BENCHMARK
ENVIRONMENTAL
ENGINEERING &
SCIENCE, PLLC

October 5, 2011

Mr. Maurice F. Moore
New York State Department of Environmental Conservation
Division of Environmental Remediation
270 Michigan Ave
Buffalo, New York 14203

Re: RealCo (Former Al-Tech Specialty Steel Corp Facility) Site Dunkirk, NY
Groundwater Monitoring Summary Report

Dear Mr. Moore:

In accordance with our April 8, 2011 proposal, Benchmark Environmental Engineering & Science, PLLC is submitting this letter report to transmit the results of the groundwater monitoring event at the RealCo (Former Al-Tech Specialty Steel Corp Facility) Site in Dunkirk, New York. The groundwater monitoring was performed from May 18 through June 1, 2011.

MONITORING WELL INVENTORY

Benchmark performed an inventory of the monitoring wells listed on Table 1. The inventory included water level and total depth measurements; noted condition/integrity of the monitoring well; and collection of New York State plane northing and easting survey coordinates at each of the well locations. Monitoring wells that could not be sampled, located, and/or were destroyed are noted on Table 1.

FIELD SAMPLING PROCEDURE

Upon completion of the monitoring well inventory, the wells were sampled using a peristaltic pump with dedicated tubing following low-flow groundwater purging and sampling procedures. Field measurements for pH, Eh, specific conductance, dissolved oxygen, temperature, turbidity, and visual/olfactory observations were recorded and monitored for stabilization. Once the field parameters stabilized, groundwater samples were collected. All water samples were transferred into laboratory supplied, pre-preserved sample containers and transported under chain-of-custody command to TestAmerica Laboratories, Inc. for analysis of Target Compound List (TCL) volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), Target Analyte List (TAL) metals, polychlorinated biphenyls (PCBs), mercury, chloride, fluoride, total hardness, nitrate, sulfate, and hexavalent chromium per USEPA SW-846 Methodology.

2558 Hamburg Turnpike, Suite 300 | Buffalo, NY 14218
phone: (716) 856-0599 | fax: (716) 856-0583

ANALYTICAL RESULTS

Attachment 1 includes a copy of the TestAmerica Level IV analytical data packages. Due to the large volume of data, the analytical report is provided in electronic format. Compounds detected above method detection limits are shown on Tables 2a and 2b with their associated sample concentrations. NYSDEC Groundwater Quality Standards and Guidance Values (GWQS/GV; TOGS 1.1.1, June 1998) are presented for comparison. Concentrations exceeding the GWQS/GV are highlighted. Data qualifiers per the Data Usability Summary Report (see below) have been added to Tables 2a and 2b as well.

DATA QUALITY

The laboratory analytical data from the monitoring event was submitted for independent review. Ms. Judy Harry of Data Validation Services performed the data review and prepared a Data Usability Summary Report (DUSR). In general, sample processing was conducted in compliance with protocol requirements. Sample results are usable as reported; or useable with minor edit or qualification. Attachment 2 includes a copy of the DUSR.

ELECTRONIC DATA DELIVERY (EDD)

An Electronic Data Delivery (EDD) of all analytical and survey data were uploaded to NYSDEC's EQUIS System.

Please contact us if you have any questions or require additional information.

Sincerely,
Benchmark Environmental Engineering & Science, PLLC

Thomas H. Forbes, P.E.
Sr. Project Manager

Att.
c: File: 0041-013-600

TABLES

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 1

MONITORING WELL SUMMARY

REALCO INC SITE (FORMER AL-TECH SPECIALTY STEEL CORP FACILITY)
DUNKIRK, NEW YORK

Location	TOR Elevation (fmsl)	Total Depth (fbTOR)	Water Level (fbTOR)	Groundwater Elevation	Northing	Easting	Surface Completion	Condition of Well /Comments
RFI MONITORING WELLS								
RFI-01	640.72	13.32	8.86	631.86	900680.559	944448.275	flush-mount	*Good*
RFI-02	638.54	12.20	6.10	632.44	900956.742	944105.264	flush-mount	*Good*
RFI-03	635.87	9.85	NA	NA	***Not located and/or destroyed***		flush-mount	***No samples obtained from well***
RFI-04	638.48	27.15	4.55	633.93	901570.683	944735.848	stick-up	*Good*
RFI-05	634.26	17.30	5.57	628.69	902410.877	944345.971	stick-up	*Good*
RFI-06	633.87	13.47	7.25	626.62	***No coordinates collected due GPS interference.***		stick-up	*Good*
RFI-07	635.12	11.65	NA	NA	***Not located and/or destroyed***		flush-mount	***No samples obtained from well***
RFI-08	631.50	10.75	NA	NA	***Not located and/or destroyed***		flush-mount	***No samples obtained from well***
RFI-09	632.22	13.17	3.95	628.27	902125.850	943057.850	stick-up	*Good*
RFI-10	632.16	15.66	2.83	629.33	901910.916	943019.062	stick-up	*Good*
RFI-11	632.65	18.18	4.39	628.26	902031.022	942865.817	stick-up	*Good*
RFI-12	630.30	14.04	7.78	622.52	901403.267	942584.584	stick-up	*Good*
RFI-13	622.19	16.25	6.70	615.49	***No coordinates collected due GPS interference.***		flush-mount	***Cover missing from curb box***
RFI-14	633.11	16.45	4.14	628.97	900741.778	942968.233	stick-up	*Good*
RFI-15	642.09	18.86	10.84	631.25	900781.432	943353.515	stick-up	***Obstruction in casing at 11.6 ft***
RFI-16	641.13	17.02	6.30	634.83	900781.432	943353.515	stick-up	*Good*
RFI-17	637.39	13.72	5.86	631.53	901773.599	943658.381	stick-up	*Good*
RFI-18	621.52	20.62	15.70	605.82	902460.373	942600.225	stick-up	*Good*
RFI-19	629.79	30.82	8.00	621.79	902109.469	942662.449	stick-up	*Good*
RFI-20	624.45	13.56	NA	NA	***Not located and/or destroyed***		flush-mount	***No samples obtained from well***
RFI-21	624.15	14.70	NA	NA	***Not located and/or destroyed***		flush-mount	***No samples obtained from well***
RFI-22	641.04	15.31	11.20	629.84	900745.751	944094.955	flush-mount	*Good*
RFI-23	634.09	20.97	6.75	627.34	900983.449	942938.025	stick-up	*Good*
RFI-24	638.15	18.07	6.33	631.82	901162.970	943165.385	stick-up	*Good*
RFI-25	641.06	17.36	3.90	637.16	901232.959	943806.208	stick-up	*Good*
RFI-26	631.07	24.40	8.09	622.98	902436.619	944243.252	stick-up	*Good*
RFI-27	633.68	22.20	9.23	624.45	902443.083	943912.081	stick-up	*Good*
RFI-28	637.96	32.48	3.43	634.53	901541.771	945200.919	stick-up	*Good*
RFI-29	630.20	26.32	8.26	621.94	901782.089	942578.810	stick-up	*Good*
RFI-30	626.52	18.32	7.75	618.77	900759.034	942595.829	flush-mount	*Good*
RFI-31	631.72	23.39	NA	NA	***Not located and/or destroyed***		flush-mount	***No samples obtained from well***
RFI-32	631.18	22.40	NA	NA	***Not located and/or destroyed***		flush-mount	***No samples obtained from well***
RFI-33	631.40	32.97	NA	NA	***Not located and/or destroyed***		flush-mount	***No samples obtained from well***
RFI-34	NA	38.07	15.50	NA	902440.279	944235.318	stick-up	*Good*
RFI-35	NA	16.65	7.65	NA	902309.570	943130.404	stick-up	*Good*
RFI-36	NA	27.27	8.95	NA	902308.341	943122.704	stick-up	*Good*
BFS-1	NA	11.44	3.73	NA	901801.461	943846.276	flush-mount	*Good*
BFS-2	NA	6.99	3.15	NA	901816.520	943792.302	flush-mount	*Good*

