1-30-004

Miller Springs Remediation Management, Inc.
An affiliate of Glenn Springs Holdings, Inc.

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Project Manager
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2480 Fortune Drive, Suite 300
Lexington, KY 40509
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July 4, 2007

RECEIVED
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REMEDIAL BUREAU A

Mr. Paul Olivo
Western New York Remediation Section
Emergency and Remedial Response Division
United States Environmental Protection Agency
Region II
290 Broadway, 20th Floor
New York, NY 10007-1866

Dear Mr. Olivo:

Re: Quarterly Report – Second Quarter 2007 (April through June)
Administrative Orders
Hooker Chemical/Ruco Polymer Corporation Site
Index Nos. II-CERCLA-80216, II-CERCLA-94-0210, and II-CERCLA-02-2001-2018

Consistent with Sections 42, 91, and 55 of the above-referenced orders and the USEPA approved 100% Biosparge System Design Report, this letter and attached Table 1 provide the Quarterly Progress Report covering April through June 2007. This report covers OU-1, OU-2 and OU-3. Please note that the next Quarterly Progress Report will be submitted by October 15, 2007 and will cover July through September 2007.

The following activities were performed in April through June 2007.

Operable Unit-1

A conference call was held on June 18, 2007 with USEPA, NYSDEC, MSRMI, and CRA. During the call, it was confirmed that all of the OU-1 activities have been successfully completed. While some investigatory activities are ongoing between Bayer and the NYSDEC, these are being completed in conjunction with the RCRA closure of the Site and do not have an impact on the Superfund Site closing. MSRMI will continue to work cooperatively with Bayer.

A meeting was held with Bayer on June 21, 2007 to discuss strategies for completing the investigations and remedies necessary.

Operable Unit-2

A conference call was held on June 18, 2007 with the USEPA, NYSDEC, MSRMI, and CRA. During the call, it was confirmed that all work associated with the OU-2 Therminol Spill has been successfully completed. While some investigatory activities are ongoing between Bayer and the NYSDEC, these are being completed in conjunction with the RCRA closure of the Site and do not have an impact on the Superfund Site closing.

Operable Unit-3

A discussion on the groundwater monitoring program and the impact of Tentatively Identified Compounds (TICs), was also held during the call. The proposed monitoring of the VCM plume is outlined in the O&M Manual and has been approved. It was agreed that TICs have been adequately addressed.

Operation and monitoring of the GP-1/GP-3 supplemental treatment system. A meeting was held with Northrop on April 24, 2007 to discuss alternate locations for two additional treatment beds that are being planned for the supplemental treatment system. The location/layout for the two new beds is four beds in a straight row in the area north and west of the building containing Northorp's regenerative carbon beds. Design of the upgraded supplemental system is ongoing. The existing supplemental carbon bed was changed out on June 14, 2007.

The quarterly performance monitoring of the biosparge system was performed from April 18 to 27, 2007. The groundwater analytical results and QA/QC review for the quarterly performance monitoring are attached.

Attached is a summary of the results of the biosparge system performance monitoring (see Table 2) and figures showing dissolved oxygen and VCM concentrations. These results show that DO is increasing in the monitoring wells except for those wells dependent upon air injection well IW-16DIA. The increases are occurring at different rates in the wells.

Injection of treated water from Northrop's Tower 96 (GP-1/GP-3) system started on January 22, 2007 at a flow rate of 10 gpm and has been ongoing since that time.

A request to abandon well nest MW-52 was received from Steel Equities on February 23, 2007. A notification letter regarding this closure was submitted to the USEPA on February 28, 2007. The three wells in this well nest were sampled on March 13 and 14, 2007 and were closed on March 16 and 19, 2007. The groundwater analytical results and QA/QC review for the March 2007 samples are attached. Review of the results shows that the VCM concentrations are continuing to decline.

A meeting was held with Steel Equities on April 24, 2007 to discuss the status and integration of redevelopment plans for the former Northrop Plant 12 property and the locations of the various components of the north injection fence (e.g., injection well vaults, forcemain/conduit trenches, monitoring wells, etc.). Based on those discussions, it is anticipated that the injection and monitoring well vaults and forcemain/conduit for the north fence will be installed in late summer/early fall 2007 to reduce interferences with the Steele Equities' development plan for the former Northrop Plant 12.

Well nest MW-62 was sampled on May 16, 2007 after obtaining access approval from the new property owner. The analytical results and QA/QC review are attached. The VCM concentrations in MW-62I have decreased from 27 to 3 µg/L and in MW-62D from 3 µg/L to non-detect since

July 2002. This demonstrates that the upgradient/cross-gradient edge of the VCM subplume has essentially now passed this area.

Air injection well IW-16D1A was shutdown on February 27, 2007 due to high pressure readings. Wells IW-16DIA and IW-16D2A, which have 5-foot long screens, were probed on April 26, 2007 and were found to contain 6 and 1 feet of silt, respectively. It is planned to have well IW16-DIA redeveloped (remove the sediment) in mid July to coincide when staff will be on-Site for the next quarterly groundwater monitoring event which is scheduled for the week of July 16, 2007. In addition, the other six air injection wells and the four liquid injection wells will be probed and any well found to contain a significant volume of silt will also be redeveloped.

Notification of the third quarterly Phase I biopsparge system sampling event was submitted to the USEPA and their oversight contractor on June 25, 2007 by email.

The Phase I system is operating with air injection occurring weekly at each well for eight hours rather than monthly for eight hours. Increases in DO are being observed which confirm that the 100-foot spacing between the injection wells is appropriate.

The following activities are planned for the third quarter of 2007:

i) Perform injection well redevelopment and quarterly sampling of the biosparge system starting in July 2007;
ii) Continue operation and monitoring of the GP-1/GP-3 supplemental system;
iii) Finalize the design plans for the two additional treatment beds; and
iv) Sumps 1 and 2 on the former Hooker/Ruco Site are to be back-filled by the new property owner once the property transfer is completed.

The following activities are pending an approval or review by an outside party or Agency. The follow-up schedule is based on receipt of the review or approval.

i) Awaiting USEPA comments on the results of the final sampling for OU-1, which were submitted on March 16, 2006. The submittal included a recommendation that no further remedial actions need be implemented in the MW-E area and Sump 1.
ii) Awaiting USEPA response regarding the requirements for completion certification of OU-1.
iii) Awaiting USEPA comments on the draft Declaration of Covenants and Restrictions for the Site, which was submitted on April 20, 2006 by Bayer.
iv) Awaiting USEPA comments on the Phase I As-Built drawings, O&M Manual, and HASP submitted February 1, 2007.

Should you have any questions on the above, please do not hesitate to contact me at (859) 543-2152 or e-mail at rick_passmore@oxy.com.

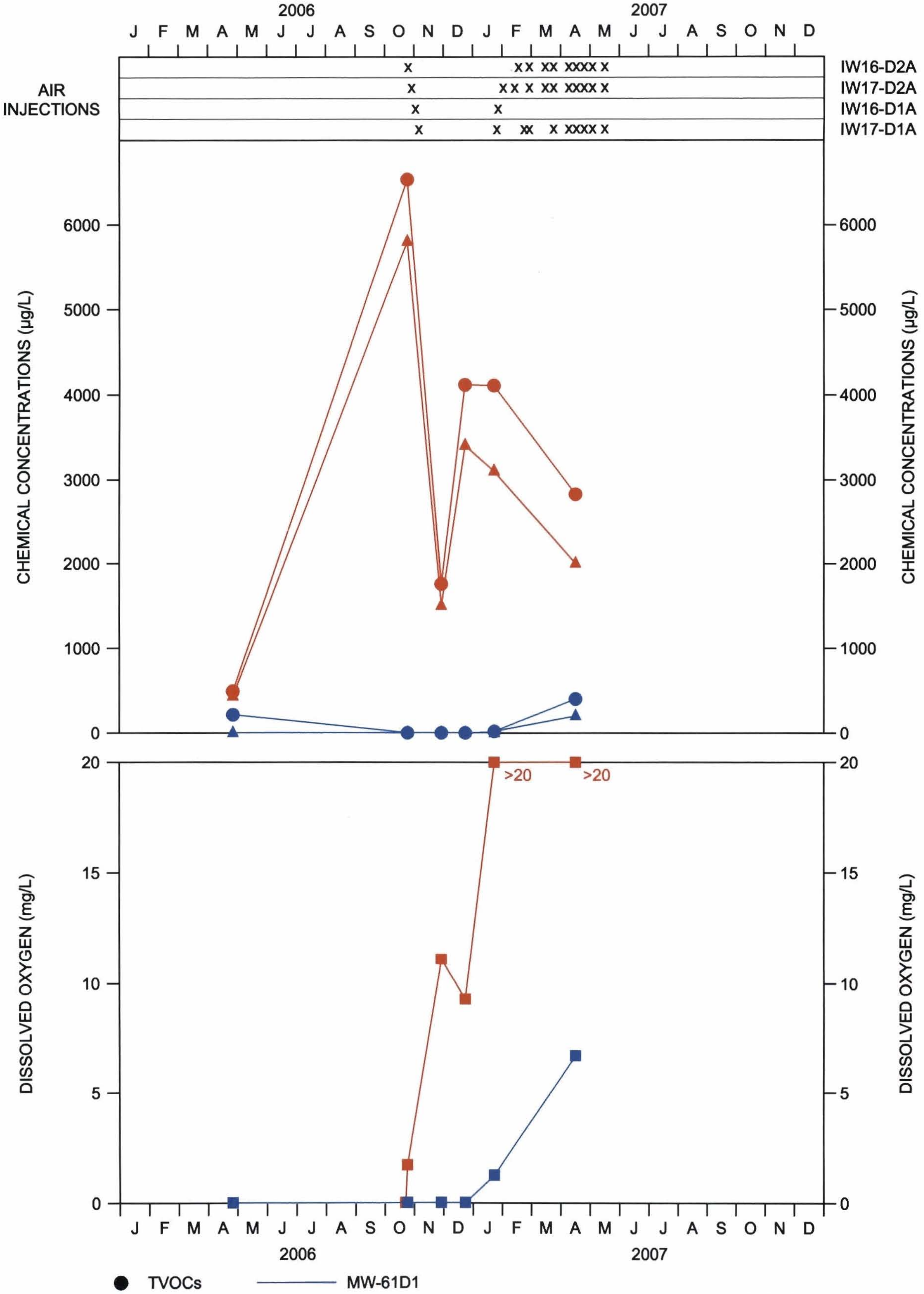
(972 687-7504
859-221-7616

Sincerely yours,

Klaus Schmidt

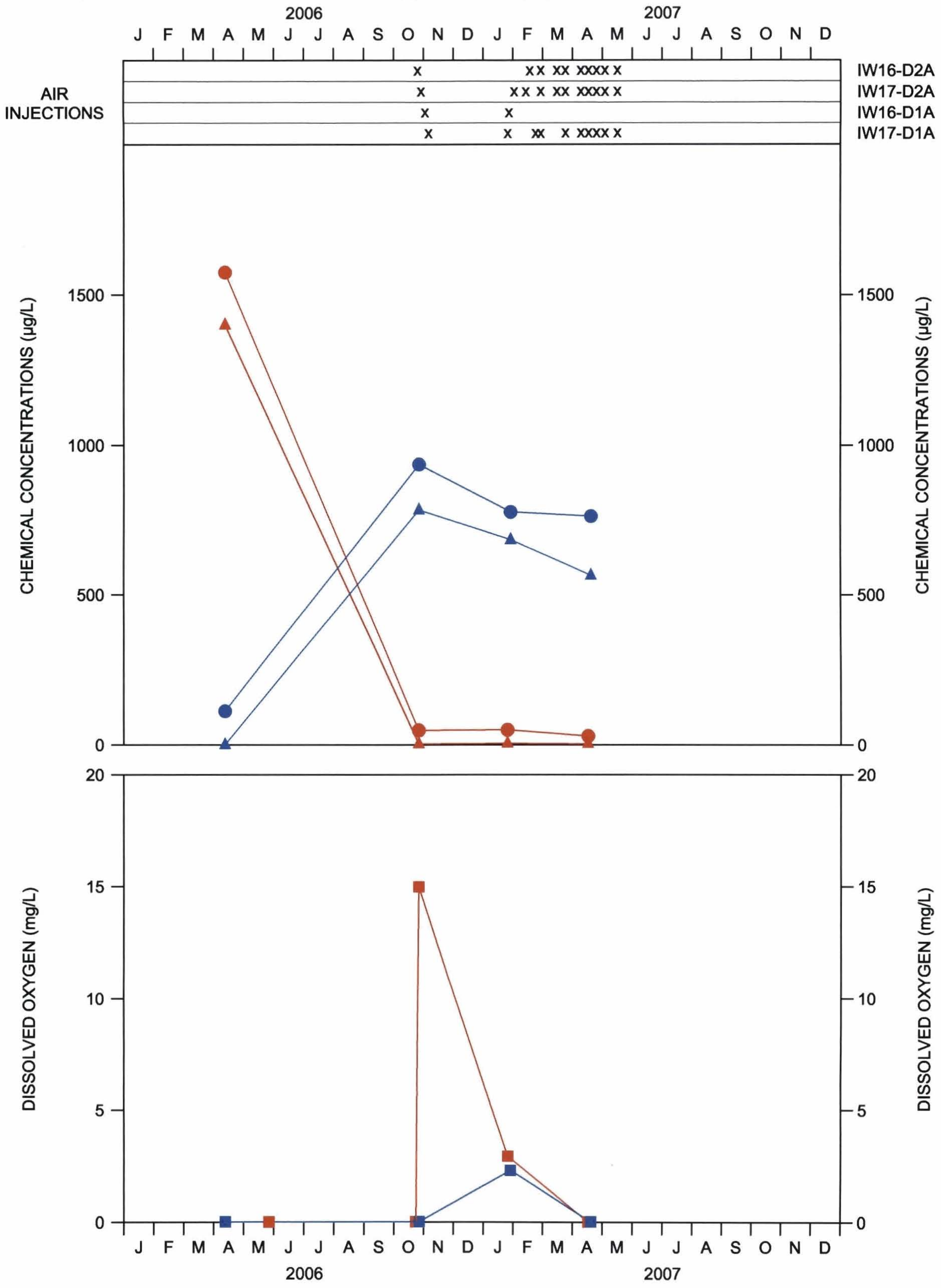
for Rick Passmore
Project Manager

KDS/cb/006883/22
Encl.
c.c.: K. Lynch (USEPA)
M. E. Wieder (USEPA)
S. Scharf (NYSDEC)
M. Popper (CDM)
T. Kelly (Nassau County)
W. Baldwin (Bayer)
J. Kay (CRA)

