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E-FILED

June 5, 2013

Reference No. 005513

Ms. Mary F. McIntosh
Engineering Geologist II
NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
270 Michigan Avenue
Buffalo, NY 14203-2999

Dear Ms. McIntosh:

Re: Annual Monitoring Event 2013
UCAR Republic (Graftech Int) SWMF #32N03

The annual monitoring event for the above-referenced Site was conducted on May 03, 2013. The Site groundwater monitoring program was modified in November 2005 and currently consists of the following (excerpt from letter from C. Barron (CRA) to M. McIntosh (NYSDEC) dated November 4, 2005.):

> Annual sampling of seven wells (BW-1, BW-2, BW-3, BW-4, MW-3, GW-8B, and GW-9B) with analysis of the samples for Part 360 volatiles, ammonia, iron (total and soluble), potassium (total and soluble), zinc (total and soluble), nitrite, total kjeldahl nitrogen (TKN), turbidity, groundwater elevation, pH, specific conductance, and temperature. Monitoring is rotated between the spring and fall seasons such that one year sampling is conducted in the spring and the next year it will be conducted in the fall. Sampling is conducted once in each calendar year and reporting is submitted annually following receipt and review of the groundwater analytical data.

The sample collection and analyses were performed in accordance with the program outlined in the letters from M. McIntosh (NYSDEC) to R. Bucci (UCAR), dated January 18, 2000 and February 23, 2000. Attached is an email sent to Joseph Coyne of CRA from NYENUDAEA@dec.state.ny.us that on June 3, 20123 that the electronic results of our sampling were transmitted. I have enclosed a hard copy of our results.

The analytical data from this monitoring event are consistent with the historical data.

The next groundwater monitoring event at the Site will be conducted in the Fall of 2014. Should you have any questions or require additional information, please do not hesitate to contact the undersigned at 716-628-8208.

Yours truly,

Robert Bucci
Site Consultant

Encl.

c.c.: M. Hans
M. Hinton
J. M. Bursley

CONESTOGA-ROVERS
& ASSOCIATES

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MEMORANDUM

TO: Jim Kay
REF. NO.: 005513

FROM: Deb Andrasko/eew-9
DATE: June 3, 2013

E-Mail and Hard Copy if Requested

**RE: Analytical Data Assessment and Full Validation
Annual Groundwater Monitoring Program
UCAR Carbon Company, Inc.
Niagara Falls, New York
May 2013**

INTRODUCTION

The following document details an assessment and validation of analytical results for groundwater samples collected in support of the annual monitoring program at the UCAR Carbon Site in Niagara Falls, New York (Site) during May 2013. Samples were submitted to TestAmerica Laboratory, located in Buffalo, NY. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. The validated analytical results are summarized in Table 3.

Evaluation of the data was based on information obtained from the finished data sheets, raw data, chain of custody forms, calibration data, blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples (LCS), and matrix spikes; and field quality assurance/quality control (QA/QC) samples . The assessment of analytical and in-house data included checks for: data consistency (by observing comparability of duplicate analyses); adherence to accuracy and precision criteria; transmittal errors; and anomalously high and low parameter values.

The quality assurance/quality control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", United States Environmental Protection Agency (USEPA) 540/R-99-008, October 1999

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

These will subsequently be referred to as the "Guidelines".

Full Contract Laboratory Program (CLP) equivalent 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, supporting quality assurance/quality control (QA/QC) and all raw data provided.

SAMPLE HOLDING TIME AND PRESERVATION

The sample holding time criteria for the analyses are summarized in Table 2. Sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All samples were properly preserved and delivered on ice and stored by the laboratory at the required temperature (0-6°C).

GAS CHROMATOGRAPHY/MASS SPECTROMETER (GC/MS) - TUNING AND MASS CALIBRATION (INSTRUMENT PERFORMANCE CHECK) - VOLATILE ORGANIC COMPOUNDS (VOCs)

GC/MS

Prior to analysis, GC/MS instrumentation is tuned to ensure optimization over the mass range of interest. To evaluate instrument tuning, the volatile organic compound (VOC) method requires the analysis of specific tuning compound bromofluorobenzene (BFB). The resulting spectra must meet the criteria cited in the methods 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.

