APPENDIX C
DATA VALIDATION REPORTS

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MEMORANDUM

TO:	Leo Brausch [lbrausch@consolidated.net], Jim Kay	REF. NO.:	018036
FROM:	Paul McMahon/adh/2	DATE:	April 27, 2015
RE:	**Analytical Results and Reduced Validation Groundwater and Surface Water Monitoring Program CBS Corporation Airport Site – Cheektowaga, New York November-December 2014**		

1.0 Introduction

The following document details a reduced validation of analytical results for groundwater and surface water samples collected at the Cheektowaga, New York Site in November-December 2014. Samples were submitted to TestAmerica (TA), located in Pittsburgh, Pennsylvania. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2.

Standard Conestoga-Rovers & Associates (CRA) report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples (LCS), matrix spikes (MS), and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", United States Environmental Protection Agency (USEPA) 540 R 10 011, January 2010
ii) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540 R 08 01, June 2008
iii) "Groundwater and Surface Water Monitoring Program Quality Assurance Project Plan", September 2014

Items i) and ii) will subsequently be referred to as the "Guidelines" in this Memorandum.

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2.0 Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 2. Sample chain of custody documents and the analytical report were used to determine sample holding times. All samples were analyzed within the required holding times except pH. pH is a field parameter, and the associated laboratory results were qualified as estimated (see Table 3).

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

3.0 Laboratory Method 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.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Most method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation. Methylene chloride was detected in the method blanks; all associated sample results with similar detections were qualified as non-detect (see Table 4).

4.0 Surrogate Spike Recoveries - Volatile Organic Compound Analyses

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics 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 volatile organic compound (VOC) determinations were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries met the criteria, demonstrating acceptable analytical accuracy.

5.0 Laboratory Control Sample 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, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

VOC Analyses

The LCS contained all compounds of interest. All LCS recoveries were within the laboratory control limits, demonstrating acceptable analytical accuracy. Some LCS were performed in duplicate, with acceptable precision demonstrated.

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.

6.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

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/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. The laboratory performed additional MS/MSD analyses internally.

VOC Analyses

The MS/MSD samples were spiked with all compounds of interest. All MS/MSD recoveries and RPDs were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision with the exception of the sample results presented with qualifiers in Table 5.

Metals Analyses

The MS/MSD samples were spiked with all analytes of interest. MS/MSD recoveries and RPD recoveries were assessed per the "Guidelines". All MS/MSD recoveries and RPDs demonstrated acceptable analytical accuracy and precision.

7.0 Duplicate Sample Analyses – Inorganic Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1 and internally. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

8.0 Field QA/QC Samples

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

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for VOC analysis. Most results were non-detect for the compounds of interest. Methylene chloride was detected; all associated sample results were either non-detect or were qualified as non-detect due to method blank contamination. No further qualification was necessary.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, two field duplicate sample sets were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent for water samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the practical quantitation limit (PQL), the evaluation criterion is one time the PQL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

9.0 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 PQL but greater than the MDL were qualified as estimated (J) unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the PQL.

10.0 Conclusion

Based on the assessment detailed in the foregoing, the data are acceptable with the noted qualifications. These qualifications have been applied to the electronic files provided by the laboratory.

TABLE 1

SAMPLE COLLECTION AND ANALYSIS SUMMARY
GROUNDWATER AND SURFACE WATER MONITORING PROGRAM
CBS CORPORATION AIRPORT SITE
CHEEKTOWAGA, NEW YORK
NOVEMBER-DECEMBER 2014

				Analysis/Parameters			
Sample ID	***Location ID***	***Collection Date (mm/dd/yyyy)***	***Collection Time (hr:min)***	***VOCs***	***Metals***	***pH/TSS***	***Comments***
Surface Water							
WS-18036-112414-001	1B	11/24/2014	9:00	X	X	X	
WS-18036-112414-002	1C	11/24/2014	9:30	X	X	X	
WS-18036-112414-003	2A	11/24/2014	11:30	X	X	X	
WS-18036-112414-004	2B	11/24/2014	11:45	X	X	X	
WS-18036-112414-005	2C	11/24/2014	12:30	X	X	X	MS/MSD/DUP
WS-18036-112414-006	2D	11/24/2014	14:00	X	X	X	
WS-18036-112414-007	3A	11/24/2014	14:45	X	X	X	
WS-18036-112414-008	3B	11/24/2014	15:15	X	X	X	
WS-18036-112414-009	3B	11/24/2014	15:15	X	X	X	Duplicate of WS-18036-112414-008
WS-18036-112414-010	3C	11/24/2014	15:45	X	X	X	
WS-18036-112414-011	1A	11/24/2014	16:15	X	X	X	
TB-18036-112414-01	-	11/24/2014	-	X			Trip Blank
Groundwater							
WG-18036-112414-SG-001	MW-34D	11/24/2014	10:00		X		VOC samples broken by laboratory
WG-18036-112414-SG-002	MW-34	11/24/2014	9:30	X	X		
WG-18036-112414-SG-003	MW-30	11/24/2014	11:00	X	X		
WG-18036-112414-SG-004	MW-35	11/24/2014	10:25	X	X		
WG-18036-112414-SG-005	MW-33	11/24/2014	11:40	X	X		
WG-18036-112414-SG-006	MW-2	11/24/2014	11:45	X	X		
WG-18036-112414-SG-007	MW-32	11/24/2014	13:25	X	X		
WG-18036-112414-SG-008	MW-28	11/24/2014	13:00	X	X		
WG-18036-112414-SG-009	MW-31	11/24/2014	15:05	X	X		
WG-18036-112414-SG-010	MW-5	11/24/2014	14:00	X	X		
WG-18036-112414-SG-011	MW-5	11/24/2014	14:00	X	X		Duplicate of WG-18036-112414-SG-010
WG-18036-120214-KL-001	MW-34D	12/2/2014	9:45	X			

Notes:

- Not applicable
DUP Laboratory Duplicate
MS Matrix Spike
MSD Matrix Spike Duplicate
VOCs Volatile Organic Compounds
TSS Total Suspended Solids

TABLE 2

SAMPLE HOLDING TIMES CRITERIA AND ANALYTICAL METHODS SUMMARY
GROUNDWATER AND SURFACE WATER MONITORING PROGRAM
CBS CORPORATION AIRPORT SITE
CHEEKTOWAGA, NEW YORK
NOVEMBER-DECEMBER 2014

Parameter	*Matrix*	*Analytical Method*	*Collection to Analysis*
Total Metals	Water	200.7 [(1)]	180 Days
Volatile Organic Compounds	Water	624 [(2)]	14 Days
pH	Water	SM 4500 H+ B [(3)]	Immediate
Total Suspended Solids	Water	SM 2540D [(3)]	7 Days

Notes:

(1) Referenced from "Methods for the Chemical Analysis of Water and Wastes", (MCAWW), USEPA-600/4-79-020, March 1983 and subsequent revisions