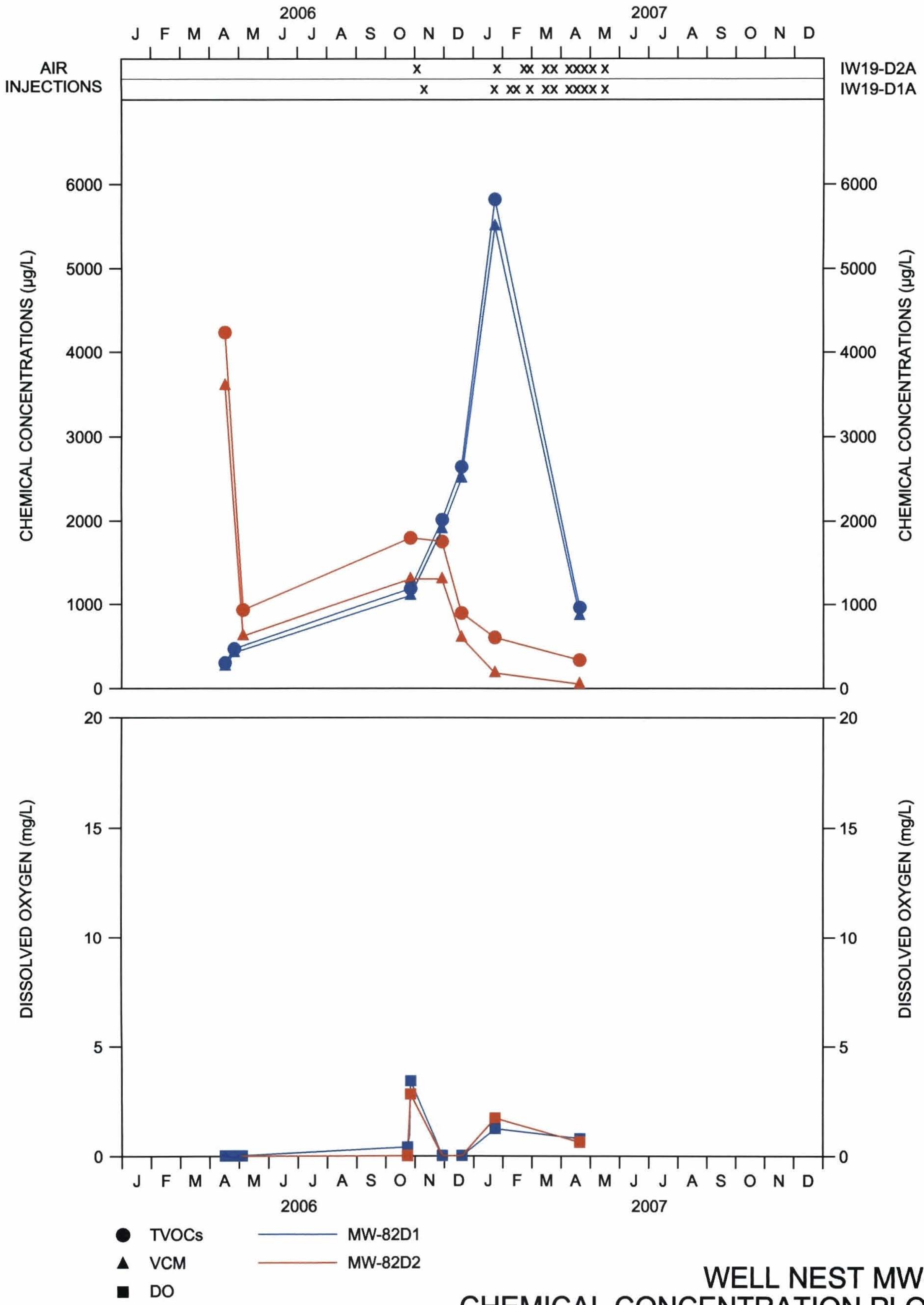


WELL NEST MW-61
CHEMICAL CONCENTRATION PLOTS
HOOKER/RUCO SITE - MIDDLE INJECTION FENCELINE

CRA



WELL NEST MW-81
CHEMICAL CONCENTRATION PLOTS
HOOKER/RUCO SITE - MIDDLE INJECTION FENCELINE



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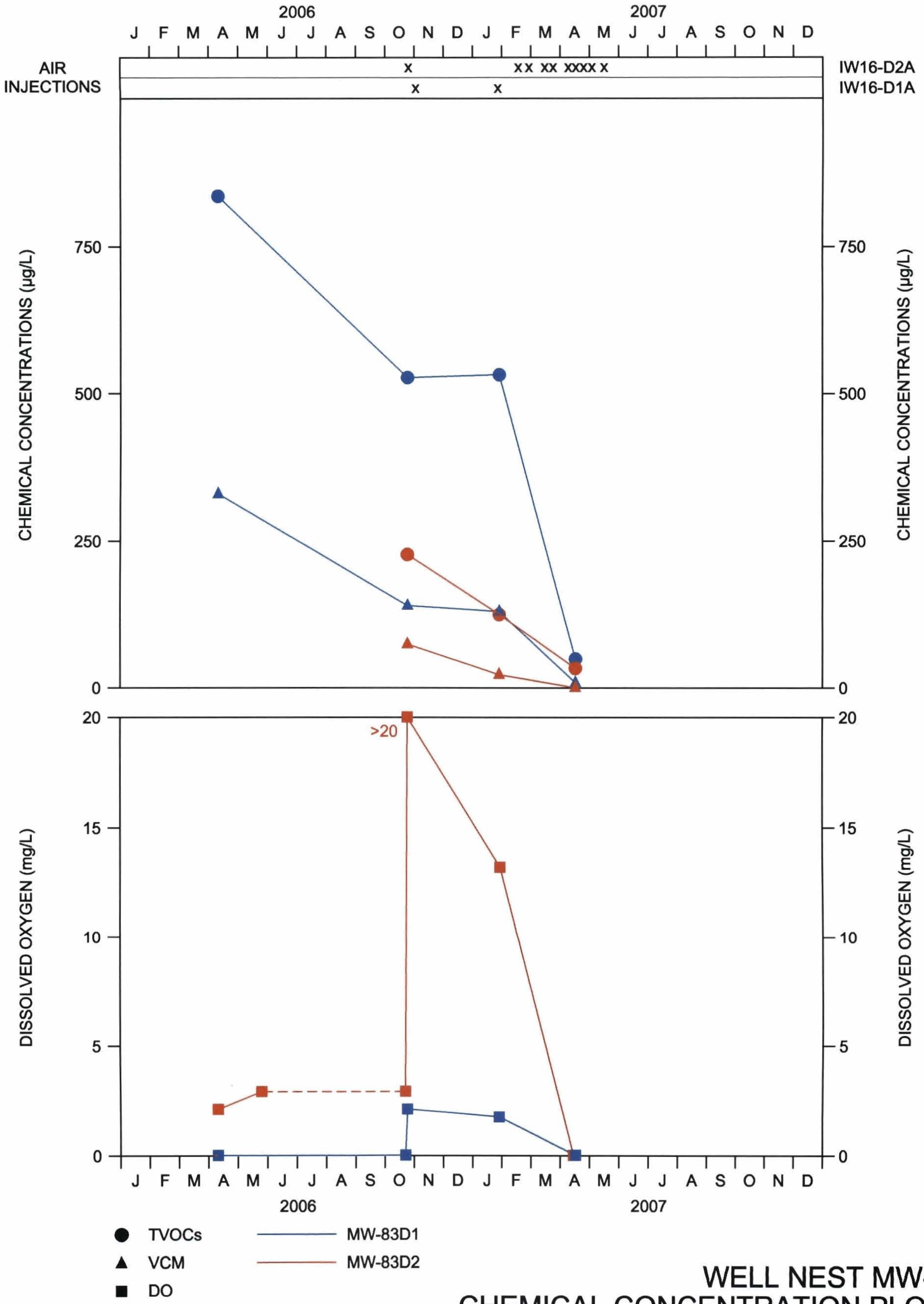
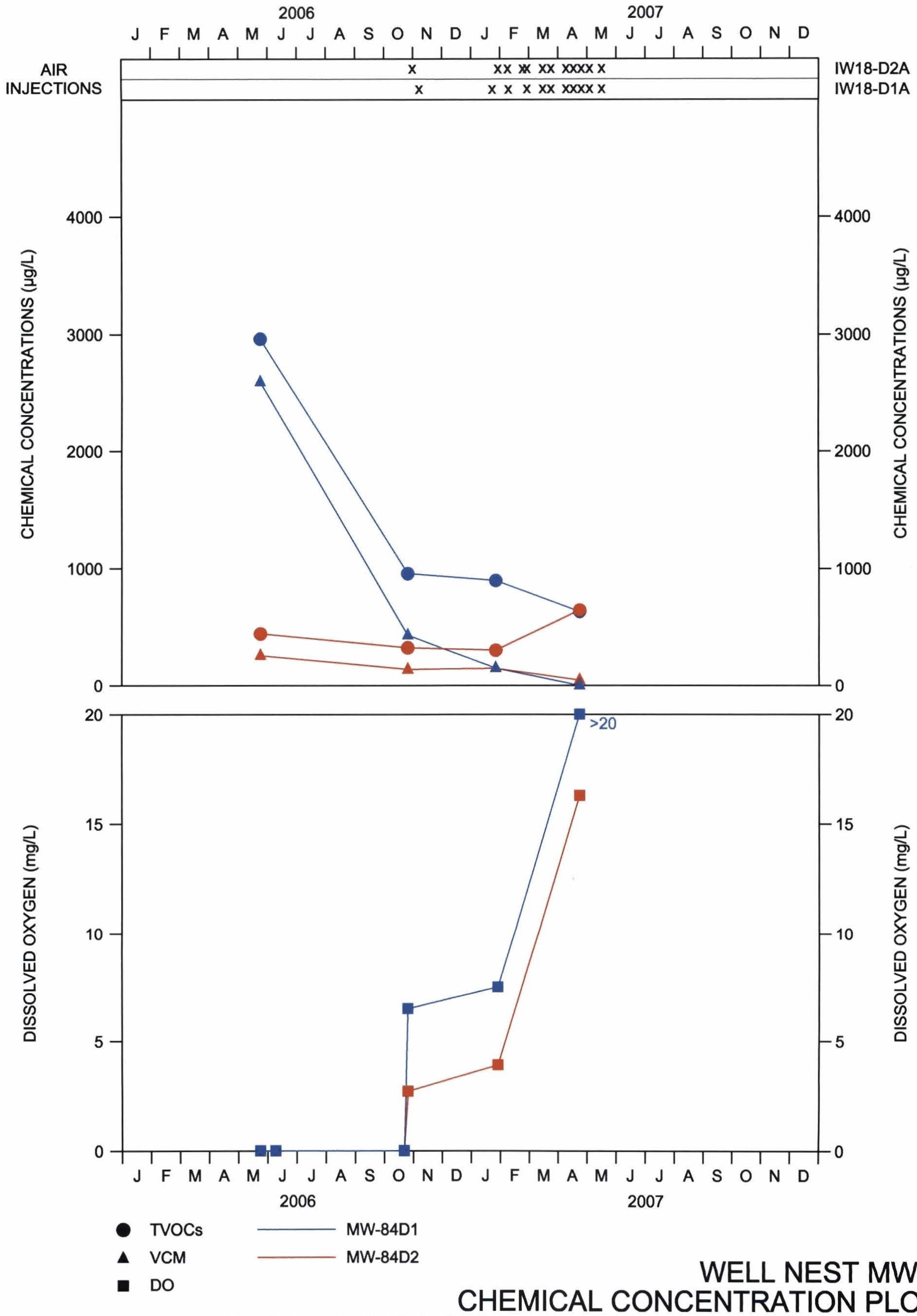
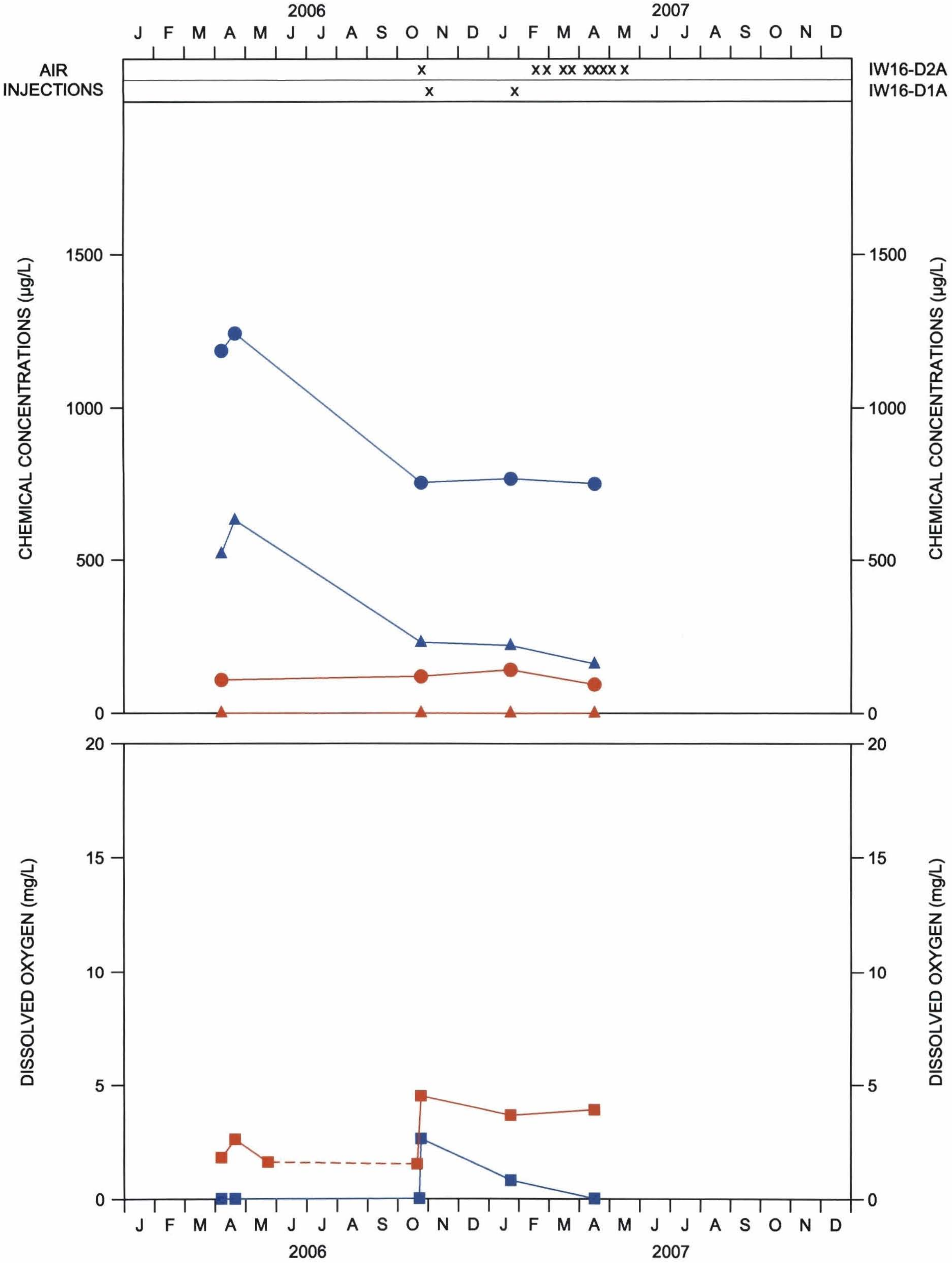
CHEMICAL CONCENTRATION PLOTS
HOOKER/RUCO SITE - MIDDLE INJECTION FENCELINE



