-846-7470	mg/L	Not detected	0.0004	Not detected	0.0004

Units Key:

For Waters/Liquids: mg/L = ppm; ug/L = ppb

For Soils/Solids: mg/kg = ppm; ug/kg = ppb

#### Notes for York Project No. 05040313

- 1. The MDL (Minimum Detectable Limit) reported is adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference.
- 2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
- 3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
- 4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
- 5. All samples were received in proper condition for analysis with proper documentation.
- **6.** All analyses conducted met method or Laboratory SOP requirements.
- 7. It is noted that no analyses reported herein were subcontracted to another laboratory.

Approved B

Robert Q. Bradley Managing Director

Date: 4/18/2005

1xambre literary Turn-Around Time Requested-Specify Date Expected if RUSH Requested: DATE DUE FOR RUSH: 2×40 m Container Desc. / Date/Time RUSH(Define) Samples Collected by (signature) Kevin Wolfe Name (printed) Field Chain-of-Custody Record Page\_\_\_\_ of \_\_\_ VOCS (8260+mfoe), (8270) dissolved no XSTANDARD Analyses Requested Project ID/No. CP9920.40 Date/Time 4-12-05 Date Sampled Water Soil Air Other Invoice to: Samples Relinquished by Samples Relinquished by Brenda 4-12-05 Kevin Wolfe Report to: Date/Time Date/Time MW-26-2 Location/ID 9 - W M Ecosystems Strategies, Inc. Analytical Laboratories, Inc. STRATFORD, GT 06615 MW-3 FAX 203.357-0166 Bottles Relinquished from Lab by 120 RESEARCH DRIVE Comments/Special Instructions MW Bottles received in field by Company Name Chain-of-Custody Record 203.325.1371 Sample No.