(2) Referenced from "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", USEPA-600/4-82-057, July 1982 and subsequent revisions

(3) "Standard Methods for the Examination of Water and Wastewater", 20th Edition, 1999 (with subsequent revisions)

TABLE 3

QUALIFIED SAMPLE RESULTS DUE TO HOLDING TIME EXCEEDANCES
GROUNDWATER AND SURFACE WATER MONITORING PROGRAM
CBS CORPORATION AIRPORT SITE
CHEEKTOWAGA, NEW YORK
NOVEMBER-DECEMBER 2014

Parameter	*Holding Time*	*Holding Time Criteria*	*Sample ID*	*Qualified Sample Results*	*Units*
pH	2 days	15 minutes	WS-18036-112414-001	7.69 J	S.U.
			WS-18036-112414-002	7.82 J	S.U.
			WS-18036-112414-003	8.32 J	S.U.
			WS-18036-112414-004	10.4 J	S.U.
			WS-18036-112414-005	9.17 J	S.U.
			WS-18036-112414-006	8.76 J	S.U.
			WS-18036-112414-007	8.84 J	S.U.
			WS-18036-112414-008	8.05 J	S.U.
			WS-18036-112414-009	8.01 J	S.U.
			WS-18036-112414-010	7.84 J	S.U.
			WS-18036-112414-011	7.64 J	S.U.

Notes:

J Estimated concentration
S.U. Standard Units

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE METHOD BLANKS
GROUNDWATER AND SURFACE WATER MONITORING PROGRAM
CBS CORPORATION AIRPORT SITE
CHEEKTOWAGA, NEW YORK
NOVEMBER-DECEMBER 2014

Parameter	*Analysis Date*	*Analyte*	*Blank Result*	*Sample ID*	*Qualified Sample Result*	*Units*
VOCs	12/05/2014	Methylene chloride	0.35 J	WS-18036-112414-004	2.0 U	µg/L
				WS-18036-112414-007	3.0 U	µg/L
				WS-18036-112414-011	1.0 U	µg/L

Notes:

VOCs Volatile Organic Compounds
J Estimated concentration
U Not detected at the associated reporting limit

TABLE 5

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS
GROUNDWATER AND SURFACE WATER MONITORING PROGRAM
CBS CORPORATION AIRPORT SITE
CHEEKTOWAGA, NEW YORK
NOVEMBER-DECEMBER 2014

Parameter	*Analyte*	*Sample ID*	*MS % Recovery*	*MSD % Recovery*	*RPD (percent)*	*Control Limits*		*Qualified Result*	*Units*
						% Recovery	*RPD*		
VOCs	cis-1,2-Dichloroehtylene	WS-18036-112414-005	0	22	19	69-127	20	18 J	µg/L
	Tetrachloroethylene	WS-18036-112414-005	55	63	7	73-127	25	6.3 J	µg/L
	Trichloroethylene (TCE)	WS-18036-112414-005	0	0	0	73-125	25	30 J	µg/L

Notes:

VOCs Volatile Organic Compounds
MS Matrix Spike
MSD Matrix Spike Duplicate
RPD Relative Percent Difference
J Estimated concentration

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MEMORANDUM

TO:	Leo Brausch [lbrausch@consolidated.net], Jim Kay	REF. NO.:	018036
FROM:	Paul McMahon/adh/1	DATE:	April 22, 2015
RE:	**Analytical Results and Reduced Validation Surface Water and Groundwater Sampling CBS Corporation Airport Site – Cheektowaga, New York April 2015**		

1.0 Introduction

The following document details a reduced validation of analytical results for surface water and groundwater samples collected at the Cheektowaga, New York Site on April 1, 2015. Samples were submitted to TestAmerica (TA), located in Pittsburgh, Pennsylvania. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2.

Standard Conestoga-Rovers & Associates (CRA) report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples (LCS), matrix spikes (MS), and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", United States Environmental Protection Agency (USEPA) 540 R 10 011, January 2010
ii) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540 R 08 01, June 2008
iii) "Groundwater and Surface Water Monitoring Program Quality Assurance Project Plan", September 2014

Items i) and ii) will subsequently be referred to as the "Guidelines" in this Memorandum.

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2.0 Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 2. Sample chain of custody documents and the analytical report were used to determine sample holding times. All samples were analyzed within the required holding times except pH. pH is a field parameter, and the associated laboratory results were qualified as estimated (see Table 3).

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

3.0 Laboratory Method 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.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Most method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation. Methylene chloride and lead were in the method blanks; all associated sample results with similar detections were qualified as non-detect (see Table 4).

4.0 Surrogate Spike Recoveries - Volatile Organic Compound Analyses

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics 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 volatile organic compound (VOC) determinations were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against laboratory control limits. Most surrogate recoveries met the criteria, demonstrating acceptable analytical accuracy. Several high 1,2-dichloroethane-d4 recoveries were reported for the groundwater analyses. All associated sample results were non-detect and were not impacted by the indicated high bias.

5.0 Laboratory Control Sample 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 1 per 20 investigative samples and/or 1 per analytical batch.

VOC Analyses

The LCS contained all 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.

6.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

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/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. The laboratory performed additional MS/MSD analyses internally.

VOC Analyses

The MS/MSD samples were spiked with all compounds of interest. All MS/MSD recoveries and RPDs were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision with the exception of the sample results presented with qualifiers in Table 5.

Metals Analyses

The MS/MSD samples were spiked with all analytes of interest. MS/MSD recoveries and RPD recoveries were assessed per the "Guidelines". All MS/MSD recoveries and RPDs demonstrated acceptable analytical accuracy and precision with the exception of the sample results presented with qualifiers in Table 5.

7.0 Duplicate Sample Analyses – Inorganic Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1 and internally. The duplicate results were evaluated per the "Guidelines". Most duplicate analyses performed were

acceptable, demonstrating acceptable analytical precision. One total suspended solids (TSS) analysis did indicate some variability, and the associated sample result was qualified as estimated (see Table 6).

8.0 Field QA/QC Samples

The field QA/QC consisted of two trip blank samples and two field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, two trip blanks were 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, two field duplicate sample sets were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent for water samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the practical quantitation limit (PQL), the evaluation criterion is one time the PQL value.

Most field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision. The TSS analysis did indicate some variability, and the associated sample results were qualified as estimated (see Table 7).

9.0 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 PQL but greater than the MDL were qualified as estimated (J) unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the PQL.

10.0 Conclusion

Based on the assessment detailed in the foregoing, the data are acceptable with the noted qualifications. These qualifications have been applied to the electronic files provided by the laboratory.