Tuning compounds were analyzed at the required frequency throughout the volatile analysis periods. All tuning criteria were met, indicating that proper optimization of the instrumentation was achieved.

GC/MS INITIAL CALIBRATION - VOCs

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.

ii) The percent relative standard deviation (RSD) values must not exceed 30.0 percent or a minimum correlation coefficient (R) of 0.995 and minimum coefficient of determination (R^2) of 0.99 if linear and quadratic equation calibration curves, respectively, are used.

The initial calibration data for VOCs was reviewed. All compounds met the above criteria for sensitivity and linearity.

GC/MS CONTINUING CALIBRATION - VOCs

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.
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 stability.

INITIAL CALIBRATION - INORGANIC ANALYSES

Initial calibration of the instruments ensures that they are capable of producing satisfactory quantitative data at the beginning of a series of analyses. For Inductively Coupled Plasma (ICP) analysis, a calibration blank and at least one standard must be analyzed at each wavelength to establish the analytical curve. For instrumental general chemistry analyses, a calibration blank and a minimum of five standards must be analyzed to establish the analytical curve and resulting correlation coefficients must be 0.995 or greater.

After the analyses of the calibration curves, 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 the following control limits.

Analytical Method	*Parameter*	*Control Limits*
ICP/AA	Metals	90 - 110%
Instrumental Wet Chemistry	Ammonia, Nitrite, TKN	85 - 115%

Upon review of the data, it was determined that the 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 the instrumentation used for metals and instrument general chemistry analyses was properly calibrated prior to sample analyses.

CONTINUING CALIBRATION - INORGANIC ANALYSES

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.

CONTRACT REQUIRED DETECTION LIMIT (CRDL) STANDARD ANALYSES

To verify the linearity of the ICP calibration near the detection limit, a standard is analyzed which contains the ICP analytes at specified concentrations. This standard must be analyzed at the beginning and end of each sample analysis run or a minimum of twice per 8-hour period.

All CRDL recoveries were acceptable.

LABORATORY BLANK ANALYSES

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures. Additionally, initial and continuing calibration blanks (ICBs/CCBs) are routinely analyzed after each ICV/CCV for the inorganic parameters.

For this study, laboratory method blanks were analyzed at a minimum frequency of one per 20 investigative samples and/or one per analytical batch.

Organic Analyses

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

Inorganic Analyses

Upon review of the ICBs, CCBs, and method blanks, it was noted that an iron concentration was observed in the metals ICB above the method detection limit (MDL). Most investigative samples associated with the low level detection reported had concentrations significantly greater than the associated ICB concentration. These sample results were not impacted by the contamination detected. Associated positive sample results with similar concentrations to the level reported in the blank were qualified as non-detect (see Table 4).

SURROGATE SPIKE RECOVERIES

In accordance with the methods employed, all samples, blanks and QC samples analyzed for VOCs are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for VOC determinations were spiked with three surrogate compounds prior to sample analysis. All surrogate recoveries were within the laboratory control limits.

INTERNAL STANDARDS (IS) ANALYSES

Internal standard data were evaluated for all VOC sample analyses.

To ensure that changes in the GC/MS sensitivity and response do not affect sample analysis results, internal standard compounds are added to each sample prior to analysis. All results are then calculated as a ratio of the internal standard responses.

The sample internal standard results were evaluated against the following criteria:

i) The retention time of the internal standard must not vary more than ±30 seconds from the associated calibration standard.
ii) Internal standard area counts must not vary by more than a factor of two (-50 percent to +100 percent) from the associated calibration standard.

All internal standard recoveries and retention times met the above criteria.

LABORATORY CONTROL SAMPLE (LCS) ANALYSES

LCS are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects.

For this study, LCSs were analyzed at a minimum frequency of one per 20 investigative samples and/or one per analytical batch.

Organic Analyses

The LCS contained representative compounds of interest. All LCS recoveries were within the laboratory control limits, demonstrating acceptable analytical accuracy.

Inorganic Analyses

The LCS contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS recoveries were within the control limits, demonstrating acceptable analytical accuracy.

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

To evaluate the effects of sample matrices on the extraction or digestion process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The relative percent difference (RPD) between the MS and MSD is used to assess analytical precision. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed.