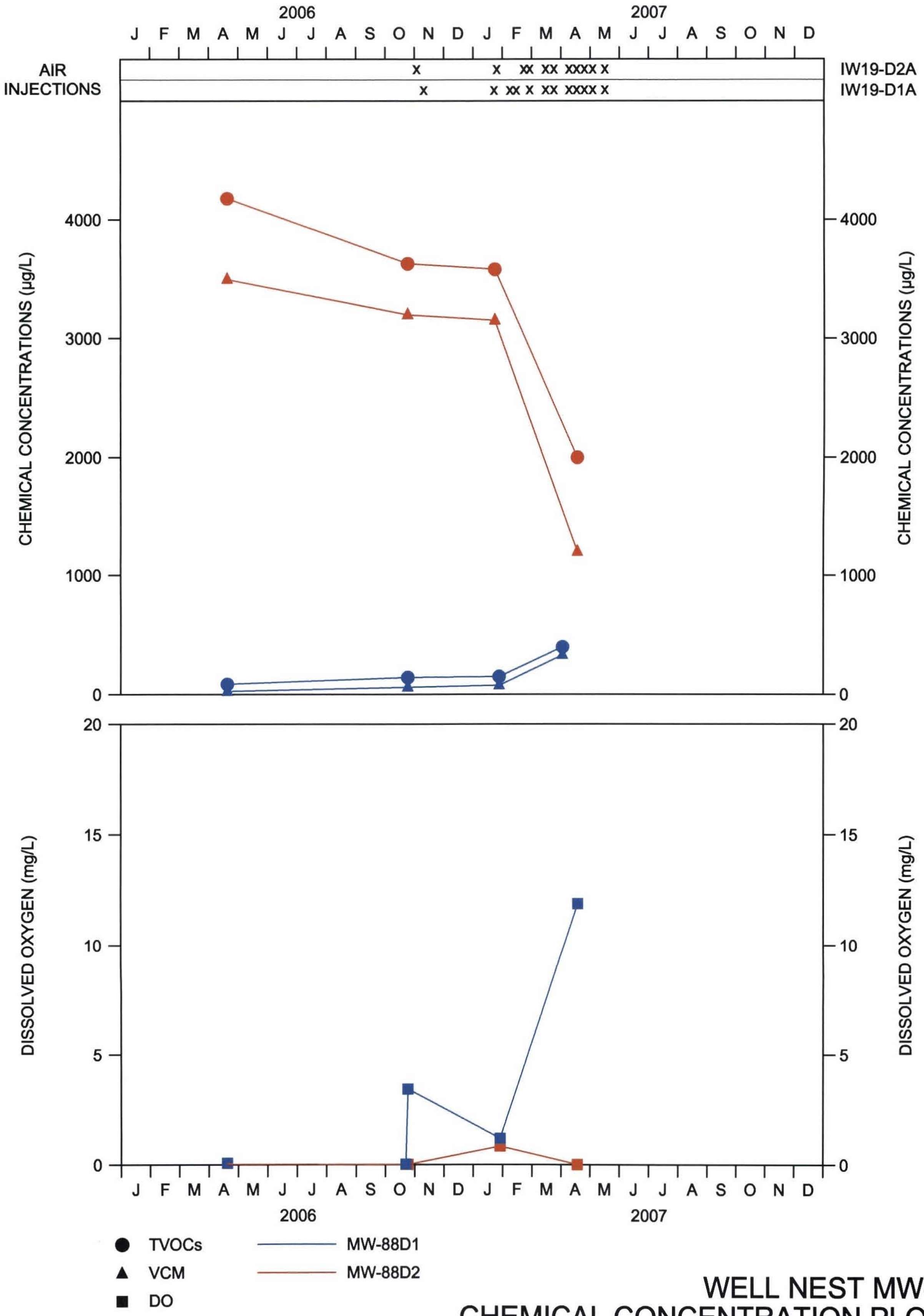
WELL NEST MW-83
CHEMICAL CONCENTRATION PLOTS
HOOKER/RUCO SITE - MIDDLE INJECTION FENCELINE



WELL NEST MW-84
CHEMICAL CONCENTRATION PLOTS
HOOKER/RUCO SITE - MIDDLE INJECTION FENCELINE



WELL NEST MW-87
CHEMICAL CONCENTRATION PLOTS
HOOKER/RUCO SITE - MIDDLE INJECTION FENCELINE



WELL NEST MW-88
CHEMICAL CONCENTRATION PLOTS
HOOKER/RUCO SITE - MIDDLE INJECTION FENCELINE

TABLE 1

MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER/RUCO SITE
HICKSVILLE, NEW YORK

Groundwater Investigations Beyond the Ruco Property (OU-3)

April through June 2007

Task and Activity	*Percentage of Activity Completed*	*Start Date*	*Scheduled Completion Date*	*Completion Date*
• Work Plan	100	July 1993		September 23, 1993
• Borehole/Well Installation (MW-50, MW-53, MW-54 and MW-55)	100	September 30, 1994		June 19, 1995
• Well Development, Sampling and Analysis	100	July 10, 1995		August 9, 1995
• Water Level Measurements	100	August 15, 1995		April, 1996
• Interim Report	100	May 23, 1995		June 15, 1995
• Interim Report - Addendum No. 1	100	July 28, 1995		August 2, 1995
• Grumman Production Wells Sample Collection and Analysis	100	August 1, 1995		October 4, 1995
• Well Installation (MW-51, MW-52, MW-56 and MW-57)	100	August 30, 1995		January 26, 1996
• Regional Groundwater Level Monitoring Event	100	October 3, 1995		October 3, 1995
• Well Development, Sampling and Analysis	100	January 22, 1996		July 5, 1996
• Grumman Groundwater Model	100	July 27, 1995		November 20, 1997
• Phase I Report	100	February 21, 1996		April 26, 1996
• Supporting Documentation Regarding the Effectiveness of In Situ Remediation	100	June 10, 1996		August 9, 1996
• Phase II Report	100	February 21, 1996		August 12, 1996
• Comments on DEC Draft Supplemental Feasibility Study	100	September 23, 1996		October 17, 1996
• Responses to Northrop Comments on the Phase I Report	100	April 17, 1997		June 6, 1997
• Comments on DEC Supplemental Feasibility Study	100	June 1, 1997		June 20, 1997
• Comments on Navy Regional Groundwater Feasibility Study	100	July 28, 1997		October 8, 1997
• Revised Pages for Navy Regional Groundwater Feasibility Study	100	July 28, 1997		November 3, 1997
• Comments on Groundwater Flow Model Report	100	November 20, 1997		December 5, 1997
• Comments on Draft Final Regional Groundwater Feasibility Study	100	March 27, 1998		May 1, 1998
• Comments on Northrop Letter Report	100	May 20, 1998		June 4, 1998
• Evaluation of MW-52 Area Groundwater Extraction System	100	July 1, 1998		July 29, 1998
• Remedial Investigation Report	100	December 1, 1998		January 21, 1999
• Feasibility Study Report	100	December 1, 1998		March 16, 1999
• Groundwater Treatability Study (GTS)	100	December 16, 1998		July 19, 1999
• Responses to EPA Comments on RI Report	100	May 25, 1999		June 11, 1999
• Responses to EPA Comments on FS Report	100	June 21, 1999		July 7, 1999
• Scope of Predesign Investigative Activities				
- Initial	100	June 1, 1999		June 11, 1999
- Revised	100	February 16, 2001		May 28, 2001

Groundwater Investigations Beyond the Ruco Property (OU-3)

April through June 2007

Task and Activity	*Percentage of Activity Completed*	*Start Date*	*Scheduled Completion Date*	*Completion Date*
• Revised RI Report	100	May 25, 1999		November 16, 1999
• Revised FS Report	100	July 7, 1999		December 22, 1999
• Responses to EPA Comments on GTS	100	October 14, 1999		November 3, 1999
• Responses to EPA Comments on FS Report Responses	100	October 14, 1999		November 3, 1999
• Obtain access agreements	100	June 1999		December 2001
• Final RI Report	100	March 15, 2000		July 21, 2000
• Final FS Report	100	April 10, 2000		July 25, 2000
• PRAP	100			July 28, 2000
• ROD	100			September 29, 2000
• Unilateral Administrative Order	100			April 26, 2001
• Evaluate VCM presence in GP-3	100			August 15, 2001
• Design Supplemental System for VCM in GP-3	100	August 15, 2001		December 2001
• *EPA Conditional Approval for Predesign Activities*	100			September 28, 2001
• Issued Request for Bid for Well Installation	100			October 26, 2001
• Contractor Arrangements	100			January 15, 2002
• Arrangements for Biosparge Testing of Existing Wells	100			April 12, 2002
• Biosparge Testing of Existing Wells	100	April 15, 2002		August 13, 2002
• Phase 1 Well Installation	100	February 4, 2002		June 28, 2002
• Upgrade of GP-1/GP-3 Treatment System	100	April 8, 2002		July 9, 2003
• Sample Wells	100	June 17, 2002		July 12, 2002
• Evaluate Pre-Design Information /Develop Scope of Biosparge Remedy	100			November 22, 2002
• Install 2 Additional Wells (MW-67/68)	100	December 18, 2002		February 14, 2003
• Sample Wells MW-67 & MW-68				March 25/26, 2003
• Responses to EPA comments on Predesign Information Report	100	March 6, 2003		March 27, 2003
• EPA Meeting				April 17, 2003
• Closed Well T-1	100			May 12, 2003
• *MW-67/68 Installation Report*	100			May 23, 2003
• Responses to EPA comments on March 27, 2003 Responses	100	June 25, 2003		July 29, 2003
• Pre-Final (95%) RD Report	100	July 7, 2003		October 31, 2003
• Responses to EPA comments on 95% RD Report	100	April 12, 2004		May 27, 2004
• Submitted Due Diligence Request to Northrop	100			May 10, 2004

TABLE 1

MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER/RUCO SITE
HICKSVILLE, NEW YORK

Groundwater Investigations Beyond the Ruco Property (OU-3)

April through June 2007

Task and Activity	*Percentage of Activity Completed*	*Start Date*	*Scheduled Completion Date*	*Completion Date*
• Follow up Due Diligence Clarification to Northrop 6/11 Data Package	100			June 25, 2004
• Offer to Northrop for Property Purchase	100			October 1, 2004
• Sample 13 Wells and Submit Results	100	August 23, 2004		October 14, 2004
• Responses to EPA Comments on 95% RD Report	100	November 17, 2004		December 6, 2004
• Revised Property Purchase offer submitted to Northrop	100	December 22, 2004		December 22,2004
• Prepare 100% RD Report	100	January 12, 2005		May 27, 2005
• Property Purchased	100			June 2005
• 100% Design Approved	100			July 7, 2005
• Obtain Building Permits	100	July 11, 2005		November 10, 2005
• Arrange Contractors	100	January 2005		July 22, 2005
• Well Installation	100	September 13, 2005		April 28, 2006
• Biosparge System Installation	100	November 2005		May 2006
• Closure of On-Site and Off-Site Wells	100	November 2005		May 10, 2006
• OU-1 Soil Borings	100	November 2005		January 11, 2006
• Background Groundwater Sampling	100	March 27, 2006		June 14, 2006
• Pre-Start Sampling	100			October 24, 25, and 26, 2006
• Final Inspection	100			October 27, 2006
• Biosparge System Start-Up	100			October 27, 2006
• First Monthly Sampling	100			November 28 to 30, 2006
• Second Monthly Sampling	100			December 20 and 21, 2006
• Noise Survey	100			January 18, 2007
• First Quarterly Sampling	100			January 23 to 30, 2007
• Submission of Phase I Construction Documents	100			February 1, 2007
• Second Quarterly Sampling	100			April 18 to 27, 2007