TABLE 1

SAMPLE COLLECTION AND ANALYSIS SUMMARY
GROUNDWATER AND SURFACE WATER MONITORING PROGRAM
CBS CORPORATION AIRPORT SITE
CHEEKTOWAGA, NEW YORK
APRIL 2015

				Analysis/Parameters			
Sample ID	***Location ID***	***Collection Date (mm/dd/yy)***	***Collection Time (hr:min)***	***VOCs***	***Metals***	***pH/TSS***	***Comments***
Surface Water							
WS-18036-040115-001	1B	4/1/2015	9:00	X	X	X	
WS-18036-040115-002	1C	4/1/2015	9:30	X	X	X	
WS-18036-040115-003	2D	4/1/2015	10:00	X	X	X	
WS-18036-040115-004	2A	4/1/2015	10:30	X	X	X	
WS-18036-040115-005	2B	4/1/2015	10:40	X	X	X	
WS-18036-040115-006	2C	4/1/2015	11:15	X	X	X	MS/MSD/DUP
WS-18036-040115-007	3A	4/1/2015	12:15	X	X	X	
WS-18036-040115-008	3C	4/1/2015	12:30	X	X	X	
WS-18036-040115-009	3C	4/1/2015	12:40	X	X	X	Duplicate of WS-18036-112414-008
WS-18036-040115-010	3B	4/1/2015	13:30	X	X	X	
WS-18036-040115-011	1A	4/1/2015	13:45	X	X	X	
TB-18036-040115-01	-	4/1/2015	-	X			Trip Blank
Groundwater							
WG-18036-040115-SG-001	MW-34	4/1/2015	9:20	X	X		
WG-18036-040115-DJT-002	MW-34D	4/1/2015	10:00	X	X		
WG-18036-040115-SG-003	MW-35	4/1/2015	10:55	X	X		
WG-18036-040115-SG-005	MW-35	4/1/2015	10:55	X	X		Duplicate of WG-18036-040115-SG-003
WG-18036-040115-DJT-004	MW-30	4/1/2015	10:50	X	X		
WG-18036-040115-DJT-006	MW-33	4/1/2015	11:30	X	X		
WG-18-036-040115-SG-007	MW-2	4/1/2015	12:25	X	X		
WG-18036-040115-DJT-008	MW-32	4/1/2015	12:10	X	X		

TABLE 1

SAMPLE COLLECTION AND ANALYSIS SUMMARY
GROUNDWATER AND SURFACE WATER MONITORING PROGRAM
CBS CORPORATION AIRPORT SITE
CHEEKTOWAGA, NEW YORK
APRIL 2015

				Analysis/Parameters			
Sample ID	***Location ID***	***Collection Date (mm/dd/yy)***	***Collection Time (hr:min)***	***VOCs***	***Metals***	***pH/TSS***	***Comments***
Groundwater-Continued							
WG-18036-040115-SG-009	MW-28	4/1/2015	13:20	X	X		
WG-18036-040115-DJT-010	MW-5	4/1/2015	13:40	X	X		
WG-18036-040115-SG-011	MW-31	4/1/2015	14:30	X	X		MS/MSD
TB-18036-040115-SG	-	4/1/2015	-	X			

Notes:

- Not applicable
DUP Laboratory Duplicate
MS Matrix Spike
MSD Matrix Spike Duplicate
VOCs Volatile Organic Compounds
TSS Total Suspended Solids

TABLE 2

SAMPLE HOLDING TIMES CRITERIA AND ANALYTICAL METHODS SUMMARY
GROUNDWATER AND SURFACE WATER MONITORING PROGRAM
CBS CORPORATION AIRPORT SITE
CHEEKTOWAGA, NEW YORK
APRIL 2015

Parameter	*Matrix*	*Analytical Method*	*Collection to Analysis*
Total Metals	Water	200.7 (1)	180 Days
Volatile Organic Compounds	Water	624 (2)	14 Days
pH	Water	SM 4500 H+ B (3)	Immediate
Total Suspended Solids	Water	SM 2540D (3)	7 Days

Notes:

(1) Referenced from "Methods for the Chemical Analysis of Water and Wastes", (MCAWW), USEPA-600/4-79-020, March 1983 and subsequent revisions

(2) Referenced from "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", USEPA-600/4-82-057, July 1982 and subsequent revisions

(3) "Standard Methods for the Examination of Water and Wastewater", 20th Edition, 1999 (with subsequent revisions)

TABLE 3

QUALIFIED SAMPLE RESULTS DUE TO HOLDING TIME EXCEEDANCES
GROUNDWATER AND SURFACE WATER MONITORING PROGRAM
CBS CORPORATION AIRPORT SITE
CHEEKTOWAGA, NEW YORK
APRIL 2015

Parameter	*Holding Time*	*Holding Time Criteria*	*Sample ID*	*Qualified Sample Results*	*Units*
pH	3 days	15 minutes	WS-18036-040115-001	7.96 J	S.U.
			WS-18036-040115-002	8.10 J	S.U.
			WS-18036-040115-003	8.29 J	S.U.
			WS-18036-040115-004	8.33 J	S.U.
			WS-18036-040115-005	11.2 J	S.U.
			WS-18036-040115-006	10.6 J	S.U.
			WS-18036-040115-007	9.03 J	S.U.
			WS-18036-040115-008	7.70 J	S.U.
			WS-18036-040115-009	7.57 J	S.U.
			WS-18036-040115-010	8.89 J	S.U.
			WS-18036-040115-011	8.01 J	S.U.

Notes:

J Estimated concentration
S.U. Standard Units

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE METHOD BLANKS
GROUNDWATER AND SURFACE WATER MONITORING PROGRAM
CBS CORPORATION AIRPORT SITE
CHEEKTOWAGA, NEW YORK
APRIL 2015

Parameter	*Analysis Date*	*Analyte*	*Blank Result* [(1)]	*Sample ID*	*Qualified Sample Result*	*Units*
VOCs	04/09/2015	Methylene chloride	0.80 J	WS-18036-040115-005	5.0 U	µg/L
			0.16 J	WS-18036-040115-008	1.0 U	µg/L
			0.16 J	WS-18036-040115-009	1.0 U	µg/L
			0.16 J	WS-18036-040115-010	1.0 U	µg/L
Metals	04/07/2015	Lead	1.6 J	WG-18036-040115-DJT-002	10 U	µg/L
			1.6 J	WG-18036-040115-SG-001	10 U	µg/L
			1.6 J	WG-18036-040115-SG-003	10 U	µg/L
			1.6 J	WG-18036-040115-SG-005	10 U	µg/L
			3.2 J	WG-18036-040115-SG-011	20 U	µg/L

Notes:

VOCs Volatile Organic Compounds
J Estimated concentration
U Not detected at the associated reporting limit
(1) Blank results corrected for individual sample dilution factors, where applicable

TABLE 5

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS
GROUNDWATER AND SURFACE WATER MONITORING PROGRAM
CBS CORPORATION AIRPORT SITE
CHEEKTOWAGA, NEW YORK
APRIL 2015