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 1

MONITORING WELL SUMMARY

REALCO INC SITE (FORMER AL-TECH SPECIALTY STEEL CORP FACILITY)
DUNKIRK, NEW YORK

Location	TOR Elevation (fmsl)	Total Depth (fbTOR)	Water Level (fbTOR)	Groundwater Elevation	Northing	Easting	Surface Completion	Condition of Well /Comments
LUCAS AVENUE PLANT SITE WELLS								
TW-1	631.41	39.50	18.23	613.18	902466.262	943512.514	flush-mount	*Good*
TW-2	631.55	26.07	3.00	628.55	902461.205	943616.477	flush-mount	*Good*
TW-3	631.60	19.60	3.21	628.39	902467.952	943467.463	flush-mount	*Good*
TW-4	631.11	20.77	0.27	630.84	902463.879	943448.808	flush-mount	*Good*
TW-5	NA	19.04	2.44	NA	902470.347	943405.085	flush-mount	*Good*
TW-6	NA	17.17	2.30	NA	902508.624	943526.252	flush-mount	*Good*
TW-7	NA	18.97	2.40	NA	902513.463	943468.505	flush-mount	*Good*
TW-8	NA	19.27	3.05	NA	902514.243	943404.018	flush-mount	*Good*
TW-9	NA	16.97	1.50	NA	902659.990	943437.125	flush-mount	*Good*
TW-10	NA	19.65	NA	NA	***Not located and/or destroyed***		flush-mount	***No samples obtained from well***
TW-11	NA	0.00	NA	NA	***Not located and/or destroyed***		flush-mount	***No samples obtained from well***
TW-12	NA	19.67	3.30	NA	902580.471	943539.772	flush-mount	*Good*
TW-13	NA	19.48	4.09	NA	902580.471	943539.772	flush-mount	*Good*
TW-14	NA	19.47	2.68	NA	902516.258	943362.801	flush-mount	*Good*
TW-15	630.54	18.12	2.10	628.44	902534.330	943469.018	flush-mount	*Good*
DEC-01	NA	17.02	6.99	NA	902439.516	944085.809	stick-up	*Good*
EXISTING MONITORING WELLS								
B-1	638.54	20.64	2.10	636.44	900995.928	944473.802	flush-mount	*Good*
WP-1	639.51	14.71	NA	NA	900963.952	943107.026	stick-up	***Well casing stickup crushed 1.5 feet below grade***
WP-2	643.61	20.20	8.64	634.97	900989.469	943308.905	stick-up	*Good*
WP-3	637.11	16.62	7.80	629.31	900918.866	943097.501	stick-up	*Good*
WP-4	641.90	20.27	9.60	632.30	900899.917	943321.092	stick-up	*Good*
WP-5	635.69	17.93	12.84	622.85	900611.650	943070.745	stick-up	*Good*
WP-6	638.22	13.49	NA	NA	900615.407	943242.332	stick-up	***Well casing stickup crushed 1.5 feet below grade. No samples obtained from well.***
WP-7	635.11	13.23	12.21	622.90	900541.442	943069.296	stick-up	*Good*
WP-8	638.75	19.49	12.08	626.67	900530.958	943245.888	stick-up	*Good*
MW-1	NA	NA	NA	NA	***Not located and/or destroyed***		stick-up	***No samples obtained from well***
MW-2	NA	NA	NA	NA	***Not located and/or destroyed***			***No samples obtained from well***
MW-3	635.17	11.72	3.50	631.67	901785.465	943731.876	flush-mount	*Good*
WT-1A	635.62	16.97	6.40	629.22	902024.731	943388.415	stick-up	*Good*
WT-1B	634.60	15.27	3.40	631.20	901976.538	943392.977	stick-up	*Good*
WT-2	632.35	11.43	3.25	629.10	902163.316	943306.206	stick-up	*Good*
WT-3	631.35	17.57	2.98	628.37	902146.063	943144.989	stick-up	*Good*
WT-4	630.18	16.47	1.32	628.86	902038.488	943164.043	stick-up	*Good*
LAE-4	632.28	20.07	3.80	628.48	***No coordinates collected due GPS interference.***		flush-mount	*Good*
LAW-5	632.44	18.97	NA	NA	***Not located and/or destroyed***		flush-mount	***No samples obtained from well***
LAW-6	632.31	18.22	NA	NA	***Not located and/or destroyed***		flush-mount	***No samples obtained from well***

Notes:

TOR = top of riser
NA = not available
fbTOR = feet below top of riser
fmsl = feet above mean sea level

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 2b
SUMMARY OF GROUNDWATER ANALYTICAL DATA
REALCO INC SITE (FORMER AL-TECH SPECIALTY STEEL CORP FACILITY)
DUNKIRK, NEW YORK

Parameter [1]	RFI-01	RFI-02	RFI-04	RFI-05	RFI-06	RFI-9	RFI-10	RFI-11	RFI-12	RFI-13	RFI-14	RFI-15	RFI-16	RFI-17	RFI-18	RFI-19	RFI-22	RFI-23	RFI-24	RFI-25	RFI-26	RFI-27	RFI-28	RFI-29	RFI-30	RFI-34	RFI-3e	RFI-36	B-1	BFS-1	BFS-2	GWQS [2]
Volatile Organic Compounds (VOCs) - ug/L																																
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3.8**	ND	ND	ND	ND	**74**	ND	ND	ND	ND	ND	1
Cyclohexane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	ND	ND	ND	ND	35	ND	ND	ND	ND	ND	--
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.44 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**82**	ND	ND	ND	ND	ND	ND	ND	**600**	ND	ND	ND	ND	**5.3**	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**6.8**	ND	ND	ND	ND	ND	ND	ND	2.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.79 J	ND	ND	ND	ND	4.4	ND	ND	ND	ND	ND	5
Isopropylbenzene (Cumene)	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	2.2	ND	ND	ND	ND	ND	5
Methylcyclohexane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.8	ND	ND	ND	ND	28	ND	ND	ND	ND	ND	--
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**210**	ND	ND	ND	ND	ND	ND	ND	**340**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2
Total Xylene	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	**14**	ND	ND	ND	ND	ND	5
Total VOCs	0	0	0	0	0	0	0	0	0	0	0	0	299	0	0	0	0	0	0	0	967	0	0	0	0	163	0	0	0	0	0	--
Semi-Volatile Organic Compounds (SVOCs) - ug/L																																
Acetophenone	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	ND	ND	ND	ND	--
bis(2-Ethylhexyl)phthalate	2.4 J	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	ND	ND	ND	5
Butylbenzylphthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.72 NJ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Diethylphthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.42 J	ND	ND	ND	ND	ND	ND	ND	50
4-Methylphenol (p-Cresol)	ND	ND	0.47 J	0.41 J	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	--
Inorganic Compounds - mg/L																																
Aluminum	0.61	1.2	ND	ND	0.41	ND	ND	ND	ND	0.65	0.72	0.35	0.58	ND	1.1	ND	ND	ND	0.95	ND	0.20	ND	ND	ND	ND	10.7 J	19.5 J	19 J	ND	0.22	1.5	--
Arsenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.030	ND	ND	ND	ND	ND	ND	0.012	ND	ND	ND	ND	13
Barium	0.087	0.028	0.032	0.063	0.064	0.043	0.092	0.079	0.051	0.14	0.15	0.061	0.054	0.047	0.066	0.25	0.092	0.030	0.071	0.069	0.093	0.028	0.36	0.055	0.38	0.31	0.31 J	**2.3**	0.24	0.041	0.040	1
Beryllium	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	**0.0042**	ND	ND	ND	0.003
Cadmium	ND	0.0017	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0010	0.0014	0.0019	ND	ND	ND	ND	0.005
Calcium	92.5	257	135	96.8	70.2	132	120	113	66	173	95	158	154	110	205	69.7	101	142	105	108	98.5	126	66.7	116	110	45.6	113	52.2	79.8	214	34.5	--
Chromium	ND	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0093	ND	ND	ND	ND	0.0056	0.018 J	0.023 J	0.023 J	ND	0.0059	0.023	0.05
Chromium, hexavalent	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	0.016	ND	ND	ND	0.05
Cobalt	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0062	ND	ND	ND	ND	ND	0.0060	ND	ND	ND	ND	ND	ND	0.0042 J	0.0081 J	0.0098	ND	ND	ND	--
Copper	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	0.011	0.018 J	0.021	ND	ND	0.014	0.2
Iron	**0.76**	**2.6**	**2.3**	0.18	**1.2**	0.21	0.24	**1.3**	0.15	**0.94**	**1.8**	**0.60**	**3.6**	**1.6**	**4.9**	**0.81**	ND	**5.4**	**4.5**	**0.80**	**0.70**	0.12	**1.4**	**1.6**	**13.6**	**10.4 J**	**20.2 J**	**20.9**	**1.9**	**0.89**	**1.4**	**0.3**
Lead	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	0.0098 J	0.025 J	0.025	ND	ND	ND	0.025
Magnesium	27.2	**82**	**66**	20.7	16.9	**37.7**	**36**	34.1	28	**42.4**	34.5	**35.3**	**38.6**	32.2	**84.5**	**45.5**	30.6	**59.4**	**38.4**	**64.5**	**54**	34.8	23.5	**56.4**	32	20.1	20.4	18.2	**37.3**	**51.6**	9.5	**35**
Manganese	0.040	0.22	0.046	0.036	0.17	**0.94**	**1.7**	**0.67**	0.062	0.035	**0.38**	0.0072	**0.71**	**1.5**	**0.58**	0.027	0.047	0.060	**0.41**	**0.32**	0.16	0.18	**0.9**	0.081	**0.92**	0.095 J	**1.5 J**	0.25	0.091	**5.9**	0.19	**0.3**
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.013	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.013 J	0.022 J	0.028	ND	0.029	0.022	0.1
Potassium	1.2	3.2	1.8	0.77	1.8	1.4	2.9	1.9	2.2	2.3	2.9	1.2	2.2	2.8	5.3	7.9	1.2	2.5	2.9	5.4	4.5	1.9	1.6	7.2	3.1	8.0	8.9 J	10.9 J	3.8	1.4	2.9	--
Sodium	5.2	16.9	15.9	20	**30.1**	**33.2**	**130**	**28.1**	19.2	**119**	**52.9**	**20.9**	**95**	**74.9**	**194**	**45.7**	**27.6**	**23.3**	**25.3**	8.9	**47.2**	**46.2**	**30.9**	**39.6**	**86.2**	**284**	12.3	**270**	**55.7**	**41.9**	16.3	**20**
Vanadium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.010	ND	ND	ND	ND	ND	0.017 J	0.023 J	0.026	ND	ND	ND	--
Zinc	0.011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.044	0.035 J	0.76 J	0.062	ND	0.012	0.070	**2**
Water Quality Parameters - mg/L																																
Nitrate, mg/L-N	ND	ND	ND	0.22	0.11	ND	ND	ND	0.12	1.3	ND	ND	ND	0.13	ND	0.31	ND	ND	ND	ND	ND	0.90	ND	ND	0.18	ND	0.015	0.061	ND	ND	1.3	**10**
Sulfate	46.3	**541**	195	51.9	58.7	116 J	152	84.5	56.1	51.3	32.1	143	141	135	**312**	52.2	114	189	82.3	60	170	210	17.6	179	ND	ND	23	9.7	105	**472**	38.1	**250**
Chloride	3.7	2.4	7.5	3.9	5.1	20.8	230	9.9	18.3	**278**	92.4	30.9	131	125	**371**	5.5	22.8	6.3	5.1	78.9	27.7 J	18.8	16.3	11.1	102	216	1.4 J	33.8	4.6	4.1	5.6	**250**
Fluoride	0.22	0.18	0.17	0.55	0.66	0.66	0.34	0.32	0.45	0.18	0.27	0.13	0.35	**1.8**	0.26	0.23	0.63	0.18	0.20	**6.5**	0.28 J	0.27	0.29	0.35	0.41	0.32	0.46	0.45	0.27	**2.1**	**3.0**	**1.5**
Hardness as Calcium Carbonate	323	1030	937	416	203	571	470	502	304	650	736	681	642	462	890	420	448	710	422	589	520	450	298	594	365	440 J	360	180	378	806	124	--
Field Measurements (units as indicated)																																
pH (units)	6.9	6.97	7.13	7.27	7.29	6.98	7.34	7.23	7.71	7.11	7.22	6.92	6.97	7.22	7.22	7.51	7.35	7.09	7.15	7.37	7.47	7.31	7.43	7.33	7.17	7.52	7.14	7.58	7.53	6.47	7.44	--
Temperature (C)	11.3	12.2	12.8	11.8	13.5	13.2	14.3	13.8	15.9	13.6	10.3	13.6	11.6	13.2	13.3	163	12.8	11.5	11.3	11.3	16	15.6	13.9	15	11.8	17.5	21	22	13.2	14.6	17	--
Specific Conductance (uS)	613	1715	1042	641	1180	946	1386	837	583	1689	924	970	1270	1148	1911	789	751	1072	806	993	966	943	588	1013	1122	1933	702	1133	789	1364	317	--
Turbidity (NTU)	12	62	22	10.5	20.5	4.3	9.6	14	5.73	18	43	14	23	11	>100	7.36	5.6	34	55	10.4	6.8	7.45	11	6	23	>100	87	<100	2.61	8	32	--
ORP (mV)	132	113	26	120	5	113	93	65	118	164	151	60	-8	119	-175	96	145	3	106	72	104	166	40	-8	-52	-83	109	-19	-98	137	126	--
DO (ppm)	2.33	2.82	NA	NA	2.54	2.18	2.9	3.5	2.94	NA	3.04	4.49	1.86	3.29	NA	4.06	2.65	3.08	2.32	2.46	3.35	NA	1.96	3.57	1.57	NA	2.89	2.87	2.37	2.22	8.39	--