MS/MSD analyses were performed as specified in Table 1.

Organic Analyses

The MS/MSD samples were spiked with representative compounds. All percent recoveries and RPD values were within the laboratory (method) control limits, demonstrating acceptable analytical accuracy and precision.

Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits with the exception of a slightly low ammonia MS recovery. All associated sample results were judged acceptable without qualification based on the good MSD recovery and the minimal exceedance of the MS recovery.

ICP SERIAL DILUTION

The serial dilution determines whether significant physical or chemical interferences exist due to sample matrix. A minimum of one per 20 investigative samples or at least one per analytical batch must be analyzed at a five-fold dilution. For samples with sufficient analyte concentrations, the serial dilution results must agree within 10 percent of the original results.

A serial dilution was performed on the MS/MSD sample. All results met the criteria above.

ICP INTERFERENCE CHECK SAMPLE ANALYSIS (ICS)

To verify that the laboratory has established proper inter-element and background correction factors, ICSs are analyzed. These samples contain high concentrations of aluminum, calcium, magnesium and iron and are analyzed at the beginning and end of each sample analysis period. The ICSs are evaluated against recovery control limits of 80 to 120 percent.

ICS analysis results were evaluated for all samples using the criteria in the "Guidelines". All ICS recoveries and results were acceptable.

FIELD QA/QC SAMPLES

The field QA/QC consisted of one trip blank sample and one field duplicate sample set.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was collected and submitted to the laboratory for VOC analysis. All results were non-detect for the compounds of interest.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, one field duplicate sample was collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 and 100 percent for water and soil samples, respectively. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criteria is one or two times the RL value for water and soil samples, respectively.

All field duplicate results were within acceptable agreement, demonstrating good sampling and analytical precision with the exception of the total iron analyses. A summary of the qualified sample results is presented in Table 5.

ANALYTE REPORTING

The laboratory reported detected results down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the practical quantitation limit (PQL) but greater than the method detection limit (MDL) were qualified as estimated (J) in Table 3 unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the PQL in Table 3.

TARGET COMPOUND IDENTIFICATION

To minimize erroneous compound identification during organic analyses, qualitative criteria including compound retention time and mass spectra (if applicable) were evaluated according to the identification criteria established by the methods. The samples identified in Table 1 were reviewed. The organic compounds reported adhered to the specified identification criteria.

CONCLUSION

Based on this assessment, the data produced by TestAmerica were found to exhibit acceptable levels of accuracy and precision based on the provided information and may be used with the qualifications noted.

TABLE 1

SAMPLE COLLECTION AND ANALYSIS SUMMARY
ANNUAL GROUNDWATER MONITORING PROGRAM
UCAR CARBON COMPANY, INC.
NIAGARA FALLS, NEW YORK
MAY 2013

Sample I.D.	*Location I.D.*	*Collection Date (mm/dd/yy)*	*Collection Time (hr:min)*	*Parameters*					*Comments*
				VOCs	*SSPL Metals-total and dissolved*	*TKN*	*Nitrite*	*Ammonia*	
WG-5513-050313-001	GW-9B	05/03/13	10:50	X	X	X	X	X	MS/MSD
WG-5513-050313-002	MW-3	05/03/13	11:45	X	X	X	X	X	
WG-5513-050313-003	BW-2	05/03/13	12:30	X	X	X	X	X	
WG-5513-050313-004	BW-2	05/03/13	13:30	X	X	X	X	X	Field Duplicate of WG-5513-050313-003
WG-5513-050313-005	BW-3	05/03/13	13:35	X	X	X	X	X	
WG-5513-050313-006	BW-4	05/03/13	14:20	X	X	X	X	X	
WG-5513-050313-007	BW-1	05/03/13	15:00	X	X	X	X	X	
WG-5513-050313-008	GW-8B	05/03/13	15:35	X	X	X	X	X	
TB-5513-050313	-	05/03/13	-	X					Trip blank

Notes:

'-	Not applicable.
TKN	Total Kjeldahl Nitrogen.
SSPL	Site specific parameter list.
VOCs	Volatile organic compounds.
MS	Matrix spike.
MSD	Matrix spike duplicate.