Parameter	*Analyte*	*Sample ID*	*MS % Recovery*	*MSD % Recovery*	*RPD (percent)*	*Control Limits*		*Qualified Result*	*Units*
						% Recovery	*RPD*		
VOCs	cis-1,2-Dichloroehtylene	WS-18036-040115-006	59	63	3	69-127	20	29 J	µg/L
	Trichloroethylene (TCE)	WS-18036-040115-006	16	23	3	73-125	25	66 J	µg/L
Metals	Cadmium	WS-18036-040115-001	135	142	5	75-125	20	0.97 J	µg/L
		WS-18036-040115-002						0.18 J	µg/L
		WS-18036-040115-003						0.26 J	µg/L
		WS-18036-040115-005						0.21 J	µg/L
		WS-18036-040115-006						0.41 J	µg/L
		WS-18036-040115-007						0.25 J	µg/L
		WS-18036-040115-008						8.9 J	µg/L
		WS-18036-040115-009						5.4 J	µg/L
		WS-18036-040115-010						0.21 J	µg/L
		WS-18036-040115-011						1.1 J	µg/L

Notes:

VOCs Volatile Organic Compounds
MS Matrix Spike
MSD Matrix Spike Duplicate
RPD Relative Percent Difference
J Estimated concentration

TABLE 6

QUALIFIED SAMPLE RESULTS DUE TO POOR LABORATORY DUPLICATE PRECISION
GROUNDWATER AND SURFACE WATER MONITORING PROGRAM
CBS CORPORATION AIRPORT SITE
CHEEKTOWAGA, NEW YORK
APRIL 2015

Analyte	*Sample ID*	*RPD*	*RPD Control Limit*	*Qualified Sample Results*	*Units*
Total Suspended Solids	WS-18036-040115-011	36	20	13 J	mg/L

Notes:

RPD Relative Percent Difference
J Estimated concentration

TABLE 7

QUALIFIED SAMPLE RESULTS DUE TO VARIABILITY IN FIELD DUPLICATE RESULTS
GROUNDWATER AND SURFACE WATER MONITORING PROGRAM
CBS CORPORATION AIRPORT SITE
CHEEKTOWAGA, NEW YORK
APRIL 2015

Parameter	*Analyte*	*Original Sample ID*	*Qualified Sample Result*	*Duplicate Sample ID*	*Qualified Sample Result*	*RPD*	*Units*
General Chemistry	TSS	WS-18036-040115-008	1300 J	WS-18036-040115-009	750 J	54	mg/L

Notes:

TSS Total Suspended Solids
RPD Relative Percent Difference
J Estimated concentration

Memorandum

To:	Leo Brausch [lbrausch@consolidated.net], Jim Kay	Ref. No.:	018036
From:	Paul McMahon/adh/3	Date:	July 27, 2015
cc:	Kevin Lynch		

Re: Analytical Results and Reduced Validation
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site – Cheektowaga, New York
June 2015

1. Introduction

The following document details a reduced validation of analytical results for surface water and groundwater samples collected at the Cheektowaga, New York Site on June 18, 2015. Samples were submitted to TestAmerica Laboratories, Inc. (TA), located in Pittsburgh, Pennsylvania. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2.

Standard GHD deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples (LCS), matrix spikes (MS); and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", United States Environmental Protection Agency (USEPA) 540 R 10 011, January 2010

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540 R 08 01, June 2008

iii) "Groundwater and Surface Water Monitoring Program Quality Assurance Project Plan", September 2014

2. 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 analyzed within the required holding times except pH. pH is a field parameter, and the associated laboratory results were qualified as estimated (see Table 3).

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

3. Laboratory Method 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.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

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

4. Surrogate Spike Recoveries - Organic Analyses

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics 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 volatile organic compound (VOC) determinations were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries met the above criteria.

5. Laboratory Control Sample 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, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

5.1 Organic Analyses

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

5.2 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.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the preparatory procedures, 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.

MS/MSD analyses were performed as specified in Table 1. The laboratory performed additional site-specific MS/MSD analyses internally.

6.1 Organic Analyses

The MS/MSD samples were spiked with all compounds of interest. All percent recoveries and RPD values were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision.

6.2 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, demonstrating acceptable analytical accuracy and precision.

7. Duplicate Sample Analyses – Inorganic Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The laboratory performed additional site-specific duplicate analyses internally. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

8. Field QA/QC Samples

The field QA/QC consisted of two trip blank samples and two field duplicate sample sets.

8.1 Trip Blank Sample Analysis

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

8.2 Field Duplicate Sample Analysis

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

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

9. 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 report limit (RL) but greater than the MDL were qualified as estimated (J) unless qualified otherwise in this memorandum.

10. Conclusion

Based on the assessment detailed in the foregoing, the data are acceptable with the noted qualifications. These qualifications have been applied to the electronic files provided by the laboratory.

Table 1

Sample Collection and Analysis Summary
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
June 2015

Sample ID	Location ID	Collection Date (mm/dd/yy)	Collection Time (hr:min)	Analysis/Parameters			Comments
				VOCs	Metals	pH/TSS	
Surface Water							
SW-18036-061815-001	1B	06/18/2015	8:45	X	X	X	
SW-18036-061815-002	1C	06/18/2015	9:15	X	X	X	
SW-18036-061815-003	2C	06/18/2015	9:45	X	X	X	
SW-18036-061815-004	2A	06/18/2015	10:15	X	X	X	
SW-18036-061815-005	2B	06/18/2015	10:00	X	X	X	
SW-18036-061815-006	3A	06/18/2015	10:45	X	X	X	
SW-18036-061815-007	3A	06/18/2015	10:45	X	X	X	Duplicate of SW-18036-061815-006
SW-18036-061815-008	2D	06/18/2015	11:30	X	X	X	
SW-18036-061815-009	3C	06/18/2015	12:00	X	X	X	MS/MSD/DUP
SW-18036-061815-010	3B	06/18/2015	13:00	X	X	X	
SW-18036-061815-011	1A	06/18/2015	13:45	X	X	X	
TB-18036-061815-01	-	06/18/2015	-	X			Trip Blank
Groundwater							
WG-18036-061815-DJT-001	MW-34D	06/18/2015	9:40	X	X		MS/MSD
WG-18036-061815-SG-002	MW-34	06/18/2015	9:20	X	X		
WG-18036-061815-DJT-003	MW-30	06/18/2015	10:30	X	X		
WG-18036-061815-SG-004	MW-35	06/18/2015	10:10	X	X		
WG-18036-061815-SG-006	MW-35	06/18/2015	10:10	X	X		Duplicate of WG-18036-061815-SG-004
WG-18036-061815-DJT-005	MW-33	06/18/2015	11:30	X	X		
WG-18036-061815-DJT-007	MW-32	06/18/2015	12:30	X	X		
WG-18036-061815-SG-008	MW-2	06/18/2015	11:30	X	X		
WG-18036-061815-SG-009	MW-5	06/18/2015	13:40	X	X		
WG-18036-061815-SG-010	MW-28	06/18/2015	12:20	X	X		
WG-18036-061815-SG-011	MW-31	06/18/2015	14:35	X	X		
TB-18036-061815-DJT	-	06/18/2015	-	X			