Notes:
1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Class "GA" Groundwater Quality Standards and Guidance Values (GWQS/GV) for NYSDEC Divisions of Water TOGS 1.1.1

Definitions:
ND = Parameter not detected above laboratory detection limit
NA = Sample not analyzed for parameter.
"--" = No GWQS available.
J = Estimated value; result is less than the sample quantitation limit but greater than zero
NJ = Detection is tentative in identification and estimated in value. Result should be used with caution as a potential false positive and/or elevated quantitative value.
B= Compound found in the blank and sample

BOLD = Result exceeds GWQS/GV

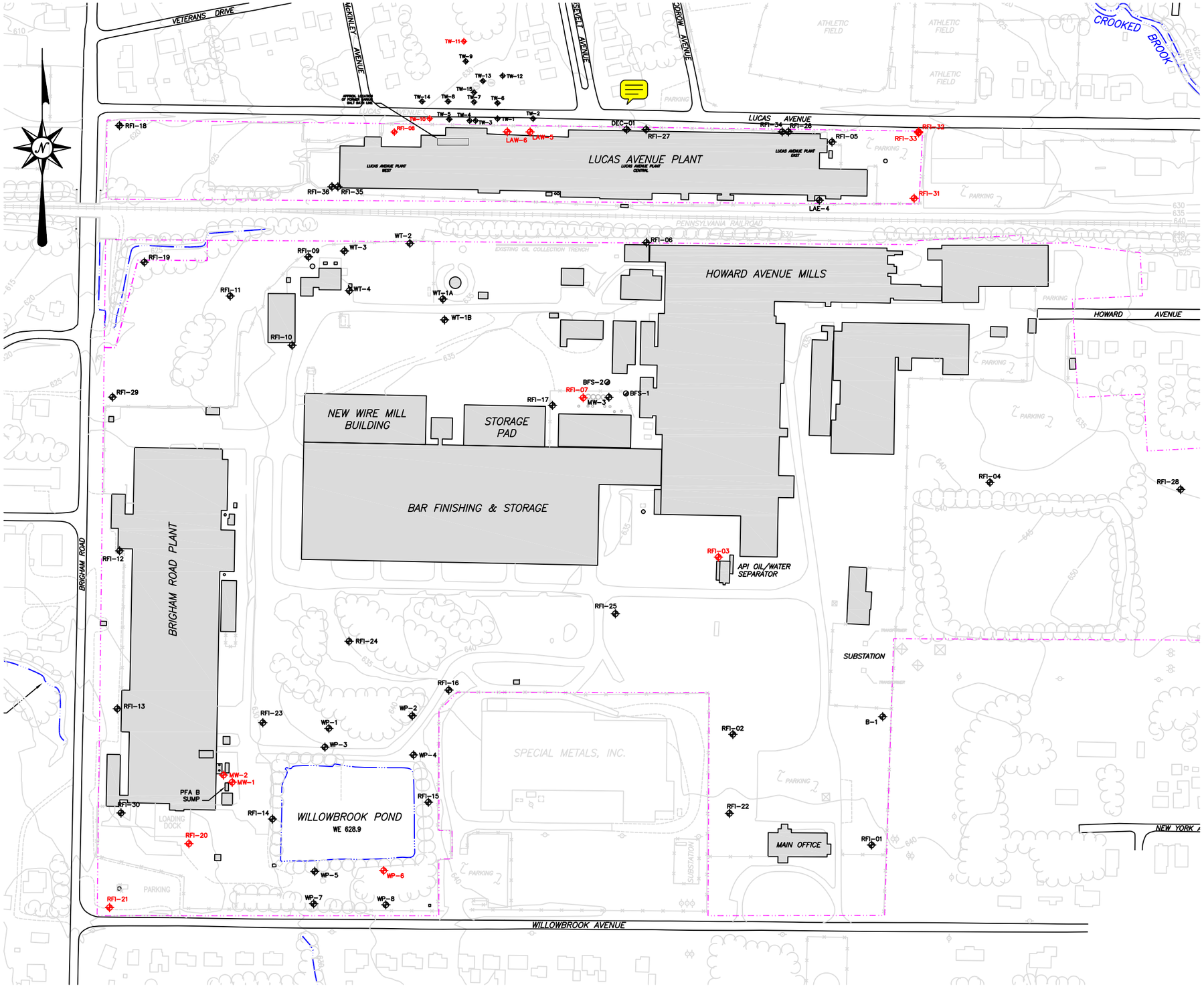
BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 2a
SUMMARY OF GROUNDWATER ANALYTICAL DATA
REALCO INC SITE (FORMER AL-TECH SPECIALTY STEEL CORP FACILITY)
DUNKIRK, NEW YORK