TABLE 2

SUMMARY OF PURGING FINAL STABILIZATION PARAMETER VALUES
HOOKER RUCO SITE
HICKSVILLE, NEW YORK

Well	*Date Sampled*	*Drawdown from Initial Water Level* [(1)] *(feet)*	*Well Screen Volumes Purged*	*pH (S.U.)*	*Temperature (Celsius)*	*Conductivity (mS/cm)*	*ORP (mV)*	*DO (mg/L)*	*Turbidity (NTU)*	*Fe^{+2} (mg/L)*
MW-52 S	4/7/2006	0.03	4.3	5.62	14.3	0.199	-7	0.00	0.0	1.60
	3/13/2007	0.20	6.1	6.34	14.8	0.652	5	1.64	58.4	1.66
MW-52 I	4/13/2006	0.04	4.5	4.56	15.0	0.121	303	9.77	12.4	0.05
	3/14/2007	0.05	4.9	5.42	14.6	0.192	259	5.85	44.8	0.04
MW-52D	3/14/2007	0.00	5.3	5.67	14.7	0.314	226	3.07	307	0.11
MW-58 D	10/26/2006	0.01	3.4	5.69	16.8	0.192	21	2.42	58.1	4.30
MW-58 D1	10/26/2006	0.14	3.2	6.34	16.9	0.222	-101	2.58	68.6	8.80
MW-58 D2	10/25/2006	0.11	2.8	6.95	17.3	0.266	-198	0.00	15.1	5.16
MW-59 D1	10/25/2006	0.00	2.0	6.07	17.4	0.432	-20	0.58	261	3.24
MW-59 D2	10/25/2006	0.02	5.5	6.50	17.5	0.452	-99	0.47	240	2.00
MW-59 D	10/26/2006	0.07	4.5	10.29	17.1	0.364	-108	0.00	9.6	2.65
MW-61 I	4/28/2006	0.00	4.6	5.68	14.3	0.221	139	0.00	121	1.76
	5/8/2006	0.08	1.9	4.86	14.9	0.182	136	0.00	64.7	1.49
	5/18/2006	0.20	2.9	4.90	16.1	0.155	123	0.00	571	2.16
	5/30/2006	0.20	5.7	5.10	15.7	0.167	118	0.00	110	2.61
	10/24/2006	0.14	4.3	5.53	15.1	0.999	102	0.00	166	2.76
	10/25/2006	0.00	4.1	5.32	15.1	0.202	112	0.41	370	3.04
	10/26/2006	0.02	3.9	5.33	14.6	0.251	133	0.00	900	2.49
	11/29/2006	0.10	5.1	5.58	14.8	0.242	60	0.00	397	1.96
	11/29/2006	0.10	5.1	5.58	14.8	0.242	60	0.00	397	1.96
	12/21/2006	0.08	5.2	5.20	14.4	0.185	118	0.00	18.2	2.17
	1/24/2007	-0.05	4.5	5.54	14.9	0.275	101	1.93	46.4	1.84
	4/19/2007	0.00	6.1	5.88	14.7	0.320	124	3.21	254	0.03
MW-61 D1	4/28/2006	0.00	4.7	6.07	14.5	0.210	122	0.00	356	1.78
	5/8/2006	0.05	5.7	5.07	15.0	0.210	101	0.00	172	2.77
	5/18/2006	0.16	2.9	5.18	16.2	0.170	91	0.00	>999	>3.30
	5/30/2006	0.25	4.5	5.27	15.9	0.196	93	0.00	138	4.66
	10/24/2006	0.01	4.4	5.49	15.2	0.999	110	0.00	72.4	2.30
	10/25/2006	0.08	4.1	5.33	15.1	0.201	107	0.65	129	3.74
	10/26/2006	0.03	3.9	5.41	14.9	0.273	109	0.00	86	2.99
	11/29/2006	0.00	3.6	5.72	14.9	0.246	54	0.00	310	1.92
	12/21/2006	0.08	5.8	5.29	14.6	0.192	90	0.00	80.7	2.59
	1/23/2007	0.00	8.1	5.73	14.3	0.389	54	1.21	137	1.84
	4/19/2007	0.14	8.1	6.19	14.6	0.304	79	6.66	95.9	0.26
MW-61 D2	4/28/2006	0.05	6.4	7.03	15.2	0.230	-186	0.00	413	2.00
	5/5/2006	0.00	10.5	6.65	15.1	0.370	-160	0.00	>999	10.08
	5/18/2006	0.30	4.9	6.63	16.1	0.294	-127	0.00	999	>3.30
	5/30/2006	0.00	4.4	6.32	15.8	0.249	-100	0.00	84.6	2.99
	10/24/2006	0.10	6.4	6.22	14.9	0.904	37	0.00	>999	0.15
	10/25/2006	0.20	4.4	5.77	15.1	0.236	27	1.42	316	5.46
	10/26/2006	0.25	4.2	5.63	14.9	0.233	62	1.94	550	4.04
	11/29/2006	0.00	4.4	6.25	14.8	0.253	110	11.12	>999	1.91
	12/21/2006	0.19	5.1	5.58	14.2	0.216	120	9.28	89.4	2.36
	1/23/2007	0.10	5.1	6.62	14.0	0.273	131	>20	>999	0.89
	4/23/2007	0.05	8.6	5.38	15.1	0.189	361	>20	231	0.21
MW-62I	5/16/2007	0.10	7.1	5.31	14.1	0.278	59	0.00	113	0.69
MW-62D	5/16/2007	0.15	5.4	10.56	14.9	0.119	-125	0.00	570	0.38
MW-63 D1	5/23/2006	0.20	2.4	5.03	15.9	0.152	230	0.00	0.0	2.13
MW-63 D2	5/24/2006	-0.21	5.5	5.30	15.0	0.152	246	0.41	6.5	0.06
	6/14/2006	0.05	5.1	5.01	16.3	0.171	222	0.92	3.5	NM
MW-63 S	5/19/2006	0.12	2.4	5.20	14.8	0.150	238	0.16	411	0.18
MW-63 I	5/23/2006	0.20	4.6	5.09	15.4	0.154	241	0.00	0.0	0.03
MW-64 S	3/23/2006	0.10	2.9	5.83	14.3	0.188	-18	0.00	13.8	4.71
	4/26/2007	0.00	5.3	6.71	14.2	0.304	-114	0.00	53.6	2.37
MW-64 I	3/24/2006	-0.01	3.6	5.87	14.1	0.203	-38	0.00	0.0	3.21
	4/26/2007	0.00	6.1	6.78	14.2	0.317	-121	0.00	17.5	1.87
MW-64D	4/26/2007	0.00	2.7	6.72	14.6	0.324	-115	0.00	22.9	1.98
MW-66 D2	4/3/2006	0.03	5.2	5.23	15.2	0.197	-16	0.00	24.3	4.50
MW-67 S	3/28/2006	0.35	5.2	5.88	15.7	0.206	-117	0.00	271	13.08
MW-67 D	3/29/2006	0.47	4.3	5.64	17.1	0.223	86	0.50	>999	16.88
MW-68 S	4/6/2006	-0.10	5.1	8.87	17.4	0.144	-281	0.00	27.8	0.60

TABLE 2

SUMMARY OF PURGING FINAL STABILIZATION PARAMETER VALUES
HOOKER RUCO SITE
HICKSVILLE, NEW YORK

Well	*Date Sampled*	*Drawdown from Initial Water Level* [(1)] *(feet)*	*Well Screen Volumes Purged*	*pH (S.U.)*	*Temperature (Celsius)*	*Conductivity (mS/cm)*	*ORP (mV)*	*DO (mg/L)*	*Turbidity (NTU)*	*Fe^{+2} (mg/L)*
MW-68 D	3/31/2006	0.10	5.1	5.67	17.6	0.165	-150	0.00	440	9.72
MW-81 D1	4/12/2006	0.16	2.9	6.44	14.5	0.228	-65	0.00	132	1.47
	5/2/2006	0.05	2.9	5.44	15.1	0.303	-31	0.00	0.9	3.20
	5/17/2006	0.00	3.9	6.04	16.8	0.263	-75	0.00	86.4	2.81
	5/25/2006	0.07	2.5	5.62	15.6	0.268	-32	0.00	31.1	>3.3
	10/24/2006	0.08	4.0	5.72	14.5	0.420	15	2.26	14	3.23
	10/25/2006	0.21	0.7	5.77	15.3	0.349	-55	3.01	0.0	9.76
	10/26/2006	-0.08	1.3	6.02	14.7	0.321	-25	0.00	0.0	10.12
	1/29/2007	-0.07	6.1	6.19	13.1	0.429	-55	2.26	704	2.36
	4/19/2007	0.18	5.3	6.20	14.2	0.380	-128	0.00	629	2.06
MW-81 D2	4/12/2006	0.05	2.4	5.79	15.2	0.357	-51	0.00	4.1	5.04
	5/4/2006	0.00	5.8	6.12	16.8	0.204	-6	1.10	119	1.37
	5/18/2006	0.12	3.4	8.18	15.1	0.220	-58	0.00	906	>3.30
	5/26/2006	0.21	3.2	8.58	15.8	0.225	-129	0.00	>999	>3.3
	10/24/2006	0.09	3.2	6.33	14.5	0.263	78	16.87	396	2.37
	10/25/2006	-0.04	1.9	6.49	15.7	0.251	73	17.96	170	0.40
	10/26/2006	0.21	1.9	7.64	15.1	0.229	93	15.00	>999	0.74
	1/24/2007	-0.05	5.9	7.21	13.1	0.234	-39	2.90	>999	0.98
	4/18/2007	0.00	1.3	9.84	12.5	0.301	-110	0.00	519	2.71
MW-82 D1	4/17/2006	0.00	2.8	6.88	16.4	0.391	-126	0.00	10.8	1.28
	4/25/2006	0.12	4.9	6.23	17.2	0.351	-170	0.00	281	1.89
	5/11/2006	0.10	2.4	6.39	16.5	0.356	-190	0.00	150	4.32
	5/25/2006	0.00	6.6	6.27	17.8	0.341	-200	0.00	226	5.22
	5/31/2006	0.00	5.0	6.98	20.8	0.374	-214	0.00	297	5.28
	10/24/2006	0.23	0.9	6.44	14.5	0.411	-119	1.93	202	6.14
	10/25/2006	0.00	1.6	7.37	14.5	0.491	-154	0.00	9	9.36
	10/26/2006	0.02	1.0	6.63	16.0	0.317	-142	2.77	116	6.32
	11/30/2006	-0.30	2.6	7.39	15.8	0.463	-158	0.00	252	1.86
	12/20/2006	0.05	2.3	6.89	12.9	0.327	-149	0.00	146	1.98
	1/25/2007	0.05	5.7	7.25	12.9	0.440	-145	1.21	48.8	1.94
	4/20/2007	0.05	2.6	6.76	18.1	0.305	-153	0.76	357	2.79
MW-82 D2	4/17/2006	0.08	3.6	6.14	16.2	0.256	-152	0.00	636	5.12
	4/24/2006	0.00	4.3	7.34	15.7	0.295	-367	0.00	315	1.64
	5/25/2006	0.00	2.9	6.06	17.2	0.239	-140	0.00	95	3.02
	6/5/2006	0.05	3.0	6.52	17.7	0.251	-139	0.00	65.1	6.40
	5/31/2006	0.00	3.9	6.54	16.7	0.239	-125	0.00	27.9	6.58
	10/24/2006	0.07	4.1	6.91	16.3	0.231	-166	0.38	234	10.44
	10/25/2006	-0.08	1.0	6.07	15.4	0.282	-95	1.98	6.8	11.64
	10/26/2006	0.14	1.3	6.23	17.5	0.260	-110	3.37	59	8.60
	11/30/2006	0.00	2.7	7.48	16.6	0.313	-179	0.00	37.9	2.31
	12/20/2006	0.00	3.4	7.11	14.1	0.226	-178	0.00	14.1	0.34
	1/25/2007	0.00	3.2	7.23	13.5	0.284	-147	1.70	66.1	2.01
	4/20/2007	0.00	3.4	6.87	18.9	0.182	-183	0.61	182	1.91
MW-83 D1	4/11/2006	0.08	4.3	10.04	15.3	0.472	-195	0.00	648	0.20
	5/1/2006	0.07	4.5	10.35	17.1	0.518	-125	0.00	178	0.44
	5/16/2006	0.01	5.7	11.56	13.5	0.978	-235	0.00	>999	1.20
	5/24/2006	0.05	6.3	10.89	16.0	0.375	-211	0.00	350	1.36
	10/24/2006	0.20	1.0	11.70	13.1	1.190	70	0.00	108	1.94
	10/25/2006	0.11	2.0	12.80	14.4	0.990	-146	0.00	102	0.23
	10/26/2006	0.24	3.1	10.30	14.1	0.561	-64	2.06	9.9	0.06
	1/30/2007	0.03	5.3	11.07	13.4	0.342	6	1.74	79.4	0.01
	4/18/2007	0.00	4.9	10.70	12.7	0.256	-70	0.00	690	0.00
MW-83 D2	5/2/2006	-0.25	3.6	6.00	15.0	0.235	50	1.70	0.0	0.49
	5/16/2006	0.08	4.5	6.88	15.0	0.224	42	2.02	0.0	0.02
	5/25/2006	0.13	2.4	6.61	15.5	0.216	73	2.91	0.0	0.00
	10/24/2006	0.09	4.9	6.56	13.7	0.226	241	>19.99	17.5	9.88
	10/25/2006	0.10	1.2	6.18	14.3	0.297	179	>20	92	0.00
	10/26/2006	0.10	1.5	6.46	13.1	0.216	171	>20	0.0	0.06
	1/29/2007	0.00	2.9	6.55	10.3	0.197	249	13.20	69.3	0.00
	4/18/2007	0.21	3.4	8.16	13.0	0.233	97	0.00	103	0.00

TABLE 2

SUMMARY OF PURGING FINAL STABILIZATION PARAMETER VALUES
HOOKER RUCO SITE
HICKSVILLE, NEW YORK

Well	*Date Sampled*	*Drawdown from Initial Water Level* [(1)] *(feet)*	*Well Screen Volumes Purged*	*pH* *(S.U.)*	*Temperature* *(Celsius)*	*Conductivity* *(mS/cm)*	*ORP* *(mV)*	*DO* *(mg/L)*	*Turbidity* *(NTU)*	*Fe* $^{+2}$ *(mg/L)*
MW-84 D1	5/23/2006	0.09	1.7	6.25	16.1	0.301	-71	0.00	18.5	3.19
	5/26/2006	0.00	3.4	6.45	16.8	0.305	-118	0.00	91.9	4.50
	6/6/2006	0.15	4.1	6.55	16.6	0.280	-139	0.00	10.3	5.50
	6/8/2006	0.00	5.1	6.58	16.3	0.263	-163	0.00	10.4	2.35
	10/24/2006	0.00	4.7	5.46	15.7	0.197	50	7.89	54.7	1.44
	10/25/2006	0.06	1.3	6.32	15.4	0.296	86	8.03	0.0	1.37
	10/26/2006	0.04	2.9	6.19	15.8	0.300	78	6.51	77	1.19
	1/30/2007	0.00	3.6	6.16	13.1	0.254	160	7.53	188	1.24
	4/24/2007	0.00	3.6	6.49	16.5	0.249	282	>20	113	0.05
MW-84 D2	5/23/2006	0.15	3.9	6.74	17.4	0.246	-131	0.00	780	12.68
	5/30/2006	0.20	2.4	6.59	18.8	0.241	-152	2.70	595	3.18
	6/6/2006	0.00	5.7	7.17	16.8	0.219	-221	0.00	228	2.70
	6/8/2006	0.00	3.0	6.78	16.5	0.220	-162	0.00	230	3.78
	10/24/2006	0.00	6.8	8.47	14.9	0.295	-90	4.69	131	1.53
	10/25/2006	-0.02	1.0	8.68	15.1	0.395	-47	2.84	127	0.27
	10/26/2006	-0.01	5.0	8.00	15.5	0.393	-77	2.67	>999	0.64
	1/29/2007	0.00	1.9	9.97	12.2	0.322	7	3.91	199	0.18
	4/24/2007	0.10	6.7	10.22	16.5	0.339	138	16.31	470	0.30
MW-87 D1	4/5/2006	-0.04	2.9	5.04	12.8	0.197	142	0.00	64	0.99
	4/20/2006	0.02	3.9	4.94	17.5	0.184	218	0.00	43.8	0.30
	5/4/2006	0.02	2.6	5.03	16.2	0.187	231	0.00	0.0	0.34
	5/15/2006	0.02	2.0	5.28	15.1	0.165	207	0.00	66.2	0.27
	10/24/2006	0.25	4.5	5.45	14.9	0.229	234	0.70	5.4	0.17
	10/25/2006	-0.01	2.8	5.23	15.9	0.224	221	0.00	0.0	0.35
	10/26/2006	0.03	2.1	5.26	15.0	0.192	226	2.63	22.2	0.05
	1/24/2007	0.10	2.1	5.31	14.7	0.200	248	0.78	11.0	0.10
	4/17/2007	0.10	5.3	5.47	14.5	0.999	169	0.00	62	0.14
MW-87 D2	4/5/2006	0.00	2.8	5.21	14.1	0.172	121	1.81	129	1.14
	4/25/2006	-0.05	5.1	5.40	15.5	0.163	149	2.62	42.8	0.20
	5/15/2006	0.32	4.3	5.80	15.4	0.152	104	1.59	54.8	NM
	5/24/2006	0.10	4.9	5.45	16.2	0.155	163	1.62	0.0	1.36
	10/24/2006	0.13	3.9	5.69	15.5	0.183	212	4.00	131	0.08
	10/25/2006	0.06	1.5	5.34	15.5	0.173	137	6.68	25.5	0.09
	10/26/2006	-0.03	2.1	5.37	15.2	0.160	226	4.53	0.0	0.02
	1/24/2007	0.00	4.7	5.61	13.3	0.186	131	3.64	160	0.25
	4/17/2007	0.00	5.3	5.83	14.5	0.228	106	3.89	0.9	0.09
MW-88 D1	4/19/2006	0.08	2.9	6.09	17.9	0.273	-90	0.00	>999	9.64
	4/26/2006	0.32	6.7	5.99	16.7	0.204	-53	0.00	589	4.96
	5/10/2006	0.25	4.2	5.68	15.4	0.200	-2	0.00	393	2.75
	5/30/2006	0.00	3.6	5.90	17.1	0.188	-65	3.13	408	3.62
	6/1/2006	0.10	5.0	6.13	19.9	0.188	-73	0.00	367	5.12
	10/24/2006	0.06	1.8	6.06	15.6	0.252	-43	0.00	88.6	11.04
	10/25/2006	0.09	1.4	5.86	15.3	0.233	-13	0.00	4.7	10.20
	10/26/2006	0.00	3.4	5.59	15.6	0.317	33	3.36	415	6.56
	1/30/2007	0.10	2.9	6.12	11.8	0.193	-45	1.16	257	2.01
	4/19/2007	0.03	4.9	5.84	15.4	0.187	172	11.88	334	1.84
MW-88 D2	4/20/2006	0.00	3.7	6.25	17.4	0.244	-152	0.00	951	6.16
	5/10/2006	0.03	3.5	8.05	16.6	0.330	-331	0.00	>999	9.44
	6/1/2006	0.00	4.9	7.24	18.5	0.287	-210	0.00	>999	12.95
	6/7/2006	0.10	4.3	8.44	15.9	0.320	-380	0.00	>999	12.52
	10/24/2006	0.00	5.8	9.10	15.8	0.387	-282	1.44	>999	18.96
	10/25/2006	0.17	1.0	9.44	15.0	0.426	-253	1.97	>999	11.40
	10/26/2006	0.00	1.5	7.33	17.7	0.286	-212	0.00	>999	NM
	1/25/2007	0.00	8.5	9.17	11.3	0.323	-315	0.82	993	0.16
	4/19/2007	0.10	4.0	7.13	16.8	0.278	-219	0.37	>999	2.17
MW-90 D1	6/13/2006	0.10	7.8	6.25	17.0	0.230	-112	0.00	76.8	4.10
	4/25/2007	0.00	4.9	6.07	16.1	0.231	-100	0.93	542	2.30
MW-90 D2	6/13/2006	0.05	7.8	5.91	18.4	0.191	-9	0.20	95.3	3.06
	4/25/2007	0.05	4.7	5.95	15.3	0.209	-47	1.38	102	1.76