Notes:

- - Not applicable
DUP - Laboratory Duplicate
MS - Matrix Spike
MSD - Matrix Spike Duplicate
VOCs - Volatile Organic Compounds
TSS - Total Suspended Solids

Table 2

Sample Holding Time Criteria and Analytical Method Summary
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
June 2015

Parameter	Matrix	Analytical Method	Collection to Analysis
Total Metals	Water	200.7 (1)	180 Days
Volatile Organic Compounds	Water	624 (2)	14 Days
pH	Water	SM 4500 H+ B (3)	Immediate
Total Suspended Solids	Water	SM 2540D (3)	7 Days

Notes:

(1) - Referenced from "Methods for the Chemical Analysis of Water and Wastes", (MCAWW), USEPA-600/4-79-020, March 1983 and subsequent revisions

(2) - Referenced from "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", USEPA-600/4-82-057, July 1982 and subsequent revisions

(3) - "Standard Methods for the Examination of Water and Wastewater", 20th Edition, 1999 (with subsequent revisions)

Table 3

Qualified Sample Results Due to Holding Time Exceedances
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
June 2015

Parameter	Holding Time	Holding Time Criteria	Sample ID	Qualified Sample Results	Units
pH	4 days	15 minutes	SW-18036-061815-001	8.12 J	S.U.
			SW-18036-061815-002	8.08 J	S.U.
			SW-18036-061815-003	11.5 J	S.U.
			SW-18036-061815-004	8.36 J	S.U.
			SW-18036-061815-005	11.4 J	S.U.
			SW-18036-061815-006	8.96 J	S.U.
			SW-18036-061815-007	8.94 J	S.U.
			SW-18036-061815-008	7.93 J	S.U.
			SW-18036-061815-009	7.68 J	S.U.
			SW-18036-061815-010	7.81 J	S.U.
			SW-18036-061815-011	7.71 J	S.U.

Notes:

J - Estimated concentration
S.U. - Standard Units

Memorandum

To:	Leo Brausch [lbrausch@brauschenv.com], Jim Kay	Ref. No.:	018036
From:	Paul McMahon/adh/4	Date:	September 29, 2015
cc:	Kevin Lynch		

Re: Analytical Results and Reduced Validation
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site – Cheektowaga, New York
September 2015

1. Introduction

This document details a reduced validation of analytical results for surface water and groundwater samples collected at the Cheektowaga, New York Site on September 10, 2015. Samples were submitted to TestAmerica Laboratories, Inc. (TA), located in Pittsburgh, Pennsylvania. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2.

Standard GHD deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spikes (MS), and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", United States Environmental Protection Agency (USEPA) 540 R 10 011, January 2010

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540 R 08 01, June 2008

iii) "Groundwater and Surface Water Monitoring Program Quality Assurance Project Plan", September 2014

2. 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 analyzed within the required holding times except pH. pH is a field parameter, and the associated laboratory results were qualified as estimated (see Table 3).

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

3. Laboratory Method 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.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Most method blank results were non-detect. Methylene chloride was detected in one method blank; associated detected sample results with similar concentrations were qualified as non-detect (see Table 4).

4. Surrogate Spike Recoveries - Organic Analyses

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics 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 volatile organic compound (VOC) determinations were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries were acceptable, demonstrating good analytical efficiency.

5. Laboratory Control Sample 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, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

5.1 Organic Analyses

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

5.2 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.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the preparatory procedures, 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.

MS/MSD analyses were performed as specified in Table 1. The laboratory performed additional site-specific MS/MSD analyses internally.

6.1 Organic Analyses

The MS/MSD samples were spiked with all compounds of interest. Most percent recoveries and all RPD values were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision. One high MS recovery was reported, and the associated sample result was qualified as estimated (see Table 5).

6.2 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, demonstrating acceptable analytical accuracy and precision.

7. Duplicate Sample Analyses – Inorganic Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The laboratory performed additional site-specific duplicate analyses internally. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

8. Field QA/QC Samples

The field QA/QC consisted of two trip blank samples and two field duplicate sample sets.

8.1 Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, two trip blanks were submitted to the laboratory for VOC analysis. Most results were non-detect for the compounds of interest. Methylene chloride was detected in the surface water trip blank. All associated sample results were either non-detect or were previously qualified as non-detect, and no further action was necessary.

8.2 Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, two field duplicate sample sets were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent for water samples. If the reported concentration in either the

investigative sample or its duplicate is less than five times the practical quantitation limit (PQL), the evaluation criterion is one times the PQL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

9. 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 report limit (RL) but greater than the MDL were qualified as estimated (J) unless qualified otherwise in this memorandum.

Due to matrix interferences, dilutions were required for the lead analysis for samples collected from locations MW-2 and MW-31. The reporting limit for lead was adjusted accordingly by the laboratory.

10. Conclusion

Based on the assessment detailed in the foregoing, the data are acceptable with the noted qualifications. These qualifications have been applied to the electronic files provided by the laboratory.

Table 1

Sample Collection and Analysis Summary
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
September 2015

Sample ID	Location ID	Collection Date (mm/dd/yy)	Collection Time (hr:min)	Analysis/Parameters			Comments
				VOCs	Metals	pH/TSS	
Surface Water							
SW-18036-091015-001	1B	09/10/2015	8:00	X	X	X	
SW-18036-091015-002	1C	09/10/2015	8:30	X	X	X	
SW-18036-091015-003	2C	09/10/2015	9:15	X	X	X	
SW-18036-091015-004	2C	09/10/2015	9:15	X	X	X	Duplicate of SW-18036-091015-003
SW-18036-091015-005	2A	09/10/2015	10:00	X	X	X	
SW-18036-091015-006	2B	09/10/2015	10:10	X	X	X	
SW-18036-091015-007	3A	09/10/2015	10:30	X	X	X	
SW-18036-091015-008	2D	09/10/2015	10:50	X	X	X	
SW-18036-091015-009	3C	09/10/2015	11:30	X	X	X	MS/MSD/DUP
SW-18036-091015-010	3B	09/10/2015	12:15	X	X	X	
SW-18036-091015-011	1A	09/10/2015	12:45	X	X	X	
TB-18036-091015-01	-	09/10/2015	-	X			Trip Blank
Groundwater							
WG-18036-091015-DT-001	MW-30	9/10/2015	8:45	X	X		
WG-18036-091015-SG-002	MW-35	9/10/2015	8:25	X	X		MS/MSD
WG-18036-091015-DT-003	MW-34D	9/10/2015	9:50	X	X		
WG-18036-091015-SG-004	MW-34	9/10/2015	9:40	X	X		
WG-18036-091015-DT-005	MW-33	9/10/2015	11:00	X	X		
WG-18036-091015-SG-006	MW-2	9/10/2015	11:00	X	X		
WG-18036-091015-DT-007	MW-32	9/10/2015	12:35	X	X		
WG-18036-091015-SG-008	MW-28	9/10/2015	11:45	X	X		
WG-18036-091015-DT-009	MW-32	9/10/2015	12:35	X	X		Duplicate of WG-18036-091015-DT-007
WG-18036-091015-SG-010	MW-5	9/10/2015	12:45	X	X		
WG-18036-091015-SG-011	MW-31	9/10/2015	13:55	X	X		
TB-18036-091015-SG	-	9/10/2015	-	X			Trip Blank