Parameter [1]	Sample Location																													GWQS/GV [2]
	WP-1	WP-2	WP-3	WP-4	WP-5	WP-7	WP-8	WT-1A	WT-1B	WT-2	WT-3	WT-4	Blind Dup (WP-5)	Blind Dup #2 (RFI-35)	Blind Dup #3 (RFI-34)	TW-1	TW-2	TW-3	TW-4	TW-5	TW-6	TW-7	TW-8	TW-9	TW-10	TW-13	TW-14	TW-15	MW-3	DEC-01	LAE-4	
Volatile Organic Compounds (VOCs) - ug/L																															
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	33 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	50
Benzene	ND	ND	ND	ND	0.81 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	**79**	**1.7**	**21**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND	ND	ND	**91**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	50
Carbon disulfide	ND	ND	ND	ND	0.26 J	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	60
Cyclohexane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	42	5.6	5.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
1,1-Dichloroethene	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	ND	ND	ND	**5.1**	5
cis-1,2-Dichloroethene	ND	ND	ND	**5.1**	ND	ND	ND	ND	ND	**14**	ND	ND	ND	ND	**6.1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**16**	**350**	5
trans-1,2-Dichloroethene	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	ND	ND	3.8	**12**	5
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**5.6**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Isopropylbenzene (Cumene)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Methylcyclohexane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	34	2.4	1.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
Toluene	ND	ND	ND	ND	0.54 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.66 J	0.58 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.61 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Trichloroethene	ND	ND	ND	1.8	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	1.5	**3700**	5
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	**5.6**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**26**	**2**	5
Total Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**18**	ND	3.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Total VOCs	0	0	0	6.9	1.6	0	0	0	0	144	0	0	0	0	188	10.3	31.3	0	0	0.61	0	0	0	0	0	0	0	0	0	21	4093	--
Semi-Volatile Organic Compounds (SVOCs) - ug/L																																
Acetophenone	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.5 J *	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
Benzo(a)anthracene	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	ND	ND	ND	ND	0.002
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.2 J ***	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.002
Benzo(k)fluoranthene	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	ND	ND	ND	ND	0.002
Benzo(g,h,i)perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.82 J *	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.96 J *	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	ND	ND	2.2 J	2.6 J	ND	ND	ND	**12 ***	ND	ND	ND	4.4 J *	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Chrysene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.86 J *	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.4 J *	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	50
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.71 J ***	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.002
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.77 J	ND	0.86 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
Naphthalene	ND	ND	ND	ND	3.2 J	4 J	5.0	ND	ND	ND	ND	ND	8.5	ND	0.98 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10
4-Nitroaniline	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.48 NJ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Phenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.6 J ***	ND	ND	ND	ND	**6.6**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
Pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	50
Metals - mg/L																																
Aluminum	ND	ND	0.58	0.53	1.6	ND	ND	0.26	0.34	0.51	1.4	ND	2.0	7.2 J	19.1 J	4 J	0.95 J	0.21 J	3.9 J	0.37 J	0.35 J	ND	0.42 J	0.38 J	0.21 J	0.61 J	1.7 J	0.98 J	ND	1.6	0.42 J	--
Antimony	ND	ND	ND	**0.036**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.019**	ND	ND	ND	**0.62**	ND	ND	ND	ND	ND	**0.024**	ND	ND	ND	0.003
Arsenic	ND	ND	ND	ND	ND	ND	ND	0.016	ND	ND	0.010	ND	ND	ND	0.015	ND	ND	ND	0.014	ND	ND	ND	ND	ND	ND	ND	ND	0.020	ND	ND	ND	0.025
Barium	0.078	0.067	0.082	0.048	0.063	0.069	0.056	0.087	0.15	0.13	0.030	0.062	0.063	0.2 J	0.37	0.16	0.057	0.14	0.23	0.22	0.050	0.029	0.049	0.027	0.024	0.036	0.36	0.050	0.018	0.11	0.099	1
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0011	0.0017	0.0013	0.0014	ND	**0.024**	ND	**0.0078**	0.0024	**0.014**	**0.040**	ND	ND	ND	ND	ND	ND	ND	0.005
Calcium	115	162	91.3	145	122	153	134	139	189	188	209	163	125	121	46.4	34.9	187	92.5	132	98.6	301	203	165	259	230	406	126	282	199	122	94.1	--
Chromium	0.0081	ND	0.012	**2.9**	0.011	ND	**0.33**	0.026	ND	ND	0.026	ND	0.0096	0.0094 J	0.034 J	0.013 J	0.017 J	**17 J**	**8.7 J**	**0.24 J**	0.011 J	**42.6 J**	0.0099 J	ND	ND	0.0042 J	0.0054 J	**35.3 J**	ND	0.047	ND	0.05
Chromium, hexavalent	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**13.6**	**6.4**	ND	ND	**38.7**	ND	ND	ND	ND	ND	**30.2**	ND	ND	ND	0.05
Cobalt	ND	0.010	ND	0.0064	ND	ND	ND	0.0072	ND	ND	ND	ND	ND	ND	0.01 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0045	0.0043	--
Copper	ND	ND	ND	0.018	ND	ND	ND	0.024	ND	ND	ND	ND	ND	ND	0.027 J	ND	ND	ND	0.014	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.037	ND	0.2
Iron	**2.8**	**3.8**	**0.58**	**15.1**	**1.7**	0.20	**1.3**	**4.2**	**1.4**	ND	**4.0**	**2.7**	**1.8**	**6.3 J**	**24.7 J**	**5.0**	**0.70**	0.11	**2.7**	**0.55**	**0.61**	0.25	**1.8**	**5.9**	**1.4**	**1.9**	**1.4**	**0.87**	0.21	**2.6**	**2.5**	0.3
Lead	ND	ND	ND	ND	ND	ND	ND	0.0056	ND	ND	ND	ND	ND	0.011 J	0.022 J	0.006	ND	ND	0.022	ND	ND	ND	ND	ND	ND	0.025	ND	ND	**0.077**	ND	0.025
Magnesium	13.8	**55**	17.2	**41.9**	31.7	**35.6**	**36**	**37.5**	**45.7**	ND	**70.6**	**56.6**	32.3	16.2	22.6	13.6	**69.6**	**38.4**	**59.4**	22.5	**95.8**	**71.6**	**62.2**	**71.9**	**74.3**	**151**	33.9	**93.6**	**58.9**	32.3	21	35
Manganese	0.023	**0.34**	0.11	0.18	0.096	0.024	0.055	**1.1**	**0.59**	ND	**0.32**	**2.5**	0.10	**0.83 J**	0.19 J	0.11	0.078	0.058	**0.47**	0.19	0.16	0.082	0.13	**0.49**	0.021	0.11	0.086	0.024	**0.36**	**0.45**	**3.7**	0.3
Nickel	0.013	ND	0.015	**0.14**	ND	0.011	0.021	0.051	ND	0.053	0.024	ND	ND	ND	0.031 J	ND	0.015	ND	0.018	ND	ND	ND	ND	0.014	ND	ND	ND	ND	0.013	0.046	ND	0.1
Potassium	0.59	1.3	0.95	1.9	1.4	1.4	1.4	1.3	2.5	13.9	8.0	5.9	1.2	8.6 J	10.5	6.2 J	3.6 J	5.1 J	9.6 J	1.7 J	6 J	5.2 J	4.4 J	3.2 J	3.7 J	6.6 J	3.4 J	6.3 J	3.9	1.8	0.91 J	--
Sodium	5.2	13.7	**22.2**	**54.7**	17.4	7.5	11.6	**48.5**	129	**35.8**	**143**	**199**	16.2	12.4	**289**	**224**	**311**	**270**	**622**	**146 ^**	**805 ^**	**722 ^**	**143 ^**	**24.7 ^**	**79.2**	**187 ^**	**530 ^**	**811**	**91.1**	**80.6**	14.9	20
Vanadium	ND	ND	ND	0.017	ND	ND	ND	ND	ND	ND	0.0062	ND	ND	0.009 J	0.03 J	0.0051	ND	0.013	0.014	ND	ND	0.047	ND	ND	ND	ND	ND	0.022	ND	0.0053	0.0051	--
Zinc	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.3 J	0.058 J	0.032	0.019	ND	0.028	ND	0.025	0.013	0.088	0.054	0.44	0.17	0.085	0.019	ND	0.05	ND	2
Water Quality Parameters - mg/L																																
Nitrate, mg/L-N	ND	0.23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.15	ND	ND	0.92	**21.1**	**15.9**	ND	0.3	**87.4**	0.11	1.4	0.26	ND	0.29	**75.2**	0.15	0.96	ND	10
Sulfate	ND	120	47.9	**298**	85.6	120	128	87.4	89.1	ND	**725**	**493**	83.7	32.2	ND	51.1	**339**	79.7	219	ND	183	**445**	164	**421**	**320**	**624**	64.8	**406**	**344**	79.7	61.9	250
Chloride	7.2	14.0	23.3	25.7	31.6	10.2	18.2	55.2	55.7	10.1	32.6	137	33.9	2.5 J	217	139	**456**	197	**759**	32.3	**1360**	**596**	**370**	220	158	**713**	**705**	**987**	133	148	5.6	250
Fluoride	0.82	0.10	0.41 J	0.22	0.21	0.17	0.14	0.34	**1.8**	0.19	1.5	0.54	0.22	0.47	0.3	0.24	0.36	0.32	1.2	0.31	0.23	0.49	0.35	0.27	0.2	0.17	0.28	0.34	0.49	0.37	0.31	**1.5**
Hardness as Calcium Carbonate	145	421	313	552	460	599	485	517	739	555	985	744	466	330	3400 J	140	680	400	520	344	1040	850	650	850	790	1780	440	1000	759	460	330	--
Field Measurements (units as indicated)																																
pH (units)	6.98	6.88	6.55	7.21	7.10	7.07	7.24	6.96	7.09	12.32	7.19	7.51	--	--	--	7.14	7.09	7.47	7.44	7.07	6.95	7.3	7.05	7.1	7.02	6.88	7.27	7.16	7.01	7.24	7.31	--
Temperature (C)	12.5	12.7	11.4	12.7	11.1	10.8	11.6	13	14.2	16.6	16	16.2	--	--	--	13.7	12	12	13	15.5	13.7	16.2	14	18.8	12.7	14	13	12	12.8	14.5	14	--
Specific Conductance (uS)	622	1067	633	1060	817	890	836	1047	1921	2309	2057	1865	--	--	--	1692	3897	2332	3225	1108	5871	4289	1919	1515	1865	3027	3271	5202	1645	1226	593	--
Turbidity (NTU)	4.52	16.7	28.6	462	58	21.6	17.5	360	18	12.6	29	6.6	--	--	--	97	18	9.5	235	8.38	8.7	5.27	16	20	12.6	11.5	28	26	3	31	82	--
ORP (mV)	76	185	146	202	135	120	154	-30	21	10	34	-95	--	--	--	-115	-47	62	106	90	175	181	109	-89	68	42	128	151	139	126	100	--
DO (ppm)	2.56	3.01	5.14	4.72	3.78	4.51	6.87	2.72	3.33	6.35	3.42	2.09	--	--	--	2.51	2.21	3.38	2.27	2.24	1.86	2.6	1.41	NA	3.22	2.47	2.1	3.86	2.42	NA	3.81	--

Notes:
1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Class "GA" Groundwater Quality Standards and Guidance Values (GWQS/GV) for NYSDEC Divisions of Water TOGS 1.1.1.