Notes:

(1) Negative indicates groundwater level during purging higher than initial water level
NM Not measured

CONESTOGA-ROVERS
& ASSOCIATES

REVISED:	**May 4, 2007**
E-Mail Date:	April 25, 2007
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ANALYTICAL DATA ASSESSMENT AND VALIDATION
HOOKER-RUCO MW-52 CLOSURE GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HICKSVILLE, NEW YORK
MARCH 2007

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(Following Text)

1.0 INTRODUCTION

Groundwater samples were collected at the former Hooker Ruco Site in Hicksville, New York (Site) in support of the MW-52 groundwater sampling program. Analytical services were performed by H2M Labs, Inc., in Melville, New York (H2M). A summary of the sampling and analysis scheme is presented in Table 1.

A summary of the analytical data is presented in Table 2. The samples were analyzed for the volatile organic compounds (VOCs), total organic carbon (TOC), ammonia, nitrite, nitrate, and total phosphorus.

The quality assurance/quality control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods. Additional validation guidelines were referenced from the following documents:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", United States Environmental Protection Agency (USEPA) 540/R-94-012, February 1994;

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", USEPA 540/R-94-013, February 1994; and

Full raw data deliverables were provided by the laboratory. The data quality assessment and validation presented in the following subsections were performed based on the sample results and supporting QA/QC provided.

2.0 SAMPLE HOLDING TIMES

The method-specific holding time criteria are summarized in Table 5.1 of the Quality Assurance Project Plan (QAPP). All sample extractions and/or analyses were performed within the specified holding times.

All samples were properly preserved and cooled to 4°C (±2°C) after collection. All samples were received by the laboratory in good condition.

3.0 GAS CHROMATOGRAPH/MASS SPECTROMETER (GC/MS) TUNING AND MASS CALIBRATION - VOCs

Prior to analysis, GC/MS instrumentation is tuned to ensure optimization over the mass range of interest. To evaluate instrument tuning, the VOC method requires the analysis of the specific tuning compound bromofluorobenzene (BFB). The resulting spectra must meet the criteria cited in the method before analysis is initiated. Analysis of the tuning compound must then be repeated every 12 hours throughout sample analysis to ensure the continued optimization of the instrument.

Instrument tuning data were reviewed. Tuning compounds were analyzed at the required frequency throughout the VOC analysis period. All tuning criteria were met for the analyses, indicating proper optimization of the instrumentation.

4.0 INSTRUMENT CALIBRATION

4.1 CC/MS CALIBRATION - VOCs

4.1.1 TUNING AND MASS CALIBRATION

Prior to analysis, GC/MS instrumentation is tuned to ensure optimization over the mass range of interest. To evaluate instrument tuning, the VOC method require the analysis of the specific tuning compounds BFB. The resulting spectra must meet the criteria cited in the method before analysis is initiated. Analysis of the tuning compound must then be repeated every 12 hours throughout sample analysis to ensure the continued optimization of the instrument.

Instrument tuning data were reviewed. Tuning compounds were analyzed at the required frequency throughout the VOC analysis period. All tuning criteria were met for the analyses, indicating proper optimization of the instrumentation.

4.1.2 INITIAL CALIBRATION

To quantify compounds of interest in samples, calibration of the GC/MS over a specific concentration range must be performed. Initially, a five-point calibration curve containing all compounds of interest is analyzed to characterize instrument response for each analyte over a specific concentration range. Linearity of the calibration curve and instrument sensitivity are evaluated against the following criteria:

i) all relative response factors (RRFs) must be greater than or equal to 0.05; and

ii) for average response factors are employed, percent relative standard deviation (%RSD) values must not exceed 30 percent.

The initial calibration data for VOCs were reviewed and met the above criteria for linearity and sensitivity for all compounds of interest with the exception of methylene chloride in the curve analyzed on March 21, 2007. Associated sample results have been qualified as estimated (see Table 3.)

4.1.3 CONTINUING CALIBRATION

To ensure that instrument calibration is acceptable throughout the sample analysis period, continuing calibration standards must be analyzed and compared to the initial calibration curve every 12 hours.

The following criteria were employed to evaluate continuing calibration data:

i) all RRF values must be greater than or equal to 0.05; and

ii) percent difference (%D) values must not exceed 25 percent.

Calibration standards were analyzed at the required frequency and the results met the above criteria for instrument sensitivity and linearity of response.

4.2 INSTRUMENTAL CALIBRATION - GENERAL CHEMISTRY

4.2.1 INITIAL CALIBRATION

Initial calibration of the instruments ensures that they are capable of producing satisfactory quantitative data at the beginning of a series of analyses. For general chemistry, calibration is performed based on the analysis of at least three standards and a blank. Resulting correlation coefficients for curves must be at least 0.995.

After calibration, an initial calibration verification (ICV) standard must be analyzed to verify the analytical accuracy of the calibration curves. All analyte recoveries from the analyses of the ICVs must be within control limits of 85 to 115 percent.

Upon review of the data, it was determined that all inorganic calibration curves and ICVs were analyzed at the proper frequencies and that all of the above-specified criteria were met. The laboratory effectively demonstrated that instrumentation used for these analyses were properly calibrated prior to sample analyses.

4.2.2 CONTINUING CALIBRATION

To ensure that instrument calibration is acceptable throughout the sample analysis period, continuing calibration verification (CCV) standards are analyzed on a regular basis. Each CCV is deemed acceptable if all analyte recoveries are within the control limits specified above for the ICVs. If some of the CCV analyte recoveries are outside the control limits, samples analyzed before and after the CCV, up until the previous and proceeding CCV analyses, are affected.

For this study, CCVs were analyzed at the proper frequency. All analyte recoveries reported for the CCVs were within the specified limits.

5.0 SURROGATE COMPOUND ANALYSES - VOCs

In accordance with the methods employed, all samples, blanks, and standards analyzed for VOCs are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of individual sample matrices on analytical efficiency and are assessed against method control limits.

Surrogates were added to all samples, blanks, and QC samples prior to analysis. Surrogate recoveries met the acceptance criteria for all samples demonstrating acceptable analytical accuracy in this sample matrix.

6.0 INTERNAL STANDARD (IS) RECOVERIES - VOCs

To ensure that changes in GC/MS response and sensitivity do not affect sample analysis results, IS compounds are added to all samples, blanks, and spike samples prior to VOC analysis. All results are calculated as a ratio of the IS response. The criteria by which the IS results are assessed are as follows:

i) IS area counts must not vary by more than a factor of two (-50 percent to +100 percent) from the associated calibration standard; and

ii) the retention time of the IS must not vary more than ±30 seconds from the associated calibration standard.

The sample IS recoveries met the above criteria and were used to calculate all positive sample results.

7.0 MATRIX SPIKE (MS) AND DUPLICATE ANALYSES-GENERAL CHEMISTRY

To evaluate the effects of sample matrices on the measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS samples. The established control limits for inorganic matrix spike recoveries are 75 to 125 percent. Spike recoveries are not assessed for samples having original concentrations significantly greater than the spike concentration (>four times).

Analytical precision is evaluated based on the analysis of duplicate samples. Laboratory duplicate results are assessed against a maximum RPD of 20 percent.

Matrix spikes and duplicate analyses were performed at the required frequency for TOC. The results showed acceptable accuracy and precision on this sample matrix.

8.0 LABORATORY CONTROL SAMPLE (LCS) ANALYSES

The LCS serves as a monitor of the overall performance of all steps in the analysis, including the sample preparation. LCSs are analyzed using the same sample preparation, analytical methods, and QA/QC procedures employed for the investigative samples.

LCSs were prepared and analyzed for all general chemistry and VOC parameters. The LCS results showed good overall analytical accuracy with the exception of some low VOC recoveries. Associated sample results were qualified as estimated to reflect the potential low bias (see Table 4).

9.0 METHOD BLANK ANALYSES

Method blanks are prepared from deionized water and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the procedures. Additionally, continuing calibration blanks (CCBs) are routinely analyzed after each CCV for the inorganic parameters.

For this study, method blanks were analyzed at a minimum frequency of one per analytical batch and CCBs were analyzed for inorganic parameters after each CCV. The data were non-detect for the analytes of interest.

10.0 CONCLUSION

Based on the preceding assessment, the data summarized in Table 2 are acceptable with the specific qualifications noted herein.

TABLES

TABLE 1

SAMPLING AND ANALYSIS SUMMARY
MW-52 CLOSURE GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
MARCH 2007

				Analysis/Parameters	
Sample ID	*Location ID*	*Collection Date (mm/dd/yy)*	*Collection Time (hr:min)*	*VOCs*	*TOC, NH_3, NO_2, NO_3, Total Phosphorus*
G-031307-SD-001	MW-52 S	03/13/07	16:30	X	X
G-031407-SD-002	MW-52 I	03/14/07	11:45	X	X
G-031407-SD-003	MW-52 D	03/14/07	14:35	X	X

Notes:

NH_3	Total Ammonia.
NO_2	Nitrite.
NO_3	Nitrate.
TOC	Total Organic Carbon.
VOCs	Volatile Organic Compounds.

Revised: 05/04/2007

TABLE 2

ANALYTICAL RESULTS SUMMARY
MW-52 CLOSURE GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
MARCH 2007

	Sample Location:	*MW-52S*	*MW-52I*	*MW-52D*
	Sample ID:	*G-031307-SD-001*	*G-031407-SD-002*	*G-031407-SD-003*
	Sample Date:	*3/13/2007*	*3/14/2007*	*3/14/2007*
Parameters	***Units***			
Volatile Organic Compounds				
1,1,1-Trichloroethane	µg/L	5 U	5 U	1 J
1,1,2,2-Tetrachloroethane	µg/L	5 U	5 U	5 U
1,1,2-Trichloroethane	µg/L	5 U	5 U	5 U
1,1-Dichloroethane	µg/L	5 U	5 U	2 J
1,1-Dichloroethene	µg/L	5 U	5 U	2 J
1,2-Dichloroethane	µg/L	5 U	5 U	5 U
1,2-Dichloroethene (total)	µg/L	19	5 U	7
1,2-Dichloropropane	µg/L	5 U	5 U	5 U
2-Butanone (Methyl Ethyl Ketone)	µg/L	5 U	5 U	5 U
2-Hexanone	µg/L	5 U	5 U	5 U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	µg/L	5 UJ	5 UJ	5 UJ
Acetone	µg/L	5 U	5 U	5 U
Benzene	µg/L	5 U	5 U	5 U
Bromodichloromethane	µg/L	5 U	5 U	5 U
Bromoform	µg/L	5 UJ	5 UJ	5 UJ
Bromomethane (Methyl Bromide)	µg/L	5 U	5 U	5 U
Carbon disulfide	µg/L	5 U	5 U	5 U
Carbon tetrachloride	µg/L	5 U	5 U	5 U
Chlorobenzene	µg/L	5 U	5 U	5 U
Chloroethane	µg/L	23	5 U	5 U
Chloroform (Trichloromethane)	µg/L	5 U	5 U	5 U
Chloromethane (Methyl Chloride)	µg/L	5 U	5 U	5 U
cis-1,3-Dichloropropene	µg/L	5 U	5 U	5 U
Dibromochloromethane	µg/L	5 UJ	5 UJ	5 UJ
Ethylbenzene	µg/L	5 U	5 U	5 U
Methylene chloride	µg/L	5 UJ	5 UJ	5 UJ
Styrene	µg/L	5 U	5 U	5 U
Tetrachloroethene	µg/L	25	14	410
Toluene	µg/L	5 U	5 U	5 U
trans-1,3-Dichloropropene	µg/L	5 U	5 U	5 U
Trichloroethene	µg/L	19	5	39
Vinyl chloride	µg/L	2400	6	5 U
Xylene (total)	µg/L	1 J	5 U	5 U
General Chemistry				
Ammonia	mg/L	0.24	0.10	0.11
Nitrate (as N)	mg/L	0.1 U	0.12	6.28
Nitrite (as N)	mg/L	0.1 U	0.1 U	0.1 U
Phosphorus	mg/L	0.05 U	0.05 U	0.05 U
Total Organic Carbon (TOC)	mg/L	2.0	1 U	1 U

Notes:

J	Estimated.
U	Non-detect at associated value.
UJ	The analyte was not detected above the sample quantitation limit. The reported quantitation limit is an estimated quantity.