Notes:

- - Not applicable
DUP - Laboratory Duplicate
MS - Matrix Spike
MSD - Matrix Spike Duplicate
VOCs - Volatile Organic Compounds
TSS - Total Suspended Solids

Table 2

Sample Holding Time Criteria and Analytical Method Summary
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
September 2015

Parameter	Matrix	Analytical Method	Collection to Analysis
Total Metals	Water	200.7 (1)	180 Days
Volatile Organic Compounds	Water	624 (2)	14 Days
pH	Water	SM 4500 H+ B (3)	Immediate
Total Suspended Solids	Water	SM 2540D (3)	7 Days

Notes:

(1) - Referenced from "Methods for the Chemical Analysis of Water and Wastes", (MCAWW), USEPA-600/4-79-020, March 1983 and subsequent revisions

(2) - Referenced from "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", USEPA-600/4-82-057, July 1982 and subsequent revisions

(3) - "Standard Methods for the Examination of Water and Wastewater", 20th Edition, 1999 (with subsequent revisions)

Table 3

Qualified sample Results Due to Holding Time Exceedances
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
September 2015

Parameter	Holding Time	Holding Time Criteria	Sample ID	Qualified Sample Results	Units
pH	2 days	15 minutes	SW-18036-091015-001	8.16 J	S.U.
			SW-18036-091015-002	8.29 J	S.U.
			SW-18036-091015-003	11.7 J	S.U.
			SW-18036-091015-004	11.7 J	S.U.
			SW-18036-091015-005	8.29 J	S.U.
			SW-18036-091015-006	11.6 J	S.U.
			SW-18036-091015-007	9.55 J	S.U.
			SW-18036-091015-008	8.14 J	S.U.
			SW-18036-091015-009	7.62 J	S.U.
			SW-18036-091015-010	7.52 J	S.U.
			SW-18036-091015-011	7.90 J	S.U.

Notes:

J - Estimated concentration
S.U. - Standard Units

Table 4

Qualified Sample Results Due to Analyte Concentrations in the Method Blank
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
September 2015

Parameter	Analysis Date	Analyte	Blank Result	Sample ID	Original Sample Result	Qualified Sample Result	Units
VOCs	09/16/2015	Methylene Chloride	0.73 J	SW-18036-091015-006	0.65 J	1.0 U	µg/L
				SW-18036-091015-007	0.60 J	1.0 U	µg/L

Notes:

J - Estimated concentration
U - Not detected at the associated reporting limit
VOCs - Volatile Organic Compounds

Table 5

Qualified Sample Results Due to Outlying Matrix Spike Recoveries
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
September 2015

Parameter	Spiked Sample ID	Analyte	MS % Recovery	Control Limits % Recovery	Qualified Result	Units
VOCs	WG-18036-091015-SG-010	Trichloroethene	126	73-125	0.80 J	µg/L

Notes:

MS - Matrix Spike
J - Estimated concentration
VOCs - Volatile Organic Compounds

Memorandum

To:	Leo Brausch [lbrausch@brauschenv.com], Jim Kay	Ref. No.:	018036
From:	Paul McMahon/km/5	Date:	January 18, 2016
cc:	Kevin Lynch		

Re: Analytical Results and Reduced Validation
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site – Cheektowaga, New York
December 2015

1. Introduction

This document details a reduced validation of analytical results for surface water and groundwater samples collected at the Cheektowaga, New York Site on December 10, 2015. Samples were submitted to TestAmerica Laboratories, Inc. (TA), located in Pittsburgh, Pennsylvania. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2.

Standard GHD deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spikes (MS), and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", United States Environmental Protection Agency (USEPA) 540 R 10 011, January 2010

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540 R 08 01, June 2008

iii) "Groundwater and Surface Water Monitoring Program Quality Assurance Project Plan", September 2014

2. 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 analyzed within the required holding times except pH. pH is a field parameter, and the associated laboratory results were qualified as estimated (see Table 3).

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

3. Laboratory Method 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.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Most method blank results were non-detect. Methylene chloride was detected in one method blank; associated detected sample results with similar concentrations were qualified as non-detect (see Table 4).

4. Surrogate Spike Recoveries - Organic Analyses

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics 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 volatile organic compound (VOC) determinations were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries were acceptable, demonstrating good analytical efficiency.

5. Laboratory Control Sample 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, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

5.1 Organic Analyses

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

5.2 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.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the preparatory procedures, 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.

MS/MSD analyses were performed as specified in Table 1. The laboratory performed additional site-specific MS/MSD analyses internally.

6.1 Organic Analyses

The MS/MSD samples were spiked with all compounds of interest. All percent recoveries and RPD values were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision.

6.2 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, demonstrating acceptable analytical accuracy and precision.

7. Duplicate Sample Analyses – Inorganic Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The laboratory performed additional site-specific duplicate analyses internally. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

8. Field QA/QC Samples

The field QA/QC consisted of two trip blank samples and two field duplicate sample sets.

8.1 Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, two trip blanks were submitted to the laboratory for VOC analysis. Most results were non-detect for the compounds of interest. Methylene chloride was detected in the surface water trip blank. All associated sample results were either non-detect or were previously qualified as non-detect, and no further action was necessary.

8.2 Field Duplicate Sample Analysis

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

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

9. 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 report limit (RL) but greater than the MDL were qualified as estimated (J) unless qualified otherwise in this memorandum.

Due to matrix interferences, dilutions were required for the lead analysis for samples collected from locations MW-2, MW-28, and MW-31. The reporting limit for lead was adjusted accordingly by the laboratory.

10. Conclusion

Based on the assessment detailed in the foregoing, the data are acceptable with the noted qualifications. These qualifications have been applied to the electronic files provided by the laboratory.