Definitions:
ND = Parameter not detected above laboratory detection limit.
NA = Sample not analyzed for parameter.
"--" = No GWQS available.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
NJ = Detection is tentative in identification and estimated in value. Result should be used with caution as a potential false-positive and/or elevated quantitative value.
* = LCS or LCSD exceeds the control limits OR RPD of the LCS and LCSD exceeds the control limits.
^ = Instrument related QC exceeds the control limits.
BOLD = Result exceeds GWQS/GV.



LEGEND

- FENCE LINE
- UNPAVED ROADWAYS
- PICKLE FACILITY AREAS
- PROPERTY LINE

INVESTIGATION LOCATIONS:

- RFI-11 — MONITORING WELL LOCATION AND DESIGNATION
- TW-1 — TEMPORARY MONITORING WELL LOCATION AND DESIGNATION
- RFI-07 — MONITORING WELL NOT SAMPLED AS WELL NOT LOCATED AND/OR DESTROYED
- BFS-1 — BFS ICM WELLS (RECOVERY & OBSERVATION)

250' 0' 125' 250'

SCALE: 1 INCH = 250 FEET
SCALE IN FEET
(approximate)

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1. McINTOSH & McINTOSH, P.C. DRAWING TITLED, "TOPOGRAPHICAL MAP OF THE AL TECH SPECIALTY STEEL CORPORATION SITE," DATED APRIL 2, 1996, JOB NO. 6216, FILE: ALTECH.DWG.
2. DRAWING TITLED, "SURVEY OF PROPERTY OF ALLEGHENY-LUDLUM STEEL CORP.," DATED SEPT. 21, 1976, REV. JAN. 5, 1977 AND 12-27-78.
3. ESC. DRAWING TITLED, "SITE LAYOUT, REVISED PHASE II RFI," DATED 05-13-98, DRAWING NO. 193055-D03, FILE: D03.DWG.

DATE: OCTOBER 2011
DRAFTED BY: AJZ

BENCHMARK Environmental Engineering & Science, PLLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
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JOB NO.: 0041-013-600

GROUNDWATER MONITORING WELL LOCATIONS SITE PLAN

GROUNDWATER MONITORING SUMMARY REPORT (OCTOBER 2011)
FORMER AL TECH SPECIALTY STEEL CORPORATION FACILITY
DUNKIRK, NEW YORK
PREPARED FOR
REALCO, INC.

FIGURE 1

ATTACHMENT 1

TESTAMERICA LABORATORIES, INC.
ANALYTICAL DATA SUMMARY PACKAGES

(ELECTRONIC COPY)

BENCHMARK

ATTACHMENT 2

DATA USABILITY SUMMARY REPORT (DUSR)

BENCHMARK

Data Validation Services

120 Cobble Creek Road P.O. Box 208
North Creek, NY 12853

Phone 518-251-4429
Facsimile 518-251-4428

August 22, 2011

Thomas Forbes
Benchmark Env. Engineers
2558 Hamburg Turnpike Suite 300
Buffalo, NY 14218

RE: **D**ata **U**sability **S**ummary **R**eport for the RealCo Site
TAL-Buffalo SDG Nos. 480-5074, 480-5230, and 480-5372

Dear Mr. Forbes:

Review has been completed for the data packages noted above, generated by TestAmerica Laboratory, that pertain to samples collected between 05/18/11 and 06/01/11 at the RealCo site. Fifty-nine aqueous samples and three field duplicates were processed for TCL volatiles, TCL Volatiles, TCL PCBs, TAL metals, and six wet chemistry parameters. The analytical methods utilized are those of the USEPA SW846 6000/7000/8000.

The data packages submitted contain full deliverables for validation, but this usability report is generated from review of the summary form information, with review of sample raw data, and limited review of associated QC raw data. Full validation has not been performed. However, the reported summary forms have been reviewed for application of validation qualifiers, using guidance from the USEPA Region 2 validation SOPs, the USEPA National Functional Guidelines for Data Review, the specific laboratory methodologies, and professional judgment, as affects the usability of the data. The following items were reviewed:

* Laboratory Narrative Discussion
* Custody Documentation
* Holding Times
* Surrogate and Internal Standard Recoveries
* Matrix Spike Recoveries/Duplicate Correlations
* Field Duplicate Correlations
* Preparation/Calibration Blanks
* Control Spike/Laboratory Control Samples
* Instrumental Tunes
* Calibration/Low Level Standards
* ICP Serial Dilution
* Instrument IDLs
* Sample Result Verification

Those items listed above which show deficiencies are discussed within the text of this narrative. All of the other items were determined to be acceptable for the DUSR level review.

In summary, sample analyses were primarily conducted in compliance with the required analytical protocols. Sample results are usable either as reported or with minor qualification.

Copies of the sample identification summaries and the laboratory case narratives are attached to this text, and should be reviewed in conjunction with this report. Also included with the report are client results tables annotated to reflect the qualifications recommended within this report.

The following text discusses quality issues of concern.

Chains-of-Custody

The temperature of the cooler at laboratory receipt was not entered on several of the custody forms. The login checklist indicated them to be acceptable. The specific temperatures would be requested if full validation is required.

Strikeovers and writeovers on the custodies should be dated and initialed.

Blind Duplicate Evaluations

Blind field duplicate evaluations were performed on WP-5, RFI-26, and RFI-35. The correlations are within validation guidelines, with the exceptions of the following, results for which have been qualified as estimated in value in the indicated parent sample and its duplicate:

- aluminum, barium, chromium, iron, lead, manganese, vanadium, and zinc (43%RPD to 105%RPD), and cobalt, nickel, and chloride (>±CRDL) in RFI-35
- aluminum, iron, and manganese (56%RPD to 81%RPD), and chromium, cobalt, copper, lead, nickel, vanadium, and zinc (>±CRDL) in RFI-34
- hardness (154%RPD; almost an order of magnitude) in RFI-34—although raw data supports the higher reported value of the field duplicate, it is noted that the hardness result that would be derived from the calcium and magnesium concentrations in that duplicate much more closely resemble the concentration reported for the parent sample. An interference in the field duplicate hardness analysis is suspected.

General

The laboratory has created their own flags and definitions, some of which are not consistent with those of the NYSDEC ASP, utilizing the ASP flags with alternate definitions.

TCL Volatile Analyses by EPA 8260B

Results for analytes initially reported with an "E" laboratory flag are derived from the dilution analyses of those samples.

The matrix spikes of RFI-36 and WP-3 show acceptable recoveries and duplicate correlations of the thirteen analytes that were evaluated. The matrix spikes of RFI-26 both show elevated recoveries (128% ND 138%) for ethylbenzene, and the detected result for that analyte in the parent sample is therefore qualified as estimated in value.

Calibration standards showed acceptable responses, with the following exceptions, results for which are to be qualified as estimated in the indicated samples:

- chloroethane (23%D and 32%D) in RFI-35, RFI-36, LAE-4, TW-5, TW-6, TW-7, TW-8, TW-9, TW-13 and TW-14
- carbon disulfide (23%D and 24%D) in RFI-04, RFI-05, RFI-18, RFI-28, RFI-14, RFI-30, RFI-22, RFI-23, RFI-24, RFI-25, RFI-01, RFI-02, and B-1
- bromomethane and chloroethane (22%D to 30%D) in WP-5, WP-7, WP-8 and BLIND DUPLICATE
- dichlorodifluoroethane, bromomethane, and trans-1,4-dichlorobutene (28%D to 32%D) in WT-1A, WT-1B, WT-2, WT-3, RFI-9, RFI-10, RFI-06, RFI-17, WT-4, MW-3, BFS-1, BFS-2, RFI-11, RFI-12, RFI-19, and RFI-29

Some of the samples were analyzed at dilution due to either target or non-target analyte responses. Reporting limits for undetected analytes in those samples are elevated in proportion to the dilution factor.