TABLE 2

SUMMARY OF ANALYTICAL METHODS
ANNUAL GROUNDWATER MONITORING PROGRAM
UCAR CARBON COMPANY, INC.
NIAGARA FALLS, NEW YORK
MAY 2013

Parameter	*Method*
TCL VOCs	SW-846 8260B[1]
Iron, Potassium and Zinc (total and dissolved)	SW-846 6010B[1]
Nitrite	EPA 353.2[2]
Ammonia	EPA 350.1[2]
Total Kjeldahl Nitrogen	EPA 351.2[2]

Notes:

(1) "Test Methods for Solid Waste/Physical Chemical Methods," SW-846, 3rd Edition, September 1986 (with all subsequent revisions).

(2) "Methods for Chemical Analysis of Water and Wastes", United States Environmental Protection Agency [USEPA] 600/4-79-220, March 1983 (with all subsequent revisions).

TCL	Target Compound List.
VOCs	Volatile Organic Compounds.

TABLE 3

ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING PROGRAM
UCAR CARBON COMPANY, INC.
NIAGARA FALLS, NEW YORK
MAY 2013

Location:		*BW-1*	*BW-2*	*BW-2*	*BW-3*
Sample Name:		*WG-5513-050313-007*	*WG-5513-050313-003*	*WG-5513-050313-004*	*WG-5513-050313-005*
Sample Date:		*5/3/2013*	*5/3/2013*	*5/3/2013* *(Duplicate)*	*5/3/2013*
	Units				
Volatile Organic Compounds					
1,1,1-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	0.71 J
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	10 U	10 U	10 U	10 U
2-Hexanone	µg/L	5.0 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U
Acetone	µg/L	10 U	10 U	10 U	10 U
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	µg/L	13	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.7
cis-1,3-Dichloropropene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U

TABLE 3

ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING PROGRAM
UCAR CARBON COMPANY, INC.
NIAGARA FALLS, NEW YORK
MAY 2013

	Location:	*BW-1*	*BW-2*	*BW-2*	*BW-3*
	Sample Name:	*WG-5513-050313-007*	*WG-5513-050313-003*	*WG-5513-050313-004*	*WG-5513-050313-005*
	Sample Date:	*5/3/2013*	*5/3/2013*	*5/3/2013* *(Duplicate)*	*5/3/2013*
	Units				
Volatile Organic Compounds (continued)					
Tetrachloroethene	μg/L	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	μg/L	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	μg/L	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	μg/L	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	μg/L	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	μg/L	1.0 U	1.0 U	1.0 U	6.0
Xylenes (total)	μg/L	2.0 U	2.0 U	2.0 U	2.0 U
Metals					
Iron	μg/L	2400	5200 J	2900 J	1300
Iron (dissolved)	μg/L	1500	1100	1100	650
Potassium	μg/L	8400	6200	6200	1800
Potassium (dissolved)	μg/L	8100	6200	6200	1700
Zinc	μg/L	2600	790	480	390
Zinc (dissolved)	μg/L	5.6 J	7.5 J	10	290
Wet Chemistry					
Ammonia	μg/L	890	410	410	87
Nitrite (as N)	μg/L	50 U	50 U	50 U	50 U
Total kjeldahl nitrogen (TKN)	μg/L	1600	710	740	200 U

TABLE 3

ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING PROGRAM
UCAR CARBON COMPANY, INC.
NIAGARA FALLS, NEW YORK
MAY 2013

Location:		*BW-4*	*GW-8B*	*GW-9B*	*MW-3*
Sample Name:		*WG-5513-050313-006*	*WG-5513-050313-008*	*WG-5513-050313-001*	*WG-5513-050313-002*
Sample Date:		*5/3/2013*	*5/3/2013*	*5/3/2013*	*5/3/2013*
	Units				
Volatile Organic Compounds					
1,1,1-Trichloroethane	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	3.7 J	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	4.0	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	40 U	10 U	10 U	10 U
2-Hexanone	µg/L	20 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	20 U	5.0 U	5.0 U	5.0 U
Acetone	µg/L	40 U	10 U	10 U	10 U
Benzene	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
Bromoform	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	6.8	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	µg/L	1300	20	1.0 U	1.0 U
cis-1,3-Dichloropropene	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
Styrene	µg/L	4.0 U	1.0 U	1.0 U	1.0 U