Table 1

Sample Collection and Analysis Summary
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
December 2015

Sample ID	Location ID	Collection Date (mm/dd/yy)	Collection Time (hr:min)	Analysis/Parameters: VOCs	Metals	pH/TSS	Comments
Surface Water							
SW-18036-121015-01	1B	12/10/2015	08:00	X	X	X	
SW-18036-121015-02	1C	12/10/2015	08:40	X	X	X	
SW-18036-121015-03	2A	12/10/2015	09:15	X	X	X	
SW-18036-121015-04	2B	12/10/2015	09:30	X	X	X	
SW-18036-121015-05	3A	12/10/2015	10:00	X	X	X	
SW-18036-121015-06	2C	12/10/2015	10:30	X	X	X	
SW-18036-121015-07	2C	12/10/2015	10:30	X	X	X	DUP of SW-18036-121015-06
SW-18036-121015-08	2D	12/10/2015	11:00	X	X	X	
SW-18036-121015-09	3C	12/10/2015	11:45	X	X	X	MS/MSD/DUP
SW-18036-121015-10	3C	12/10/2015	11:45	X	X	X	
SW-18036-121015-11	3C	12/10/2015	11:45	X	X	X	
SW-18036-121015-12	3B	12/10/2015	12:15	X	X	X	
SW-18036-121015-13	1A	12/10/2015	13:00	X	X	X	
TB-18036-121015-00	-	12/10/2015	-	X			Trip Blank
Groundwater							
WG-18036-121015-DT-000	MW-34D	12/10/2015	08:45	X	X		
WG-18036-121015-SG-001	MW-34	12/10/2015	08:30	X	X		
WG-18036-121015-DT-002	MW-30	12/10/2015	09:30	X	X		
WG-18036-121015-SG-003	MW-35	12/10/2015	09:30	X	X		MS/MSD
WG-18036-121015-DT-004	MW-33	12/10/2015	10:25	X	X		
WG-18036-121015-SG-005	MW-2	12/10/2015	10:40	X	X		
WG-18036-121015-DT-007	MW-32	12/10/2015	11:50	X	X		
WG-18036-121015-DT-009	MW-32	12/10/2015	11:50	X	X		DUP of WG-18036-121015-DT-007
WG-18036-121015-SG-008	MW-28	12/10/2015	11:35	X	X		
WG-18036-121015-SG-010	MW-5	12/10/2015	13:00	X	X		
WG-18036-121015-SG-011	MW-31	12/10/2015	13:55	X	X		
TB-18036-121015-DT	-	12/10/2015	-	X			Trip Blank

Notes:

- - Not applicable
DUP - Laboratory Duplicate
MS - Matrix Spike
MSD - Matrix Spike Duplicate
VOCs - Volatile Organic Compounds
TSS - Total Suspended Solids

Table 2

Sample Holding Time Criteria and Analytical Method Summary
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
December 2015

Parameter	Matrix	Analytical Method	Collection to Analysis
Total Metals	Water	200.7 (1)	180 Days
Volatile Organic Compounds	Water	624 (2)	14 Days
pH	Water	SM 4500 H+ B (3)	Immediate
Total Suspended Solids	Water	SM 2540D (3)	7 Days

Notes:

(1) - Referenced from "Methods for the Chemical Analysis of Water and Wastes", (MCAWW), USEPA-600/4-79-020, March 1983 and subsequent revisions

(2) - Referenced from "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", USEPA-600/4-82-057, July 1982 and subsequent revisions

(3) - "Standard Methods for the Examination of Water and Wastewater", 20th Edition, 1999 (with subsequent revisions)

Table 3

Qualified Sample Results Due to Holding Time Exceedances
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
December 2015

Parameter	Holding Time	Holding Time Criteria	Sample ID	Qualified Sample Results	Units
pH	4 days	15 minutes	SW-18036-121015-01	7.90 J	S.U.
			SW-18036-121015-02	8.19 J	S.U.
			SW-18036-121015-03	7.89 J	S.U.
			SW-18036-121015-04	11.6 J	S.U.
			SW-18036-121015-05	9.44 J	S.U.
			SW-18036-121015-06	11.7 J	S.U.
			SW-18036-121015-07	11.6 J	S.U.
			SW-18036-121015-08	7.85 J	S.U.
			SW-18036-121015-09	7.14 J	S.U.
			SW-18036-121015-12	7.22 J	S.U.
			SW-18036-121015-13	7.64 J	S.U.

Notes:

J - Estimated concentration
S.U. - Standard Units

Table 4

Qualified Sample Results Due to Analyte Concentrations in the Method Blank
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
December 2015

Parameter	Analysis Date	Analyte	Blank Result (1)	Sample ID	Original Sample Result	Qualified Sample Result	Units
VOCs	12/16/2015	Methylene Chloride	0.23 J	SW-18036-121015-03	0.24 J	1.0 U	µg/L
			1.2 J	SW-18036-121015-04	2.6 J	5.0 U	µg/L
			1.2 J	SW-18036-121015-05	3.3 J	5.0 U	µg/L
			0.69 J	SW-18036-121015-06	1.3 J	3.0 U	µg/L
			0.69 J	SW-18036-121015-07	1.4 J	3.0 U	µg/L

Notes:

J - Estimated concentration
U - Not detected at the associated reporting limit
VOCs - Volatile Organic Compounds
(1) - Blank results corrected for individual sample dilution factors

Memorandum

To:	Leo Brausch [lbrausch@brauschenv.com], Jim Kay	Ref. No.:	018036
From:	Paul McMahon/adh/6	Date:	April 4, 2016 Rev. April 13, 2016
cc:	Kevin Lynch		

Re: Analytical Results and Reduced Validation
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site – Cheektowaga, New York
March 2016

1. Introduction

This document details a reduced validation of analytical results for surface water and groundwater samples collected at the Cheektowaga, New York Site on March 17, 2016. Samples were submitted to TestAmerica Laboratories, Inc. (TA), located in Pittsburgh, Pennsylvania. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2.

Standard GHD deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spikes (MS), and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", United States Environmental Protection Agency (USEPA) 540 R 10 011, January 2010

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540 R 08 01, June 2008

iii) "Groundwater and Surface Water Monitoring Program Quality Assurance Project Plan", September 2014

2. 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 analyzed

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within the required holding times except pH. pH is a field parameter, and the associated laboratory results were qualified as estimated (see Table 3).

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

3. Laboratory Method 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.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Most method blank results were non-detect. Methylene chloride was detected in one method blank; associated detected sample results with similar concentrations were qualified as non-detect (see Table 4).

4. Surrogate Spike Recoveries - Organic Analyses

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics 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 volatile organic compound (VOC) determinations were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries were acceptable, demonstrating good analytical efficiency.

5. Laboratory Control Sample 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, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

5.1 Organic Analyses

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

5.2 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.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the preparatory procedures, 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.

MS/MSD analyses were performed as specified in Table 1. The laboratory performed additional site-specific MS/MSD analyses internally.

6.1 Organic Analyses

The MS/MSD samples were spiked with all compounds of interest. Most percent recoveries and all RPD values were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision. Two low MSD recoveries were reported; the results were judged acceptable without qualification based on the acceptable MS recoveries and RPDs.

6.2 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, demonstrating acceptable analytical accuracy and precision.