TCL Semivolatiles by EPA 8270C

Results for the base/neutral (BN) compounds in RTX-35 and BLIND DUP#2 are qualified as estimated, with a possible low bias, due to low recoveries of multiple BN surrogate compounds in those samples.

The detections of butyl benzyl phthalate in RFI-25 and 4-nitroaniline in TW-4 are qualified as tentatively identified and estimated in value due to poor mass spectral quality.

The detections of benzo(k)fluoranthene in DEC-01 and benzo(a)anthracene in TW-4 are edited to non-detection due to very poor mass spectral quality.

Matrix spikes of RFI-26, RFI-36, and WP-3 show acceptable recoveries and duplicate correlations for the twelve analytes evaluated.

Laboratory Control Samples (LCSs) show analyte recoveries within the laboratory acceptance ranges, with the exception of that for n-nitrosodi-n-propylamine (53%) in the LCS associated with twelve of the samples reported in SDG 480-5230. The samples were reextracted, but beyond the allowable holding time. The initial results are to be used, but with results for that compound qualified as estimated in these affected

samples: MW-3, BFS-1, BFS-2, RFI-04, RFI-05, RFI-11, RFI-12, RFI-17, RFI-18, RFI-19, RFI-28, and RFI-29

Although the correlations for the LCS duplicates were all elevated above the recommended limits, comparison of the target analyte spike recoveries in those LCSs with the corresponding deuterated analog surrogate standard recoveries indicate a spiking error not affecting associated sample results.

Calibrations standards showed acceptable responses, with the following exceptions, results for which are to be qualified as estimated in the indicated samples:

- bis(2-chloroisopropyl)ether and n-nitrosodi-n-propylamine (23%D and 26%D) in TW-5, TW-6, TW-7, TW-8, TW-9, TW-13, TW-14, TW-1, TW-2, TW-3, TW-4, TW-12 and TW-15
- caprolactum (low RRF)

Internal standard responses meet validation guidelines.

Due to the presence in the associated method blank, the detections of acetophenone in RFI-34 and BLIND DUP #3 are considered external contamination, and edited to reflect non-detection.

TCL PCB Analyses by EPA 8082

Matrix spikes of Aroclors 1016 and 1260 in WP-3, RFI-26, and RFI-36 show acceptable recoveries and duplicate correlations.

Holding times and surrogate recoveries meet validation protocol guidelines. Although the laboratory QC summary form shows no recovery for surrogate standard TCX in the matrix spike, raw data show acceptable response.

Calibration standards meet validation guidelines.

TAL Metals Analyses by EPA 6010B and 7470

Matrix spikes (MS/MSD) for TAL metals were performed on WP-3, BFS-1, RFI-26, and RFI-36. Recoveries and duplicate correlations were acceptable, with the exception of those for aluminum and potassium (144% to 216%). Results for those two elements in all of the samples reported in SDG 480-5372 except RFI-13, RFI-26, RFI-27, RFI-34, DEC-01, and BLIND DUP #2 have been qualified as estimated in value.

The ICP serial dilution evaluations were performed on BFS-1, RFI-26, RFI-36, and WP-3. Correlations were acceptable, with the exception of those for aluminum, iron, and potassium (28%D to 45%D) in RFI-36. Detected results for those three elements in all of the samples reported in SDG 480-5372 except RFI-13, RFI-26, RFI-27, RFI-34, DEC-01, and BLIND DUP #2 have been qualified as estimated in value.

Due to low response (68%) in the associated low level standard, the results for selenium in the samples reported in SDG 480-5372 are to be qualified as estimated in value, with a possible low bias.

The reporting limit for the non-detected result of arsenic in TW-7 is to be edited upward by a factor of ten due to a matrix effect.

Instrument performance was compliant with sample processing.

Wet Chemistry Analyses

Review was conducted for method compliance, holding times, transcription, calculations, standard and blank acceptability, accuracy and precision, etc., as applicable to each procedure. All were found acceptable for the validated samples, unless noted specifically within this text.

Due to matrix interferences (discussed in the laboratory case narrative), the results for hexavalent chromium in RFI-34 and BLIND DUP#3 are to be qualified as estimated in value.

Matrix spikes of WP-3, RFI-26, and RFI-36 show acceptable recoveries and duplicate correlations, with the exception of the recoveries of fluoride in WP-3 and RFI-26 (115% to 122%), and of chloride in RFI-26 (70% and 74%). The reported results of those analytes in their respective parent samples have been qualified as estimated.

Additional matrix spike evaluations were performed for selected analytes on several other project samples. Due to outlying recoveries of hexavalent chromium in WT-4 (78%) and of sulfate in RFI-06 (-24%), results for those analytes in their respective parent samples are to be qualified as estimated in value.

Please do not hesitate to contact me if you have comments or questions regarding this report.

Very truly yours,

Judy Harry

Judy Harry

VALIDATION DATA QUALIFIER DEFINITIONS

U	The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected. The associated reported quantitation limit is an estimate and may be inaccurate or imprecise.
NJ	The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive and/or elevated quantitative value.
R	The data are unusable. The analyte may or may not be present.
EMPC	The results do not meet all criteria for a confirmed identification. The quantitative value represents the Estimated Maximum Possible Concentration of the analyte in the sample.

CLIENT and LABORATORY SAMPLE IDs and CASE NARRATIVES

SAMPLE SUMMARY

Client: Benchmark Env. Eng. & Science, PLLC

Job Number: 480-5074-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
480-5074-1	WP-5	Water	05/18/2011 1257	05/18/2011 1720
480-5074-2	WP-7	Water	05/18/2011 1152	05/18/2011 1720
480-5074-3	WP-8	Water	05/18/2011 1051	05/18/2011 1720
480-5074-4	BLIND DUPLICATE	Water	05/18/2011 1300	05/18/2011 1720
480-5144-1	WP-1	Water	05/19/2011 1050	05/19/2011 1900
480-5144-2	WP-2	Water	05/19/2011 1239	05/19/2011 1900
480-5144-3	WP-3	Water	05/19/2011 0925	05/19/2011 1900
480-5144-3MS	WP-3	Water	05/19/2011 0925	05/19/2011 1900
480-5144-3MSD	WP-3	Water	05/19/2011 0925	05/19/2011 1900
480-5144-4	WP-4	Water	05/19/2011 1326	05/19/2011 1900
480-5144-5	RFI-15	Water	05/19/2011 1416	05/19/2011 1900
480-5144-6	RFI-16	Water	05/19/2011 1538	05/19/2011 1900
480-5144-7TB	TRIP BLANK	Water	05/19/2011 0000	05/19/2011 1900
480-5195-1	RFI-14	Water	05/20/2011 0909	05/20/2011 1934
480-5195-2	RFI-30	Water	05/20/2011 0958	05/20/2011 1934
480-5195-3	RFI-22	Water	05/20/2011 1422	05/20/2011 1934
480-5195-4	RFI-23	Water	05/20/2011 1045	05/20/2011 1934
480-5195-5	RFI-24	Water	05/20/2011 1127	05/20/2011 1934
480-5195-6	RFI-25	Water	05/20/2011 1255	05/20/2011 1934
480-5195-7	RFI-01	Water	05/20/2011 1344	05/20/2011 1934
480-5195-8	RFI-02	Water	05/20/2011 1506	05/20/2011 1934
480-5195-9	B-1	Water	05/20/2011 1547	05/20/2011 1934

SAMPLE SUMMARY

Client: Benchmark Env. Eng. & Science, PLLC

Job Number: 480-5230-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
480-5230-1	WT-1A	Water	05/23/2011 1249	05/23/2011 1905
480-5230-2	WT-1B	Water	05/23/2011 1320	05/23/2011 1905
480-5230-3	WT-2	Water	05/23/2011 1440	05/23/2011 1905
480-5230-4	WT-3	Water	05/23/2011 1358	05/23/2011 1905
480-5230-5	RFI-9	Water	05/23/2011 1018	05/23/2011 1905
480-5230-6	RFI-10	Water	05/23/2011 0945	05/23/2011 1905
480-5230-7	RFI-06	Water	05/23/2011 1520	05/23/2011 1905
480-5230-8	WT-4	Water	05/23/2011 1116	05/23/2011 1905
480-5273-1	RFI-17	Water	05/24/2011 0920	05/24/2011 1832
480-5273-2	MW-3	Water	05/24/2011 0956	05/24/2011 1832
480-5273-3	BFS-1	Water	05/24/2011 1039	05/24/2011 1832
480-5273-4	BFS-2	Water	05/24/2011 1108	05/24/2011 1832
480-5273-5	RFI-11	Water	05/24/2011 1300	05/24/2011 1832
480-5273-6	RFI-12	Water	05/24/2011 1425	05/24/2011 1832
480-5273-7	RFI-19	Water	05/24/2011 1327	05/24/2011 1832
480-5273-8	RFI-29	Water	05/24/2011 1235	05/24/2011 1832
480-5321-1	RFI-04	Water	05/25/2011 1043	05/25/2011 1832
480-5321-2	RFI-05	Water	05/25/2011 1121	05/25/2011 1832
480-5321-3	RFI-28	Water	05/25/2011 0935	05/25/2011 1832
480-5321-4	RFI-18	Water	05/25/2011 1251	05/25/2011 1832