TABLE 3

ANALYTICAL RESULTS SUMMARY
ANNUAL GROUNDWATER MONITORING PROGRAM
UCAR CARBON COMPANY, INC.
NIAGARA FALLS, NEW YORK
MAY 2013

	Location:	*BW-4*	*GW-8B*	*GW-9B*	*MW-3*
	Sample Name:	*WG-5513-050313-006*	*WG-5513-050313-008*	*WG-5513-050313-001*	*WG-5513-050313-002*
	Sample Date:	*5/3/2013*	*5/3/2013*	*5/3/2013*	*5/3/2013*
	Units				
Volatile Organic Compounds (continued)					
Tetrachloroethene	µg/L	92	1.0 U	1.0 U	1.0 U
Toluene	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	µg/L	7.3	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	µg/L	4.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	510	7.2	1.0 U	1.0 U
Vinyl chloride	µg/L	240	3.8	1.0 U	1.0 U
Xylenes (total)	µg/L	8.0 U	2.0 U	2.0 U	2.0 U
Metals					
Iron	µg/L	7600	250 U	240 U	12000
Iron (dissolved)	µg/L	4400	190 U	170 U	670
Potassium	µg/L	17600	5400	4600	4600
Potassium (dissolved)	µg/L	16800	5300	4700	2400
Zinc	µg/L	2000	990	4.8 J	46
Zinc (dissolved)	µg/L	270	460	7.3 J	2.1 J
Wet Chemistry					
Ammonia	µg/L	3400	65	460	45
Nitrite (as N)	µg/L	21 J	50 U	50 U	50 U
Total kjeldahl nitrogen (TKN)	µg/L	3800	200 U	770	2200

Notes:

J Estimated concentration.

U Not detected; associated reporting limit is estimated.

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE INSTRUMENT BLANKS
ANNUAL GROUNDWATER MONITORING PROGRAM
UCAR CARBON COMPANY, INC.
NIAGARA FALLS, NEW YORK
MAY 2013

Parameter	*Analyte*	*Blank ID*	*Analysis Date*	*Blank Result*	*Associated Analytes*	*Sample ID*	*Original Result*	*Qualified Result*	*Units*
Metals	Iron	ICB	05/06/13	0.0605	Iron (dissolved)	WG-5513-050313-001	170	170 U	µg/L
					Iron	WG-5513-050313-001	240	240 U	µg/L
					Iron (dissolved)	WG-5513-050313-008	190	190 U	µg/L
					Iron	WG-5513-050313-008	250	250 U	µg/L

Notes:

ICB	Initial calibration blank.
U	Not detected at the associated reporting limit.

TABLE 5

QUALIFIED SAMPLE DATA DUE TO VARIABILITY IN FIELD DUPLICATE RESULTS
ANNUAL GROUNDWATER MONITORING PROGRAM
UCAR CARBON COMPANY, INC.
NIAGARA FALLS, NEW YORK
MAY 2013

Parameter	*Analyte*	*RPD*	*Sample ID*	*Qualified Result*	*Field Duplicate Sample ID*	*Qualified Result*	*Units*
Metals	Iron (total)	57	WG-5513-050313-003	5200 J	WG-5513-050313-004	2900 J	µg/L

Notes:

J	Estimated concentration.
RPD	Relative percent difference.

Daily Log

Project# 5513

5-3-13 Sunny 62-75°F

0750 DJT on-site meet with Bob Bucci and DEC

Calibrate Horiba U-22 inst. Control# NF03583 using Auto cal. Solution Lot#C252617 exp 7/20/13

	Before	After
pH (4.00)	4.07	4.00
Cond(4.49)	4.33	4.49
Turb(0.0)	0.0	0.0

Decon monsoon pump

0820 Begin w/L Round Site is very wet and soft.

Hole in fence approx 100' East of BW-4

0945 DEC, and Bob off-site complete w/L Round

Start purging c̄ Sampling

Dry out MW-3

Tailgate Safety Meeting

5-3-13 0750

site is wet c̄ soft watch your footing. Lots of poison ivy around wells. Practice STAR