TABLE 3

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING INITIAL CALIBRATION RESULTS
MW-52 CLOSURE GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
MARCH 2007

Parameter	*Compound*	*Calibration Date*	*%RSD*	*Associated Sample ID*	*Sample Results*	*Units*	*Qualifier*
VOCs	Methylene chloride	03/21/07	52	G-031307-SD-001	5 U	µg/L	UJ
				G-031407-SD-002	5 U	µg/L	UJ
				G-031407-SD-003	5 U	µg/L	UJ

Notes:

%RSD	Percent Relative Standard Deviation.
U	Non-detect at associated value.
UJ	The analyte was not detected above the sample quantitation limit. The reported quantitation limit is an estimated quantity.
VOCs	Volatile Organic Compounds.

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING LABORATORY CONTROL SAMPLE RESULTS
MW-52 CLOSURE GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
MARCH 2007

Parameter	*Compound*	*Percent Recovery*	*Control Limits (percent)*	*Associated Sample ID*	*Sample Results*	*Units*	*Qualifier*
VOCs	Methylene chloride	63	80 - 112	G-031307-SD-001	5 U	µg/L	UJ
				G-031407-SD-002	5 U	µg/L	UJ
				G-031407-SD-003	5 U	µg/L	UJ
VOCs	4-Methyl-2-Pentanone	71	79 - 121	G-031307-SD-001	5 U	µg/L	UJ
				G-031407-SD-002	5 U	µg/L	UJ
				G-031407-SD-003	5 U	µg/L	UJ
VOCs	Dibromochloromethane	78	79 - 118	G-031307-SD-001	5 U	µg/L	UJ
				G-031407-SD-002	5 U	µg/L	UJ
				G-031407-SD-003	5 U	µg/L	UJ
VOCs	Bromoform	74	75 - 121	G-031307-SD-001	5 U	µg/L	UJ
				G-031407-SD-002	5 U	µg/L	UJ
				G-031407-SD-003	5 U	µg/L	UJ

Notes:

U	Non-detect at associated value.
UJ	The analyte was not detected above the sample quantitation limit. The reported quantitation limit is an estimated quantity.
VOCs	Volatile Organic Compounds.

CONESTOGA-ROVERS
& ASSOCIATES

E-Mail Date: June 21, 2007
REVISED: June 22, 2007
E-Mail To: Klaus Schmidtke
c.c.: Sheri Finn
E-Mail and Interoffice Mail: ☒

ANALYTICAL DATA ASSESSMENT AND VALIDATION
HOOKER-RUCO QUARTERLY GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HICKSVILLE, NEW YORK
APRIL 2007

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1.0 INTRODUCTION

Groundwater samples were collected at the former Hooker Ruco Site in Hicksville, New York (Site) in support of the quarterly groundwater sampling program. Analytical services were performed by H2M Labs, Inc., in Melville, New York (H2M). A summary of the sampling and analysis scheme is presented in Table 1.

A summary of the analytical data is presented in Table 2. The samples were analyzed for the volatile organic compounds (VOCs), total organic carbon (TOC), ammonia, nitrite, nitrate, and total phosphorus.

The quality assurance/quality control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods. Additional validation guidelines were referenced from the following documents:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", United States Environmental Protection Agency (USEPA) 540/R-94-012, February 1994;

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", USEPA 540/R-94-013, February 1994; and

Full raw data deliverables were provided by the laboratory. The data quality assessment and validation presented in the following subsections were performed based on the sample results and supporting QA/QC provided.

2.0 SAMPLE HOLDING TIMES

The method-specific holding time criteria are summarized in Table 5.1 of the Quality Assurance Project Plan (QAPP). All sample extractions and/or analyses were performed within the specified holding times.

All samples were properly preserved and cooled to 4°C (±2°C) after collection. All samples were received by the laboratory in good condition.

3.0 GAS CHROMATOGRAPH/MASS SPECTROMETER (GC/MS) TUNING AND MASS CALIBRATION - VOCs

Prior to analysis, GC/MS instrumentation is tuned to ensure optimization over the mass range of interest. To evaluate instrument tuning, the VOC method requires the analysis of the specific tuning compound bromofluorobenzene (BFB). The resulting spectra must meet the criteria cited in the method before analysis is initiated. Analysis of the tuning compound must then be repeated every 12 hours throughout sample analysis to ensure the continued optimization of the instrument.

Instrument tuning data were reviewed. Tuning compounds were analyzed at the required frequency throughout the VOC analysis period. All tuning criteria were met for the analyses, indicating proper optimization of the instrumentation.

4.0 INSTRUMENT CALIBRATION

4.1 CC/MS CALIBRATION - VOCs

4.1.1 TUNING AND MASS CALIBRATION

Prior to analysis, GC/MS instrumentation is tuned to ensure optimization over the mass range of interest. To evaluate instrument tuning, the VOC method require the analysis of the specific tuning compounds BFB. The resulting spectra must meet the criteria cited in the method before analysis is initiated. Analysis of the tuning compound must then be repeated every 12 hours throughout sample analysis to ensure the continued optimization of the instrument.

Instrument tuning data were reviewed. Tuning compounds were analyzed at the required frequency throughout the VOC analysis period. All tuning criteria were met for the analyses, indicating proper optimization of the instrumentation.

4.1.2 INITIAL CALIBRATION

To quantify compounds of interest in samples, calibration of the GC/MS over a specific concentration range must be performed. Initially, a five-point calibration curve containing all compounds of interest is analyzed to characterize instrument response for each analyte over a specific concentration range. Linearity of the calibration curve and instrument sensitivity are evaluated against the following criteria:

i) all relative response factors (RRFs) must be greater than or equal to 0.05; and

ii) for average response factors are employed, percent relative standard deviation (%RSD) values must not exceed 30 percent.

The initial calibration data for VOCs were reviewed and met the above criteria for linearity and sensitivity for all compounds of interest with the exception of acetone in the curve analyzed on April 20, 2007. Associated sample results have been qualified as estimated (see Table 3).

4.1.3 CONTINUING CALIBRATION

To ensure that instrument calibration is acceptable throughout the sample analysis period, continuing calibration standards must be analyzed and compared to the initial calibration curve every 12 hours.

The following criteria were employed to evaluate continuing calibration data:

i) all RRF values must be greater than or equal to 0.05; and

ii) percent difference (%D) values must not exceed 25 percent.

Calibration standards were analyzed at the required frequency and the results met the above criteria for instrument sensitivity and linearity of response with the exception of some high %D recoveries. Associated sample results have been qualified as estimated (see Table 4).

4.2 INSTRUMENTAL CALIBRATION – GENERAL CHEMISTRY

4.2.1 INITIAL CALIBRATION

Initial calibration of the instruments ensures that they are capable of producing satisfactory quantitative data at the beginning of a series of analyses. For general chemistry, calibration is performed based on the analysis of at least three standards and a blank. Resulting correlation coefficients for curves must be at least 0.995.

After calibration, an initial calibration verification (ICV) standard must be analyzed to verify the analytical accuracy of the calibration curves. All analyte recoveries from the analyses of the ICVs must be within control limits of 85 to 115 percent.

Upon review of the data, it was determined that all inorganic calibration curves and ICVs were analyzed at the proper frequencies and that all of the above-specified criteria were met. The laboratory effectively demonstrated that instrumentation used for these analyses were properly calibrated prior to sample analyses.

4.2.2 CONTINUING CALIBRATION

To ensure that instrument calibration is acceptable throughout the sample analysis period, continuing calibration verification (CCV) standards are analyzed on a regular basis. Each CCV is deemed acceptable if all analyte recoveries are within the control limits specified above for the ICVs. If some of the CCV analyte recoveries are outside the control limits, samples analyzed before and after the CCV, up until the previous and proceeding CCV analyses, are affected.

For this study, CCVs were analyzed at the proper frequency. All analyte recoveries reported for the CCVs were within the specified limits.

5.0 SURROGATE COMPOUND ANALYSES - VOCs

In accordance with the methods employed, all samples, blanks, and standards analyzed for VOCs are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of individual sample matrices on analytical efficiency and are assessed against method control limits.

Surrogates were added to all samples, blanks, and QC samples prior to analysis. Surrogate recoveries met the acceptance criteria for all samples demonstrating acceptable analytical accuracy in this sample matrix.

6.0 INTERNAL STANDARD (IS) RECOVERIES - VOCs

To ensure that changes in GC/MS response and sensitivity do not affect sample analysis results, IS compounds are added to all samples, blanks, and spike samples prior to VOC analysis. All results are calculated as a ratio of the IS response. The criteria by which the IS results are assessed are as follows:

i) IS area counts must not vary by more than a factor of two (-50 percent to +100 percent) from the associated calibration standard; and

ii) the retention time of the IS must not vary more than ±30 seconds from the associated calibration standard.

The sample IS recoveries met the above criteria and were used to calculate all positive sample results.

7.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES VOCs

To evaluate the effects of sample matrices on the measurement procedures, and accuracy of a particular analysis, samples are spiked in duplicate with a known concentration of the analytes of concern and analyzed as MS/MSD samples. Spike recoveries are not assessed for samples having original concentrations significantly greater than the spike concentration (>four times).

Analytical precision is evaluated based on the relative percent difference (RPD) between the MS and MSD.

MS/MSDs were performed at the required frequency for VOCs. The results showed acceptable accuracy and precision on this sample matrix.

8.0 MATRIX SPIKE (MS) AND DUPLICATE ANALYSES - GENERAL CHEMISTRY

To evaluate the effects of sample matrices on the measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS samples. The established control limits for inorganic matrix spike recoveries are 75 to 125 percent. Spike recoveries are not assessed for samples having original concentrations significantly greater than the spike concentration (>four times).

Analytical precision is evaluated based on the analysis of duplicate samples. Laboratory duplicate results are assessed against a maximum RPD of 20 percent.

MS and duplicate analyses were performed at the required frequency for all general chemistry parameters. The results showed acceptable accuracy and precision on this sample matrix.

9.0 LABORATORY CONTROL SAMPLE (LCS) ANALYSES

The LCS serves as a monitor of the overall performance of all steps in the analysis, including the sample preparation. LCSs are analyzed using the same sample preparation, analytical methods, and QA/QC procedures employed for the investigative samples.

LCSs were prepared and analyzed for all general chemistry and VOC parameters. Most LCS results showed good overall analytical accuracy. Associated sample results for low VOC recoveries were qualified as estimated to reflect the potential low bias. Associated positive sample results for high VOC recoveries were qualified as estimated. Non-detect results associated with the high recoveries would not be impacted by the potential high bias (see Table 5).

10.0 METHOD BLANK ANALYSES

Method blanks are prepared from deionized water and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the procedures. Additionally, continuing calibration blanks (CCBs) are routinely analyzed after each CCV for the inorganic parameters.

For this study, method blanks were analyzed at a minimum frequency of one per analytical batch and CCBs were analyzed for inorganic parameters after each CCV. The data were non-detect for the analytes of interest.

11.0 CONCLUSION

Based on the preceding assessment, the data summarized in Table 2 are acceptable with the specific qualifications noted herein.

TABLES

TABLE 1

SAMPLING AND ANALYSIS SUMMARY
QUARTERLY GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
APRIL 2007

				Analysis/Parameters		
Sample ID	***Location ID***	***Collection Date (mm/dd/yy)***	***Collection Time (hr:min)***	***VOCs***	***TOC, NH_3, NO_2, NO_3, Total Phosphorus***	***Comments***
GW-6883-041707-RR-001	MW-87 D1	04/17/07	10:55	X	X	
GW-6883-041707-RR-002	MW-87 D2	04/17/07	14:15	X	X	
GW-6883-041807-RR-003	MW-83 D2	04/18/07	10:20	X	X	
GW-6883-041807-RR-004	MW-83 D1	04/18/07	13:35	X	X	
GW-6883-041807-RR-005	MW-81 D2	04/18/07	16:25	X	X	
GW-6883-041807-RR-006	MW-81 D1	04/19/07	10:10	X	X	
GW-6883-041807-RR-007	MW-81 D1	04/19/07	10:25	X	X	
G-041907-SD-008	MW-88 D1	04/19/07	13:10	X	X	
GW-6883-041807-RR-009	MW-61 D1	04/19/07	13:10	X	X	
G-041907-SD-010	MW-88 D2	04/19/07	17:10	X	X	
GW-6883-041807-RR-011	MW-61 I	04/19/07	15:15	X	X	
G-042007-SD-012	MW-82 D1	04/20/07	11:00	X	X	
G-042007-SD-013	MW-82 D2	04/20/07	14:00	X	X	
G-042307-SD-014	MW-61 D2	04/23/07	14:55	X	X	
G-042407-SD-015	MW-84 D1	04/24/07	10:15	X	X	
G-042407-SD-016	MW-84 D2	04/24/07	13:50	X	X	
G-042507-SD-017	MW-90 D2	04/25/07	10:50	X	X	
G-042507-SD-018	MW-90 D1	04/25/07	13:40	X	X	
G-042607-SD-019	MW-64 D	04/26/07	11:55	X	X	
G-042607-SD-020	MW-64 I	04/26/07	13:40	X	X	
G-042607-SD-021	MW-64 S	04/26/07	15:55	X	X	
COMP-042607-SD-001	wastewater composite	04/26/07		X	X	
FB-042407-SD-001	field blank	04/24/07		X		Eguipment blank

Notes:

NH_3	Total Ammonia.
NO_2	Nitrate.
NO_3	Nitrite.
TOC	Total Organic Carbon.
VOCs	Volatile Organic Compounds.