SAMPLE SUMMARY

Client: Benchmark Env. Eng. & Science, PLLC

Job Number: 480-5372-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
480-5372-1	TW-5	Water	05/26/2011 1408	05/26/2011 1837
480-5372-2	TW-6	Water	05/26/2011 1147	05/26/2011 1837
480-5372-3	TW-7	Water	05/26/2011 1106	05/26/2011 1837
480-5372-4	TW-8	Water	05/26/2011 1031	05/26/2011 1837
480-5372-5	TW-9	Water	05/26/2011 1327	05/26/2011 1837
480-5372-6	TW-13	Water	05/26/2011 0920	05/26/2011 1837
480-5372-7	TW-14	Water	05/26/2011 1001	05/26/2011 1837
480-5441-1	TW-1	Water	05/27/2011 1035	05/27/2011 1843
480-5441-2	TW-2	Water	05/27/2011 0954	05/27/2011 1843
480-5441-3	TW-3	Water	05/27/2011 1111	05/27/2011 1843
480-5441-4	TW-4	Water	05/27/2011 1113	05/27/2011 1843
480-5441-5	TW-12	Water	05/27/2011 1336	05/27/2011 1843
480-5441-6	TW-15	Water	05/27/2011 1420	05/27/2011 1843
480-5478-1	RFI-35	Water	05/31/2011 0947	05/31/2011 1430
480-5478-2	RFI-36	Water	05/31/2011 0935	05/31/2011 1430
480-5478-2MS	RFI-36	Water	05/31/2011 0935	05/31/2011 1430
480-5478-2MSD	RFI-36	Water	05/31/2011 0935	05/31/2011 1430
480-5478-3	LAE-4	Water	05/31/2011 1059	05/31/2011 1430
480-5478-4	BLIND DUP#2	Water	05/31/2011 1000	05/31/2011 1430
480-5546-1	RFI-13	Water	06/01/2011 1425	06/01/2011 1846
480-5546-2	RFI-26	Water	06/01/2011 0912	06/01/2011 1846
480-5546-2MS	RFI-26	Water	06/01/2011 0912	06/01/2011 1846
480-5546-2MSD	RFI-26	Water	06/01/2011 0912	06/01/2011 1846
480-5546-3	RFI-27	Water	06/01/2011 1347	06/01/2011 1846
480-5546-4	RFI-34	Water	06/01/2011 1022	06/01/2011 1846
480-5546-5	DEC-01	Water	06/01/2011 1241	06/01/2011 1846
480-5546-6	BLIND DUP #3	Water	06/01/2011 1000	06/01/2011 1846

Job Narrative
480-5074-1

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
Method(s) 8260B: The following volatiles sample(s) was diluted due to foaming at the time of purging during the original sample analysis: RFI-25 (480-5195-6). Elevated reporting limits (RLs) are provided.

Method(s) 8260B: The following sample(s) was diluted due to the abundance of target analytes: RFI-16 (480-5144-6). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

GC/MS Semi VOA
Method(s) 8270C: The laboratory control sample (LCS), matrix spike (MS) and matrix spike duplicate (MSD) for preparation batch 480-17443 exceeded control limits for the following analyte: Atrazine. Since this analyte was not a target spike analyte; further corrective action was not taken.

Method(s) 8270C: Surrogate recovery of 2,4,6-Tribromophenol for the following sample was outside the upper control limit: RFI-25 (480-5195-6). This sample did not contain any target analytes above the reporting limit (RL); therefore, re-extraction and/or re-analysis was not performed.

No other analytical or quality issues were noted.

GC Semi VOA
Method(s) 8082 : All primary data is reported from the ZB-5 column.

The percent difference in a PCB continuing calibration verification is assessed on the basis of the PCB total amount, individual peak calculations are only listed for completeness

The Decachlorobiphenyl surrogate recovery for the following (CCV) 480-17328/20, 480-18706/24 and 480-18706/35 were outside acceptance limits (high biased) on the primary column due to matrix interference. The recovery is within acceptance limits on the other column, indicating that the extraction process was in control.

Method(s) 8082: The percent difference in the continuing calibration verification exceeded 15% for several individual Aroclor peakson the ZB-5, though the total amount is compliant. (CCV 480-17015/49)

No other analytical or quality issues were noted.

Metals
Method(s) 6010B: The recovery of Post Spike, (480-5144-3 PDS), in batch 480-17080 exhibited a result outside the quality control limits for total calcium. However, the Serial Dilution of this sample was compliant. Therefore, no corrective action was necessary

No other analytical or quality issues were noted.

General Chemistry
Method(s) 353.2: Reanalysis of the following sample(s) was performed outside of the analytical holding time: RFI-30 (480-5195-2). Reanalysis was required due to instrument failure causing quality control failures such as blanks more negative than the negative reporting limit. Samples confirm at a non-detect.

Method(s) SM 4500 F C: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 17219 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) SM 4500 F C: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 17323 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria. (480-5195-8 MS)

Method(s) 7196A: The matrix spike duplicate (MSD) recovery for batch 16950 was outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 9038, D516-90, 02: The matrix spike duplicate (MSD) recoveries for batch 19527 were outside control limits. The associated

laboratory control sample (LCS) recovery met acceptance criteria.

No other analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

Job Narrative
480-5230-1

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
Method(s) 8260B: The following volatiles sample(s) was diluted due to foaming at the time of purging during the original sample analysis: WT-2 (480-5230-3). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

GC/MS Semi VOA
Method(s) 8270C: The the laboratory control sample duplicate (LCSD) for preparation batch 17548 exceeded control limits for the analyte N-Nitrosodi-n-propylamine. Also the %RPD for all analytes exceeded quality control limits. Re-extraction and re-analysis of the associated samples is required. However, re-extraction was preformed outside of the preparation holding time. As a result both sets of data are reported.

Method(s) 8270C: The laboratory control sample (LCS) for preparation batch 17548 exceeded control limits for the following analytes: 2,6-Dinitrotoluene and Atrazine. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method(s) 8270C: One of the two spiking mixes used in the laboratory control sample (LCS) for preparation batch 17785 was mistaken as the second and therefore added twice. As a result, only a select number of targeted spike analytes have a percent recovery, while the remaining are not detected. Re-extraction and re-analysis of associated samples is required. However, re-extraction was performed outside of the preparation holding time. As a result both sets of data are reported.

Method(s) 8270C: Surrogate recovery of 2,4,6-Tribromophenol for the following sample was outside the upper control limit: BFS-2 (480-5273-4). This sample did not contain any target analytes; however, re-extraction and re-analysis was performed due to the incorrect spike of the laboratory control sample (LCS).

Method(s) 8270C: Surrogate recovery of 2,4,6-Tribromophenol for the following sample was outside the upper control limit: WT-2 (480-5230-3). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method(s) 8270C: The following compound was outside control limits in the continuing calibration verification (CCV) associated with batch 18780: 4-Nitrophenol. This compound is not classified as Calibration Check Compound (CCC) in the reference method. Due to the large number of analytes contained in the CCV, the laboratory's SOP allows for four analytes to be outside limits; therefore, the data have been reported.

Method(s) 8270C: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 18497 exceeded control limits for the following analytes: 4-Chloro-3-Merthylphenol, Atrizine, and Bis (2-Ethylhexyl) Pthalate. These analytes were biased high in the LCS/LCSD and were not detected in the associated samples; therefore, the data have been reported.

No other analytical or quality issues were noted.

GC Semi VOA
Method 8082: All primary data is reported from ZB-5

Method 8082: The percent difference in a PCB continuing calibration verification is assessed on the basis of the PCB total amount, individual peak calculations are only listed for completeness.

No analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry
Method(s) 7196A: The matrix spike (MS) recovery for batch 17370 was outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) D516-90, 02: The matrix spike (MS) recovery for batch 19413 was outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other analytical or quality issues were noted.

Organic Prep
Method(s) 3510C: Re-extractions of the following samples was performed outside of the preparation holding time: RFI-06 (480-5230-7), RFI-10 (480-5230-6), RFI-9 (480-5230-5), WT-1A (480-5230-1), WT-1B (480-5230-2), WT-2 (480-5230-3), WT-3 (480-5230-4), WT-4 (480-5230-8), RFI-04 (480-5321-1), RFI-05 (480-5321-2), RFI-28 (480-5321-3), RFI-18 (480-5321-4).

Method(s) 3510C: Reextraction of the following samples was performed outside of the preparation holding time: BFS-1 (480-5273-3), BFS-2 (480-5273-4), MW-3 (480-5273-2), RFI-11 (480-5273-5), RFI-12 (480-5273-6), RFI-17 (480-5273-1), RFI-19 (480-5273-7), RFI-29 (480-5273-8).

No other analytical or quality issues were noted.

Job Narrative
480-5372-1

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
Method(s) 8260B: The following volatiles sample(s) was diluted due to foaming at the time of purging during the original sample analysis: TW-7 (480-5372-3). Elevated reporting limits (RLs) are provided.

Method(s) 8260B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 18656 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 8260B: The following samples were diluted due to the abundance of target analytes: RFI-26 (480-5546-2). Elevated reporting limits (RLs) are provided.