David J Tyran

1015 purge c̄ sample GW-9B, BW-BW-3, BW-4, BW-1 GW-9B

Trip Blank = TB-5513-050313
1x40ml VOC

1610 off-site

DJT

David J Tyran

Hydraulic Monitoring

Date 5-3-13 Crew DJT

Project # 5513

Well #	Time	W/L	Sounded Depth
MW-3	0939	3.92	15.18
BW-1	0836	13.40	29.00
BW-2	0927	8.87	24.68
BW-3	0849	5.42	23.50
BW-4	0844	5.81	21.30
GW-8B	0826	7.96	29.25
GW-9B	0933	10.70	31.97
MW-1	0841	10.02	23.36
MW-2	0924	15.06	24.64
BW-5	0858	~~4.96~~ 2.06 DJT	25.78
BW-6	0919	12.51	26.08

Inst. Control #

W/L Meter NF06204

DJT

MW-3

Date 5-3-13 crew DJT
Project# 5513
Condition Good
Depth 2" 0-15.21
Initial w/L 3.92
Vol. Calc. 15.21-3.92 = 11.29 x .16 = 1.8

Method ~~Monsoon Pump~~ DJT
Dedicated Teflon Bailer

Purge Record

Time	Vol	pH	Cond	Temp	Turb
0951	1.8	5.71	0.482	11.87	232
0956	3.6	5.99	0.458	9.96	774

Well Dry @ 4.0 gallons

Initial w/Q Clear, colorless

Final w/Q Cloudy, Brown

Final w/L Dry

Sample Record

Date 5-3-13
Crew DJT
Method dedicated Teflon Bailer

Vol/Analysis See pg 3

Sample ID W/G-5513-050313-002
Time 1145

W/Q Cloudy Brown

pH	Cond	Temp	Turb
7.98	0.477	10.44	240

CofC# 37556

Inst. Control #s
W/L Meter NF06204
Horiba NF03583

Dave J Tyson

GW-9B

Date 5-3-13 crew DJT
Project # 5513
Condition Good
Depth 3" 0-31.7
Initial w/L 10.70
Vol. Calc 31.7-10.7 = 21x.37 ≈ 7.8

Method Monsoon Pump

Purge Record

Time	Vol	pH	Cond	Temp	Turb
1027	7.8	6.22	2.52	12.74	2.0
1030	15.6	6.53	2.58	11.14	0.0
1034	23.4	6.60	2.57	10.96	0.0

Initial w/Q Clear, colorless

Final w/Q Same

Final W/L 21.40

Sample Record

MS/MSD

Date 5-3-13
Crew DJT
Method Dedicated Teflon Bailer

Vol/Analysis see pg 3 x 3

Sample ID WG-5513-050313-001
Time 1050

w/Q Clear, colorless

pH	Cond	Temp	Turb
7.16	2.61	14.68	0.0

C of C # 37556

inst. Control #'s
w/L Meter NF06204
Horiba NF03583

Dave J [illegible]

BW-2

Date 5·3·13 Crew DJT

Project # 5513

Condition Good

Depth 4" 0-21.1 3" 21.1-37.1

Initial w/L 8.87

Vol Calc 21.1-8.87 = 12.23 x .65 = 7.9

37.1 - 21.1 = 16 x .37 = 5.9 + 7.9 = 13.8

Method Monsoon Pump

Purge Record

Time	Vol	pH	Cond	Temp	Turb
1213	13.8	7.40	2.46	13.86	139
1218	27.6	6.91	2.51	11.39	15.4
1223	41.4	6.79	2.50	11.03	5.5

Initial w/Q cloudy Red Brown

Final w/Q Clear, colorless

Final w/L 9.10

Sample Record DUP

Date 5-3-13

Crew DJT

Method Dedicated Teflon Bailer

Vol/Analysis See pg 3 x 2

Sample ID WG-5513-050313-003

Time 1230

Blind Dup WG-5513-050313-004

Time 1330

W/Q Slightly cloudy light Brown

pH	Cond	Temp	Turb
6.90	2.39	13.21	33.7

C of C # 37556

Inst Control #'s

W/L Meter NT-06204

Horiba NT 03583

Dave J Tyra

BW-1

Date 5.3.13 Crew DJT

Project # 5513

Condition Good

Depth 4" 0-20.9 3" 20.9-35.9

Initial W/L 13.40

Vol. Calc. 20.9-13.4=7.5×.65=4.8/35.9-20.9
= 15×.37=5.6+4.8=10.4

Method Monsoon Pump

Purge Record

Time	Vol	pH	Cond	Temp	Turb
1436	10.4	7.70	1.87	12.93	85.2
1441	20.8	7.43	1.90	11.32	9.7
1446	31.2	7.24	1.90	11.20	11.3