TABLE 2

ANALYTICAL RESULTS SUMMARY
QUARTERLY GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
APRIL 2007

	Sample Location:	*MW-61D1*	*MW-61D2*	*MW-61I*	*MW-64D*	*MW-64I*	*MW-64S*	*MW-81D1*	*MW-81D1*
	Sample ID:	*GW-6883-041907-RR-009*	*G-042307-SD-014*	*GW-6883-041907-RR-011*	*G-042607-SD-019*	*G-042607-SD-020*	*G-042607-SD-021*	*GW-6883-041907-RR-006*	*GW-6883-041907-RR-007*
	Sample Date:	*4/19/2007*	*4/23/2007*	*4/19/2007*	*4/26/2007*	*4/26/2007*	*4/26/2007*	*4/19/2007*	*4/19/2007* *(Duplicate)*
Parameters	***Units***								
Volatile Organic Compounds									
1,1,1-Trichloroethane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	µg/L	5 U	2 J	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	µg/L	5 U	4 J	5 U	5 U	5 U	5 U	1 J	1 J
1,2-Dichloroethane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	µg/L	40	100	31	3 J	3 J	2 J	89	89
1,2-Dichloropropane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone (Methyl Ethyl Ketone)	µg/L	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	µg/L	5 UJ	5 UJ	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	µg/L	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	µg/L	5 UJ	5 UJ	4 J	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Benzene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane (Methyl Bromide)	µg/L	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
Carbon disulfide	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	µg/L	5 U	5 U	1 J	5 U	5 U	5 U	5 U	5 U
Chloroethane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	25	25
Chloroform (Trichloromethane)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane (Methyl Chloride)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methylene chloride	µg/L	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	µg/L	27	140	19	5.1	5.0	3 J	20	21
Toluene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	µg/L	130	580 J	95	4 J	3 J	2 J	61	61
Vinyl chloride	µg/L	200	2000	140	14	16	8.7	580	550
Xylene (total)	µg/L	5 U	1 J	5 U	5 U	5 U	5 U	2 J	2 J

TABLE 2

ANALYTICAL RESULTS SUMMARY
QUARTERLY GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
APRIL 2007

	Sample Location:	*MW-61D1*	*MW-61D2*	*MW-61I*	*MW-64D*	*MW-64I*	*MW-64S*	*MW-81D1*	*MW-81D1*
	Sample ID:	*GW-6883-041907-RR-009*	*G-042307-SD-014*	*GW-6883-041907-RR-011*	*G-042607-SD-019*	*G-042607-SD-020*	*G-042607-SD-021*	*GW-6883-041907-RR-006*	*GW-6883-041907-RR-007*
	Sample Date:	*4/19/2007*	*4/23/2007*	*4/19/2007*	*4/26/2007*	*4/26/2007*	*4/26/2007*	*4/19/2007*	*4/19/2007* *(Duplicate)*
Parameters	***Units***								
General Chemistry									
Ammonia	mg/L	0.15	0.22	0.31	0.60	0.62	0.61	0.97	1.01
Nitrate (as N)	mg/L	3.25	3.05	2.78	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nitrite (as N)	mg/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Phosphorus	mg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Total Organic Carbon (TOC)	mg/L	1.7	1 U	2.8	1 U	1 U	1.1	3.1	2.4

Notes:

J	Estimated.
U	Non-detect at associated value.
UJ	The analyte was not detected above the sample quantitation limit. The reported quantitation limit is an estimated quantity.

TABLE 2

ANALYTICAL RESULTS SUMMARY
QUARTERLY GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
APRIL 2007

Sample Location:		*MW-81D2*	*MW-82D1*	*MW-82D2*	*MW-83D1*	*MW-83D2*	*MW-84D1*	*MW-84D2*	*MW-87D1*
Sample ID:		*GW-6883-041807-RR-005*	*G-042007-SD-012*	*G-042007-SD-013*	*GW-6883-041807-RR-004*	*GW-6883-041807-RR-003*	*G-042407-SD-015*	*G-042407-SD-016*	*GW-6883-041707-RR-001*
Sample Date:		*4/18/2007*	*4/20/2007*	*4/20/2007*	*4/18/2007*	*4/18/2007*	*4/24/2007*	*4/24/2007*	*4/17/2007*
Parameters	***Units***								
Volatile Organic Compounds									
1,1,1-Trichloroethane	µg/L	5 U	5 U	5 U	5 U	5 U	1 J	5 U	5 U
1,1,2,2-Tetrachloroethane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	µg/L	3 J	3 J	1 J	5 U	2 J	1 J	3 J	5 U
1,1-Dichloroethene	µg/L	2 J	5 U	5 U	5 U	5 U	2 J	2 J	3 J
1,2-Dichloroethane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	µg/L	2 J	77	61	6.6	4 J	25	27	58
1,2-Dichloropropane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone (Methyl Ethyl Ketone)	µg/L	1 J	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U
2-Hexanone	µg/L	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	µg/L	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U
Acetone	µg/L	5.5 J	3 J	5.1 J	5.2 J	5 UJ	5 UJ	5.2 J	5 UJ
Benzene	µg/L	5 U	2 J	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane (Methyl Bromide)	µg/L	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U
Carbon disulfide	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	µg/L	5 U	7.6	5 U	5 U	5 U	2 J	5 U	3 J
Chloroform (Trichloromethane)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane (Methyl Chloride)	µg/L	5 U	2 J	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methylene chloride	µg/L	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 U
Styrene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	µg/L	1 J	5 U	130	5 U	3 J	32	69	56
Toluene	µg/L	5 U	2 J	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,3-Dichloropropene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	µg/L	14	5 U	91	29	23	560	510	470
Vinyl chloride	µg/L	4 J	860	47	7.7	1 J	11	33	160
Xylene (total)	µg/L	5 U	4 J	5 U	5 U	5 U	5 U	5 U	5 U

TABLE 2

ANALYTICAL RESULTS SUMMARY
QUARTERLY GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
APRIL 2007

	Sample Location:	*MW-81D2*	*MW-82D1*	*MW-82D2*	*MW-83D1*	*MW-83D2*	*MW-84D1*	*MW-84D2*	*MW-87D1*
	Sample ID:	*GW-6883-041807-RR-005*	*G-042007-SD-012*	*G-042007-SD-013*	*GW-6883-041807-RR-004*	*GW-6883-041807-RR-003*	*G-042407-SD-015*	*G-042407-SD-016*	*GW-6883-041707-RR-001*
	Sample Date:	*4/18/2007*	*4/20/2007*	*4/20/2007*	*4/18/2007*	*4/18/2007*	*4/24/2007*	*4/24/2007*	*4/17/2007*
Parameters	***Units***								
General Chemistry									
Ammonia	mg/L	0.87	0.15	0.79	1.01	0.15	0.33	0.96	0.87
Nitrate (as N)	mg/L	0.50	0.1 U	0.76	0.51	3.01	3.46	2.07	4.02
Nitrite (as N)	mg/L	0.1 U	0.1 U	0.1 U	1.15	0.1 U	0.1 U	0.1 U	0.1 U
Phosphorus	mg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Total Organic Carbon (TOC)	mg/L	3.5	6.5	4.1	2.4	1 U	1.0	1.7	1.0

Notes:

J	Estimated.
U	Non-detect at associated value.
UJ	The analyte was not detected above the sample quantitation limit. The reported quantitation limit is an estimated quantity.

TABLE 2

ANALYTICAL RESULTS SUMMARY
QUARTERLY GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
APRIL 2007

	Sample Location:	*MW-87D2*	*MW-88D1*	*MW-88D2*	*MW-90D1*	*MW-90D2*	*WASTECOMP*
	Sample ID:	*GW-6883-041707-RR-002*	*G-041907-SD-008*	*G-041907-SD-010*	*G-042507-SD-018*	*G-042507-SD-017*	*COMP-042607-SD-001*
	Sample Date:	*4/17/2007*	*4/19/2007*	*4/19/2007*	*4/25/2007*	*4/25/2007*	*4/26/2007*
Parameters	***Units***						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	2 J	5 U	1 J	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	µg/L	6.5	5 U	2 J	5 U	2 J	5 U
1,1-Dichloroethene	µg/L	5	5 U	3 J	4 J	2 J	5 U
1,2-Dichloroethane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	µg/L	10	19	60	120	13	15
1,2-Dichloropropane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone (Methyl Ethyl Ketone)	µg/L	5 U	5 U	5 U	5 U	5 U	1 J
2-Hexanone	µg/L	5 UJ	5 UJ	5 UJ	5 U	5 U	5 U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	µg/L	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	4 J
Benzene	µg/L	5 U	5 U	5 U	1 J	5 U	5 U
Bromodichloromethane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane (Methyl Bromide)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
Carbon disulfide	µg/L	5 U	5 U	5 U	11	5 U	5 U
Carbon tetrachloride	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	µg/L	5 U	2 J	5 U	5 U	5 U	5 U
Chloroethane	µg/L	5 U	3 J	5 U	17	5 U	5 U
Chloroform (Trichloromethane)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane (Methyl Chloride)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
Methylene chloride	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	µg/L	14	32	390	110	46	17
Toluene	µg/L	5 U	5 U	25	5 U	5 U	5 U
trans-1,3-Dichloropropene	µg/L	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	µg/L	56	13	330	44	220 J	56
Vinyl chloride	µg/L	5 U	330	1200	6300	49	160
Xylene (total)	µg/L	5 U	5 U	5 U	8.3	5 U	5 U

TABLE 2

ANALYTICAL RESULTS SUMMARY
QUARTERLY GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
APRIL 2007

	Sample Location:	*MW-87D2*	*MW-88D1*	*MW-88D2*	*MW-90D1*	*MW-90D2*	*WASTECOMP*
	Sample ID:	*GW-6883-041707-RR-002*	*G-041907-SD-008*	*G-041907-SD-010*	*G-042507-SD-018*	*G-042507-SD-017*	*COMP-042607-SD-001*
	Sample Date:	*4/17/2007*	*4/19/2007*	*4/19/2007*	*4/25/2007*	*4/25/2007*	*4/26/2007*
Parameters	***Units***						
General Chemistry							
Ammonia	mg/L	0.1 U	0.12	0.39	0.27	0.88	-
Nitrate (as N)	mg/L	3.56	0.1 U	0.50	0.1 U	2.73	-
Nitrite (as N)	mg/L	0.1 U	0.1 U	0.11	0.1 U	0.1 U	-
Phosphorus	mg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	-
Total Organic Carbon (TOC)	mg/L	1.0	1.6	3.1	2.5	5.3	-

Notes:

J	Estimated.
U	Non-detect at associated value.
UJ	The analyte was not detected above the sample quantitation limit. The reported quantitation limit is an estimated quantity.

TABLE 3

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING INITIAL CALIBRATION RESULTS
QUARTERLY GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
APRIL 2007

Parameter	*Compound*	*Calibration Date*	*%RSD*	*Associated Sample ID*	*Sample Results*	*Units*	*Qualifier*
VOCs	Acetone	04/20/07	39	COMP-042607-SD-001	4 J	µg/L	*
				G-041907-SD-008	5 U	µg/L	UJ
				G-041907-SD-010	5 U	µg/L	UJ
				G-042007-SD-012	3 J	µg/L	*
				G-042007-SD-013	5.1	µg/L	J
				G-042307-SD-014	5 U	µg/L	UJ
				G-042407-SD-015	5 U	µg/L	UJ
				G-042407-SD-016	5.2	µg/L	J
				G-042507-SD-017	5 U	µg/L	UJ
				G-042507-SD-018	5 U	µg/L	UJ
				G-042607-SD-019	5 U	µg/L	UJ
				G-042607-SD-020	5 U	µg/L	UJ
				G-042607-SD-021	5 U	µg/L	UJ
				GW-6883-041707-RR-001	5 U	µg/L	UJ
				GW-6883-041707-RR-002	5 U	µg/L	UJ
				GW-6883-041807-RR-003	5 U	µg/L	UJ
				GW-6883-041807-RR-004	5.2	µg/L	J
				GW-6883-041807-RR-005	5.5	µg/L	J
				GW-6883-041907-RR-006	5 U	µg/L	UJ
				GW-6883-041907-RR-007	5 U	µg/L	UJ
				GW-6883-041907-RR-009	5 U	µg/L	UJ
				GW-6883-041907-RR-011	4 J	µg/L	*

Notes

*	Value previously qualified as estimated by the laboratory.
%RSD	Percent Relative Standard Deviation.
J	Estimated.
U	Non-detect at associated value.
UJ	The analyte was not detected above the sample quantitation limit. The reported quantitation limit is an estimated quantity.

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING CONTINUING CALIBRATION RESULTS
QUARTERLY GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
APRIL 2007

Parameter	*Calibration Date*	*Compound*	*%D*	*Associated Sample ID*	*Sample Results*	*Units*	*Qualifier*
VOCs	04/25/07	Acetone	43	G-041907-SD-008	5 U	µg/L	UJ
				G-041907-SD-010	5 U	µg/L	UJ
				G-042007-SD-012	3 J	µg/L	*
				G-042007-SD-013	5.1	µg/L	J
				GW-6883-041707-RR-001	5 U	µg/L	UJ
				GW-6883-041707-RR-002	5 U	µg/L	UJ
				GW-6883-041807-RR-003	5 U	µg/L	UJ
				GW-6883-041807-RR-004	5.2	µg/L	J
				GW-6883-041807-RR-005	5.5	µg/L	J
				GW-6883-041907-RR-006	5 U	µg/L	UJ
				GW-6883-041907-RR-007	5 U	µg/L	UJ
				GW-6883-041907-RR-009	5 U	µg/L	UJ
				GW-6883-041907-RR-011	4 J	µg/L	*
VOCs	04/25/07	2-Hexanone	28	G-041907-SD-008	5 U	µg/L	UJ
				G-041907-SD-010	5 U	µg/L	UJ
				G-042007-SD-012	5 U	µg/L	UJ
				G-042007-SD-013	5 U	µg/L	UJ
				GW-6883-041707-RR-001	5 U	µg/L	UJ
				GW-6883-041707-RR-002	5 U	µg/L	UJ
				GW-6883-041807-RR-003	5 U	µg/L	UJ
				GW-6883-041807-RR-004	5 U	µg/L	UJ
				GW-6883-041807-RR-005	5 U	µg/L	UJ
				GW-6883-041907-RR-006	5 U	µg/L	UJ
				GW-6883-041907-RR-007	5 U	µg/L	UJ
				GW-6883-041907-RR-009	5 U	µg/L	UJ
				GW-6883-041907-RR-011	5 U	µg/L	UJ
VOCs	04/26/07	Bromomethane	30	G-042307-SD-014	5 U	µg/L	UJ
				G-042407-SD-015	5 U	µg/L	UJ
				G-042407-SD-016	5 U	µg/L	UJ

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING CONTINUING CALIBRATION RESULTS
QUARTERLY GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
APRIL 2007

Parameter	*Calibration Date*	*Compound*	*%D*	*Associated Sample ID*	*Sample Results*	*Units*	*Qualifier*
VOCs	04/26/07	Acetone	40	G-042307-SD-014	5 U	µg/L	UJ
				G-042407-SD-015	5 U	µg/L	UJ
				G-042407-SD-016	5.2	µg/L	J
VOCs	04/26/07	2-Butanone	26	G-042307-SD-014	5 U	µg/L	UJ
				G-042407-SD-015	5 U	µg/L	UJ
				G-042407-SD-016	5 U	µg/L	UJ
VOCs	04/26/07	4-Methyl-2-pentanone	30	G-042307-SD-014	5 U	µg/L	UJ
				G-042407-SD-015	5 U	µg/L	UJ
				G-042407-SD-016	5 U	µg/L	UJ
VOCs	04/26/07	2-Hexanone	31	G-042307-SD-014	5 U	µg/L	UJ
				G-042407-SD-015	5 U	µg/L	UJ
				G-042407-SD-016	5 U	µg/L	UJ
VOCs	04/27/07	Acetone	39	COMP-042607-SD-001	4 J	µg/L	*
				G-042507-SD-017	5 U	µg/L	UJ
				G-042507-SD-018	5 U	µg/L	UJ
				G-042607-SD-020	5 U	µg/L	UJ
				G-042607-SD-021	5 U	µg/L	UJ
VOCs	04/30/07	Acetone	35	G-042607-SD-019	5 U	µg/L	UJ

Notes:

*	Qualifier is associated with both the original and duplicate sample. Value previously qualified as estimated by the laboratory.
%D	Percent Difference.
J	Estimated.
U	Non-detect at associated value.
UJ	The analyte was not detected above the sample quantitation limit. The reported quantitation limit is an estimated quantity.
VOCs	Volatile Organic Compounds.