Method(s) 8260B: The following sample was diluted due to the abundance of target analytes: LAE-4 (480-5478-3). Elevated reporting limits (RLs) are provided.

Method(s) 8260B: The Matrix Spike Blank recovery was above TestAmerica's statistically developed internal laboratory QC limits, for 1,1,2-Trichloro-1,2,2-trifluoroethane, 2-Butanone and Dichlorodifluoromethane. These analytes were not a requested spiking compound; therefore the recovery is being reported for advisory purposes only. All other quality control indicators, including the continuing calibration verification, were within method prescribed limits for this analytes.

No other analytical or quality issues were noted.

GC/MS Semi VOA
Method(s) 8270C: The following sample contained one acid surrogate (2,4,6 Tribromophenol) outside acceptance limits: (LCSD 480-18355/3-A). The laboratory's SOP allows one acid surrogate and/or one base surrogate to be outside acceptance limits; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified.

Method(s) 8270C: The following compounds were outside control limits in the continuing calibration verification (CCV) associated with batch 18523: 2,2' oxybis[1-chloropropane] and 2,4-Dinitrophenol. These compounds are not classified as Calibration Check Compounds (CCCs) in the reference method. Due to the large number of analytes contained in the CCV, the laboratory's SOP allows for four analytes to be outside limits; therefore, the data have been reported.

Method(s) 8270C: The laboratory control sample (LCS) for prepatation batch 18355 exceeded control limits for the following analyte: Hexachlorocyclopentadiene. Hexachlorocyclopentadiene has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed.

Method(s) 8270C: The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 18355 exceeded control limits for multiple analytes. The recoveries were within the quality control acceptance limits, therefore re-extraction and re-analysis in not needed.

Method(s) 8270C: The laboratory control sample duplicate (LCSD) for preparation batch 18355 exceeded control limits for the following analytes: Pentachlorophenol, 2,6-Dinitrotoluene, and Atrazine. These analytes were biased high in the LCSD and were not detected in the associated samples; therefore, the data have been reported.

Method(s) 8270C: The following samples need to be re-digested/re-extracted due to low surrogate recoveries: BLIND DUP#2 (480-5478-4), RFI-35 (480-5478-1). All samples have been qualified and reported.

Method(s) 8270C: The matrix spike / matrix spike duplicate (MS/MSD) recoveries associated with preparation batch 19089 were outside control limits: RFI-26 (480-5546-2 MS), RFI-26 (480-5546-2 MSD). Matrix interference is suspected.

Method(s) 8270C: The following compound was outside control limits in the continuing calibration verification (CCV) associated with batch 19284: 4-Nitrophenol. This compounds are not classified as Calibration Check Compound (CCC) in the reference method. Due to the large number of analytes contained in the CCV, the laboratory's SOP allows for four analytes to be outside limits; therefore, the data have been reported.

Method(s) 8270C: The laboratory control sample (LCS) for preparation batch 19089 exceeded control limits for the following analytes: 2-4-Dinitro Toluene, 4-Chloro-3-Methylphenol, Atrazine, and Bis[2-ethylhexyl] Phthalate. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method(s) 8270C: Surrogate recovery (2,4,6-Tribromophenol) for the Method blank was outside the upper control limit. The MB and all associated samples did not contain any target analytes related to this surrogate, therefore, re-extraction and/or re-analysis was not performed.

Method(s) 8270C: The following compound was outside control limits in the continuing calibration verification (CCV) associated with analytical batch 480-19891: 2,4-Dinitrophenol. This compound is not classified as a Calibration Check Compound (CCC) in the reference method, and the laboratory defaults to in-house and/or project-specific criteria for evaluation. Due to the large number of analytes contained in the CCV, the laboratory's SOP allows for four analytes to be outside limits; therefore, the data have been reported.

Method(s) 8270C: The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 480-19761 exceeded control limits for the following analytes: 2,4,6-Trichlorophenol, Atrazine and N-nitrosodiphenylamine. In addition, the LCS exceeded control limits for 2,4-Dinitrotoluene and Pentachlorophenol, while the LCSD exceeded limits for 3-Nitroaniline and 4-Nitroaniline. These analytes are to be considered biased high and and were not detected in the associated samples; therefore, the data have been reported.

Method(s) 8270C: Surrogate recovery of 2,4,6-Tribromophenol for the following quality control samples were outside the upper control limit: (LCS 480-19761/2-A), (LCSD 480-19761/3-A), (MB 480-19761/1-A). The affected samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method(s) 8270C: The following sample contained base surrogate p-Terphenyl-d14 outside acceptance limits: BLIND DUP#2 (480-5478-4). The laboratory's SOP allows one acid surrogate and/or one base surrogate to be outside acceptance limits; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified.

No other analytical or quality issues were noted.

GC Semi VOA

Method 8082: The surrogate percent difference in the associated continuing calibration verifications (CCV) for Tetrachloro-m-xylene exceeded 15% on the ZB-5 column, indicating a low bias. (CCVRT 480-19790/2)

Method 8082: All sample primary data is reported from ZB-5 column

Method 8082: The percent difference in a PCB continuing calibration verification is assessed on the basis of the PCB total amount, individual peak calculations are only listed for completeness.

Method(s) 8082: The following sample: TW-5 (480-5372-1), has one Surrogate outside recovery limits, though the secondary surrogate is within limits.

Method(s) 8082: The following sample: RFI-26 (480-5546-2 MS), has one Surrogate outside recovery limits, though the secondary surrogate is within limits.

No other analytical or quality issues were noted.

Metals

Method(s) 6010B: The Continuing Calibration Blank, CCB 480-17906/31, for analytical batch 480-17795, contained total sodium above the reporting limit (RL). The associated samples, TW-13 (480-5372-6), TW-14 (480-5372-7), TW-5 (480-5372-1), TW-6 (480-5372-2), TW-7 (480-5372-3), TW-8 (480-5372-4), TW-9 (480-5372-5) contained detects for this analyte at concentrations greater than 10X the value found in the Continuing Calibration Blank; therefore, re-analysis of samples was not performed.

Method(s) 6010B: Sample TW-7 (480-5372-3) had a negative instrument reading with an absolute value that was greater than the reporting limit for the analyte total arsenic. Matrix interference is suspected. The sample was analyzed at a ten-fold dilution, and the result for arsenic was still non-detect, therefore the original result has been reported.

Method(s) 6010B: The following sample was diluted due to the abundance of target analyte total chromium: TW-7 (480-5372-3). Elevated reporting limits (RLs) are provided.

Method(s) 6010B: The following sample was diluted for total antimony due to the nature of the sample matrix: TW-7 (480-5372-3). Elevated reporting limits (RLs) are provided.

Method(s) 6010B: The Serial Dilution (480-5478-2 SD) in batch 480-18133, exhibited results outside the quality control limits for total aluminum, chromium, and potassium. However, the Post Digestion Spike was compliant so no corrective action was necessary

Method(s) 6010B: The Matrix Spike / Matrix Spike Duplicate (MS/MSD) recoveries associated with batch 480-18133 were outside control limits for total aluminum and potassium: RFI-36 (480-5478-2 MS), RFI-36 (480-5478-2 MSD). Matrix interference is suspected.

Method(s) 6010B: The recovery of Post Spike, (480-5546-2 PDS), in batch 480-18440 exhibited a result outside the quality control limits for total calcium. However, the Serial Dilution of this sample was compliant. Therefore, no corrective action was necessary

No other analytical or quality issues were noted.

General Chemistry
Method(s) SM 4500 F C: For Batch 22075 the runlog indicates that the LCS and Method Blank were analyzed prior to the CCV/CCB. The standard reagent used for the LCS and CCV are the same reagent and are interchangeable. All QC met the CCV criteria.

Method(s) SM 4500 F C: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 22075 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria. RFI-26 (480-5546-2 MS), RFI-26 (480-5546-2 MSD)

Method(s) 7196A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for sample RFI-36 (480-5478-2 MSD) were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 7196A: These samples had a high color value (the samples were dark in color) which caused elevated uncorrected sample absorbance values when analyzed on the spectrophotometer. The elevated uncorrected sample absorbance values were less than the sample blank absorbance values therefore the samples were non-detects for the target analyte. The samples were analyzed at a 2X dilution in order for the sample blank absorbance and the uncorrected sample absorbance values to conform to the absorbance value range of the calibration curve used for this analyte using this method. BLIND DUP #3 (480-5546-6), RFI-34 (480-5546-4)

Method(s) 9251: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 19628 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 9251, SM 4500 Cl- E: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 19639 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) D516-90, 02: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 19630 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other analytical or quality issues were noted.

Organic Prep
Method(s) 3510C: The following samples formed emulsions during the extraction procedure: BLIND DUP#2 (480-5478-4), RFI-35 (480-5478-1). The emulsions were broken up using centrifuge.

Method(s) 3510C: The following samples formed emulsions during the extraction procedure: BLIND DUP#2 (480-5478-4), RFI-35 (480-5478-1). The emulsions were broken up using centrifuge,etc.

Method(s) 3510C: Re-extraction of the following samples was performed outside of the preparation holding time: BLIND DUP#2 (480-5478-4), RFI-35 (480-5478-1).

No other analytical or quality issues were noted.