Initial W/Q Cloudy Dark gray

Final W/Q Clear, colorless

Final W/L 15.50

Sample Record

Date 5-3-13

Crew DJT

Method Dedicated Teflon Bailer

Vol/Analysis see pg 3

Sample ID WG-5513-050313-007

Time 1500

W/Q Slightly cloudy light Brown

pH	Cond	Temp	Turb
7.44	1.94	13.13	43.8

C of C # 37556

Inst Control #'s

W/L Meter NFO6204

Horiba NFO3583

BW-3

Date 5-3-13 Crew DJT

Project# 5513

Condition Good

Depth 4"0-9.7 3" 9.7 - 23.47

Initial w/L 5.4

Vol: Calc 9.7-5.4 = 4.3 x .65 = 2.8

23.47-9.7 = 13.77 x .37 = 5.1 + 2.8 = 7.9

Method Monsoon Pump

Purge Record

Time	Vol	pH	Cond	Temp	Turb
1309	7.9	7.76	1.09	11.75	21.2
1311	15.8	7.50	0.857	9.22	3.8
1315	23.7	7.23	0.832	8.88	1.0
1317	31.6	7.09	0.821	8.76	0.0

Initial w/Q Clear, colorless

Final w/Q Same

Final w/L 5.59

Sample Record

Date 5-3-13

Crew DJT

Method Dedicated Teflon Bailer

Vol/Analysis See pg 3

Sample ID WG-5513-050313-005

Time 1335

W/Q clear, colorless

pH	Cond	Temp	Turb
7.45	0.820	10.84	6.5

C of C# 37556

inst. Control #5

W/L Meter NF06204

Horiba NF03583

David J Tynan

BW-4

Date 5·3·13 Crew DJT

Project # 5513

Condition Good

Depth 4" 0-13.9 3" 13.9 - 27.5

Initial w/L 5.81

Vol. Calc. 13.9 - 5.81 = 8.09 x .65 = 5.2

27.5 - 13.9 = 13.6 x .37 = 5 + 5.2 = 10.2

Method Monsoon Pump

Purge Record

Time	Vol	pH	Cond	Temp	Turb
1353	10.2	7.46	1.62	12.39	809
1357	20.4	7.16	1.59	10.53	165
1400	30.6	6.99	1.56	10.31	74.6

Initial w/Q Clear, Colorless

Final w/Q Slightly cloudy
Dark gray

Final w/L 7.55

Sample Record

Date 5-3-13

Crew DJT

Method Dedicated Teflon Bailer

Vol/Analysis See pg 3

Sample ID WG-5513-050313-006

Time 1420

w/Q Cloudy light Brown

pH	Cond	Temp	Turb
7.25	1.56	13.47	70.8

CofC # 37556

inst. Control #S

w/L Meter NF06204
Horiba NF03583

GW-8B

Date 5.3.13 Crew DJT
Project # 5513
Condition Good
Depth 3" 0-29.5
Initial W/L 7.96
Vol. Calc. 29.5 - 7.96 = 21.54 x .37 = 8

Method Monsoon Pump

Purge Record

Time	Vol	pH	Cond	Temp	Turb
1513	8.0	7.85	1.71	12.71	217
1517	16.0	7.48	1.70	11.28	122
1522	24.0	7.22	1.76	10.51	36.1

Initial W/Q Clear, Colorless

Final W/Q Clear, Colorless

Final W/L 27.26

Sample Record

Date 5.3.13
Crew DJT
Method Dedicated Teflon Bailer

Vol /Analysis see pg 3

Sample ID WG-5513.050313.008
Time 1535

W/Q Clear, Colorless

pH	Cond	Temp	Turb
7.28	1.78	12.53	7.5

C of C# 37556

Inst. Control #'s
W/L Meter NF 06204
Horiba NF 03583