TABLE 5

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING LABORATORY CONTROL SAMPLE RESULTS
QUARTERLY GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
APRIL 2007

Parameter	*Compound*	*Percent Recovery*	*Control Limits (percent)*	*Associated Sample ID*	*Sample Results*	*Units*	*Qualifier*
VOCs	Methylene chloride	79	80 - 112	G-041907-SD-008	25 U	μg/L	UJ
				G-041907-SD-010	50 U	μg/L	UJ
				G-042007-SD-012	50 U	μg/L	UJ
				G-042307-SD-014	5 U	μg/L	UJ
				G-042407-SD-015	5 U	μg/L	UJ
				G-042407-SD-016	5 U	μg/L	UJ
				GW-6883-041707-RR-001	25 U	μg/L	UJ
				GW-6883-041907-RR-006	50 U	μg/L	UJ
				GW-6883-041907-RR-007	50 U	μg/L	UJ
VOCs	Trichloroethene	116	57 - 115	G-042307-SD-014	580	μg/L	J
				G-042607-SD-019	4 J	μg/L	*
VOCs	Trichloroethene	117	57 - 115	G-042507-SD-017	220	μg/L	J

Notes

*	Value previously qualified as estimated by the laboratory.
J	Estimated.
U	Non-detect at associated value.
UJ	The analyte was not detected above the sample quantitation limit. The reported quantitation limit is an estimated quantity.
VOCs	Volatile Organic Compounds.

CONESTOGA-ROVERS
& ASSOCIATES

E-Mail Date: June 28, 2007
E-Mail To: Klaus Schmidtke
c.c.: Sheri Finn
E-Mail and Interoffice Mail: ☒

ANALYTICAL DATA ASSESSMENT AND VALIDATION
HOOKER-RUCO MW-62 CLOSURE GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HICKSVILLE, NEW YORK
MAY 2007

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1.0 INTRODUCTION

Groundwater samples were collected at the former Hooker Ruco Site in Hicksville, New York (Site) in support of the MW-62 groundwater sampling program. Analytical services were performed by H2M Labs, Inc., in Melville, New York (H2M). A summary of the sampling and analysis scheme is presented in Table 1.

A summary of the analytical data is presented in Table 2. The samples were analyzed for the volatile organic compounds (VOCs), total organic carbon (TOC), ammonia, nitrite, nitrate, and total phosphorus.

The quality assurance/quality control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods. Additional validation guidelines were referenced from the following documents:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", United States Environmental Protection Agency (USEPA) 540/R-94-012, February 1994; and

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", USEPA 540/R-94-013, February 1994.

Full raw data deliverables were provided by the laboratory. The data quality assessment and validation presented in the following subsections were performed based on the sample results and supporting QA/QC provided.

2.0 SAMPLE HOLDING TIMES

The method-specific holding time criteria are summarized in Table 5.1 of the Quality Assurance Project Plan (QAPP). All sample extractions and/or analyses were performed within the specified holding times.

All samples were properly preserved and cooled to 4°C (±2°C) after collection. All samples were received by the laboratory in good condition.

3.0 GAS CHROMATOGRAPH/MASS SPECTROMETER (GC/MS) TUNING AND MASS CALIBRATION - VOCs

Prior to analysis, GC/MS instrumentation is tuned to ensure optimization over the mass range of interest. To evaluate instrument tuning, the VOC method requires the analysis of the specific tuning compound bromofluorobenzene (BFB). The resulting spectra must meet the criteria cited in the method before analysis is initiated. Analysis of the tuning compound must then be repeated every 12 hours throughout sample analysis to ensure the continued optimization of the instrument.

Instrument tuning data were reviewed. Tuning compounds were analyzed at the required frequency throughout the VOC analysis period. All tuning criteria were met for the analyses, indicating proper optimization of the instrumentation.

4.0 INSTRUMENT CALIBRATION

4.1 CC/MS CALIBRATION - VOCs

4.1.1 TUNING AND MASS CALIBRATION

Prior to analysis, GC/MS instrumentation is tuned to ensure optimization over the mass range of interest. To evaluate instrument tuning, the VOC method require the analysis of the specific tuning compounds BFB. The resulting spectra must meet the criteria cited in the method before analysis is initiated. Analysis of the tuning compound must then be repeated every 12 hours throughout sample analysis to ensure the continued optimization of the instrument.

Instrument tuning data were reviewed. Tuning compounds were analyzed at the required frequency throughout the VOC analysis period. All tuning criteria were met for the analyses, indicating proper optimization of the instrumentation.

4.1.2 INITIAL CALIBRATION

To quantify compounds of interest in samples, calibration of the GC/MS over a specific concentration range must be performed. Initially, a five-point calibration curve containing all compounds of interest is analyzed to characterize instrument response for each analyte over a specific concentration range. Linearity of the calibration curve and instrument sensitivity are evaluated against the following criteria:

i) all relative response factors (RRFs) must be greater than or equal to 0.05; and

ii) for average response factors are employed, percent relative standard deviation (%RSD) values must not exceed 30 percent.

The initial calibration data for VOCs were reviewed and met the above criteria for linearity and sensitivity for all compounds of interest.

4.1.3 CONTINUING CALIBRATION

To ensure that instrument calibration is acceptable throughout the sample analysis period, continuing calibration standards must be analyzed and compared to the initial calibration curve every 12 hours.

The following criteria were employed to evaluate continuing calibration data:

i) all RRF values must be greater than or equal to 0.05; and

ii) percent difference (%D) values must not exceed 25 percent.

Calibration standards were analyzed at the required frequency and the results met the above criteria for instrument sensitivity and linearity of response with the exception of some high %D recoveries. Associated sample results were qualified as estimated (see Table 3).

4.2 INSTRUMENTAL CALIBRATION - GENERAL CHEMISTRY

4.2.1 INITIAL CALIBRATION

Initial calibration of the instruments ensures that they are capable of producing satisfactory quantitative data at the beginning of a series of analyses. For general chemistry, calibration is performed based on the analysis of at least three standards and a blank. Resulting correlation coefficients for curves must be at least 0.995.

After calibration, an initial calibration verification (ICV) standard must be analyzed to verify the analytical accuracy of the calibration curves. All analyte recoveries from the analyses of the ICVs must be within control limits of 85 to 115 percent.

Upon review of the data, it was determined that all inorganic calibration curves and ICVs were analyzed at the proper frequencies and that all of the above-specified criteria were met. The laboratory effectively demonstrated that instrumentation used for these analyses were properly calibrated prior to sample analyses.

4.2.2 CONTINUING CALIBRATION

To ensure that instrument calibration is acceptable throughout the sample analysis period, continuing calibration verification (CCV) standards are analyzed on a regular basis. Each CCV is deemed acceptable if all analyte recoveries are within the control limits specified above for the ICVs. If some of the CCV analyte recoveries are outside the control limits, samples analyzed before and after the CCV, up until the previous and proceeding CCV analyses, are affected.

For this study, CCVs were analyzed at the proper frequency. All analyte recoveries reported for the CCVs were within the specified limits.

5.0 SURROGATE COMPOUND ANALYSES - VOCs

In accordance with the methods employed, all samples, blanks, and standards analyzed for VOCs are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of individual sample matrices on analytical efficiency and are assessed against method control limits.

Surrogates were added to all samples, blanks, and QC samples prior to analysis. Surrogate recoveries met the acceptance criteria for all samples demonstrating acceptable analytical accuracy in this sample matrix.

6.0 INTERNAL STANDARD (IS) RECOVERIES - VOCs

To ensure that changes in GC/MS response and sensitivity do not affect sample analysis results, IS compounds are added to all samples, blanks, and spike samples prior to VOC analysis. All results are calculated as a ratio of the IS response. The criteria by which the IS results are assessed are as follows:

i) IS area counts must not vary by more than a factor of two (-50 percent to +100 percent) from the associated calibration standard; and

ii) the retention time of the IS must not vary more than ±30 seconds from the associated calibration standard.

The sample IS recoveries met the above criteria and were used to calculate all positive sample results.

7.0 LABORATORY CONTROL SAMPLE (LCS) ANALYSES

The LCS serves as a monitor of the overall performance of all steps in the analysis, including the sample preparation. LCSs are analyzed using the same sample preparation, analytical methods, and QA/QC procedures employed for the investigative samples.

LCSs were prepared and analyzed for all general chemistry and VOC parameters. The LCS results showed good overall analytical accuracy with the exception of some low VOC recoveries. Associated sample results were qualified as estimated to reflect the potential low bias (see Table 4).

9.0 METHOD BLANK ANALYSES

Method blanks are prepared from deionized water and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the procedures. Additionally, continuing calibration blanks (CCBs) are routinely analyzed after each CCV for the inorganic parameters.

For this study, method blanks were analyzed at a minimum frequency of one per analytical batch and CCBs were analyzed for inorganic parameters after each CCV. The data were non-detect for the analytes of interest.

10.0 CONCLUSION

Based on the preceding assessment, the data summarized in Table 2 are acceptable with the specific qualifications noted herein.

TABLES

TABLE 1

SAMPLING AND ANALYSIS SUMMARY
MW-62 CLOSURE GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
MAY 2007

				Analysis/Parameters	
Sample ID	*Location ID*	*Collection Date (mm/dd/yy)*	*Collection Time (hr:min)*	*VOCs*	*TOC, NH_3, NO_2, NO_3, Total Phosphorus*
G-051607-SD-001	MW-62 I	05/16/07	13:45	X	X
G-051607-SD-002	MW-62 D	05/16/07	15:40	X	X

Notes:

NH_3	Total Ammonia.
NO_2	Nitrite.
NO_3	Nitrate.
TOC	Total Organic Carbon.
VOCs	Volatile Organic Compounds.

TABLE 2

ANALYTICAL RESULTS SUMMARY
MW-62 CLOSURE GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
MAY 2007

	Sample Location:	*MW-62D*	*MW-62I*
	Sample ID:	*G-051607-SD-002*	*G-051607-SD-001*
	Sample Date:	*5/16/2007*	*5/16/2007*
Parameters	***Units***		
Volatile Organic Compounds			
1,1,1-Trichloroethane	µg/L	5 U	5 U
1,1,2,2-Tetrachloroethane	µg/L	5 U	5 U
1,1,2-Trichloroethane	µg/L	5 U	5 U
1,1-Dichloroethane	µg/L	5 U	5 U
1,1-Dichloroethene	µg/L	5 U	5 U
1,2-Dichloroethane	µg/L	5 U	5 U
1,2-Dichloroethene (total)	µg/L	5 U	4 J
1,2-Dichloropropane	µg/L	5 U	5 U
2-Butanone (Methyl Ethyl Ketone)	µg/L	1 J	5 U
2-Hexanone	µg/L	5 UJ	5 UJ
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	µg/L	5 UJ	5 UJ
Acetone	µg/L	5.8	5 U
Benzene	µg/L	5 U	5 U
Bromodichloromethane	µg/L	5 U	5 U
Bromoform	µg/L	5 U	5 U
Bromomethane (Methyl Bromide)	µg/L	5 U	5 U
Carbon disulfide	µg/L	5 UJ	5 UJ
Carbon tetrachloride	µg/L	5 U	5 U
Chlorobenzene	µg/L	5 U	5 U
Chloroethane	µg/L	5 U	5 U
Chloroform (Trichloromethane)	µg/L	5 UJ	5 UJ
Chloromethane (Methyl Chloride)	µg/L	5 UJ	5 UJ
cis-1,3-Dichloropropene	µg/L	5 U	5 U
Dibromochloromethane	µg/L	5 U	5 U
Ethylbenzene	µg/L	5 U	5 U
Methylene chloride	µg/L	5 UJ	5 UJ
Styrene	µg/L	5 U	5 U
Tetrachloroethene	µg/L	5 U	5.1
Toluene	µg/L	5 U	5 U
trans-1,3-Dichloropropene	µg/L	5 U	5 U
Trichloroethene	µg/L	5 U	1 J
Vinyl chloride	µg/L	5 U	3 J
Xylene (total)	µg/L	5 U	5 U
General Chemistry			
Ammonia	mg/L	0.38	0.1 U
Nitrate (as N)	mg/L	0.1 U	0.1 U
Nitrite (as N)	mg/L	0.1 U	0.1 U
Phosphorus	mg/L	0.05 U	0.05 U
Total Organic Carbon (TOC)	mg/L	1.7	1 U

Notes:

J	Estimated.
U	Non-detect at associated value.
UJ	The analyte was not detected above the sample quantitation limit. The reported quantitation limit is an estimated quantity.

TABLE 3

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING CONTINUING CALIBRATION RESULTS
MW-62 CLOSURE GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
MAY 2007

Parameter	*Calibration Date*	*Compound*	*%D*	*Associated Sample ID*	*Sample Results*	*Units*	*Qualifier*
VOCs	05/25/07	Chloromethane	33	G-051607-SD-001	5 U	µg/L	UJ
				G-051607-SD-002	5 U	µg/L	UJ
VOCs	05/25/07	4-Methyl-2-pentanone	27	G-051607-SD-001	5 U	µg/L	UJ
				G-051607-SD-002	5 U	µg/L	UJ
VOCs	05/25/07	2-Hexanone	27	G-051607-SD-001	5 U	µg/L	UJ
				G-051607-SD-002	5 U	µg/L	UJ

Notes:

%D	Percent Difference.
U	Non-detect at associated value.
UJ	The analyte was not detected above the sample quantitation limit. The reported quantitation limit is an estimated quantity
VOCs	Volatile Organic Compounds.

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING LABORATORY CONTROL SAMPLE RESULTS
MW-62 CLOSURE GROUNDWATER SAMPLING
MILLER SPRINGS REMEDIATION MANAGEMENT, INC.
HOOKER-RUCO SITE
HICKSVILLE, NEW YORK
MAY 2007

Parameter	*Compound*	*Percent Recovery*	*Control Limits (percent)*	*Associated Sample ID*	*Sample Results*	*Units*	*Qualifier*
VOCs	Carbon disulfide	57	61 - 126	G-051607-SD-001	5 U	µg/L	UJ
				G-051607-SD-002	5 U	µg/L	UJ
VOCs	Methylene chloride	67	80 - 112	G-051607-SD-001	5 U	µg/L	UJ
				G-051607-SD-002	5 U	µg/L	UJ
VOCs	Chloroform	73	75 - 119	G-051607-SD-001	5 U	µg/L	UJ
				G-051607-SD-002	5 U	µg/L	UJ
VOCs	4-Methyl-2-pentanone	74	79 - 121	G-051607-SD-001	5 U	µg/L	UJ
				G-051607-SD-002	5 U	µg/L	UJ

Notes:

U	Non-detect at associated value.
UJ	The analyte was not detected above the sample quantitation limit. The reported quantitation limit is an estimated quantity.
VOCs	Volatile Organic Compounds.