7. Duplicate Sample Analyses – Inorganic Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The laboratory performed additional site-specific duplicate analyses internally. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

8. Field QA/QC Samples

The field QA/QC consisted of two trip blank samples and two field duplicate sample sets.

8.1 Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, two trip blanks were submitted to the laboratory for VOC analysis. Most results were non-detect for the compounds of interest. Methylene chloride was detected in the surface water trip blank. All associated sample results were either non-detect or were previously qualified as non-detect, and no further action was necessary.

8.2 Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, two field duplicate sample sets were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent for water samples. If the reported concentration in either the

investigative sample or its duplicate is less than five times the practical quantitation limit (PQL), the evaluation criterion is one times the PQL value.

Most field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision. Some variability was noted in the total suspended solids results, and the associated data were qualified as estimated (see Table 5).

9. 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 reporting limit (RL) but greater than the MDL were qualified as estimated (J) unless qualified otherwise in this memorandum.

Due to matrix interferences, dilutions were required for the lead analysis for samples collected from locations MW-2, MW-28, and MW-31. The reporting limit for lead was adjusted accordingly by the laboratory.

10. Conclusion

Based on the assessment detailed in the foregoing, the data are acceptable with the noted qualifications. These qualifications have been applied to the electronic files provided by the laboratory.

Table 1

Sample Collection and Analysis Summary
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
March 2016

Sample ID	Location ID	Collection Date (mm/dd/yy)	Collection Time (hr:min)	Analysis/Parameters: VOCs	Metals	pH/TSS	Comments
Surface Water							
SW-18036-031716-001	1B	03/17/2016	7:45	X	X	X	
SW-18036-031716-002	1C	03/17/2016	8:20	X	X	X	
SW-18036-031716-003	2A	03/17/2016	8:45	X	X	X	
SW-18036-031716-004	2B	03/17/2016	9:00	X	X	X	
SW-18036-031716-005	3A	03/17/2016	9:15	X	X	X	
SW-18036-031716-006	2C	03/17/2016	9:45	X	X	X	MS/MSD/DUP
SW-18036-031716-009	2D	03/17/2016	10:15	X	X	X	
SW-18036-031716-010	3C	03/17/2016	11:00	X	X	X	
SW-18036-031716-011	3C	03/17/2016	11:00	X	X	X	Duplicate of SW-18036-031716-10
SW-18036-031716-012	3B	03/17/2016	11:15	X	X	X	
SW-18036-031716-013	1A	03/17/2016	11:45	X	X	X	
TB-18036-031716-001	-	03/17/2016	-	X			Trip Blank
Groundwater							
WG-18036-031716-DT-001	MW-34D	03/17/2016	8:40	X	X		
WG-18036-031716-002-SG	MW-34	03/17/2016	8:15	X	X		
WG-18036-031716-DT-003	MW-30	03/17/2016	9:35	X	X		
WG-18036-031716-004-SG	MW-35	03/17/2016	8:55	X	X		
WG-18036-031716-006-SG	MW-35	03/17/2016	8:55	X	X		Duplicate of WG-18036-031716-004-SG
WG-18036-031716-DT-005	MW-33	03/17/2016	10:25	X	X		
WG-18036-031716-DT-007	MW-32	03/17/2016	11:30	X	X		MS/MSD
WG-18036-031716-008-SG	MW-2	03/17/2016	10:45	X	X		
WG-18036-031716-009-SG	MW-5	03/17/2016	12:35	X	X		
WG-18036-031716-010-SG	MW-28	03/17/2016	11:35	X	X		
WG-18036-031716-011-SG	MW-31	03/17/2016	13:35	X	X		
TB-18036-031716-DT	-	03/17/2016	-	X			Trip Blank

Notes:

- - Not applicable
DUP - Laboratory Duplicate
MS - Matrix Spike
MSD - Matrix Spike Duplicate
VOCs - Volatile Organic Compounds
TSS - Total Suspended Solids

Table 2

Sample Holding Time Criteria and Analytical Method Summary
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
March 2016

Parameter	Matrix	Analytical Method	Collection to Analysis
Total Metals	Water	200.7 (1)	180 Days
Volatile Organic Compounds	Water	624 (2)	14 Days
pH	Water	SM 4500 H+ B (3)	Immediate
Total Suspended Solids	Water	SM 2540D (3)	7 Days

Notes:

(1) - Referenced from "Methods for the Chemical Analysis of Water and Wastes", (MCAWW), USEPA-600/4-79-020, March 1983 and subsequent revisions

(2) - Referenced from "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", USEPA-600/4-82-057, July 1982 and subsequent revisions

(3) - "Standard Methods for the Examination of Water and Wastewater", 20th Edition, (with subsequent revisions)

Table 3

Qualified Sample Results Due to Holding Time Exceedances
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
March 2016

Parameter	Holding Time	Holding Time Criteria	Sample ID	Qualified Sample Results	Units
pH	11 days	15 minutes	SW-18036-031716-001	8.08 J	S.U.
			SW-18036-031716-002	8.25 J	S.U.
			SW-18036-031716-003	8.25 J	S.U.
			SW-18036-031716-004	11.0 J	S.U.
			SW-18036-031716-005	8.94 J	S.U.
			SW-18036-031716-006	11.0 J	S.U.
			SW-18036-031716-009	8.34 J	S.U.
			SW-18036-031716-010	8.10 J	S.U.
			SW-18036-031716-011	7.84 J	S.U.
			SW-18036-031716-012	8.20 J	S.U.
			SW-18036-031716-013	7.91 J	S.U.

Notes:

J - Estimated concentration
S.U. - Standard Units

Table 4

Qualified Sample Results Due to Analyte Concentrations in the Method Blank
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
March 2016

Parameter	Analysis Date	Analyte	Blank Result (1)	Sample ID	Original Sample Result	Qualified Sample Result	Units
VOCs	03/23/2016	Methylene Chloride	1.5 J	SW-18036-031716-003	1.4 J	5.0 U	µg/L
			0.92 J	SW-18036-031716-004	1.0 J	3.0 U	µg/L
			1.5 J	SW-18036-031716-005	1.5 J	5.0 U	µg/L
			1.5 J	SW-18036-031716-009	1.7 J	5.0 U	µg/L

Notes:

J - Estimated concentration
U - Not detected at the associated reporting limit
VOCs - Volatile Organic Compounds
(1) - Blank results corrected for individual sample dilution factors

Table 5

Qualified Sample Results Due to Variability in Field Duplicate Results
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
March 2016

Parameter	Analyte	RPD	Sample ID	Qualified Result	Field Duplicate Sample ID	Qualified Result	Units
General Chemistry	TSS	118	SW-18036-031716-010	170 J	SW-18036-031716-011	660 J	mg/L

Notes:

RPD - Relative Percent Difference
J - Estimated concentration
TSS - Total Suspended Solids

Memorandum

To:	Leo Brausch [lbrausch@brauschenv.com], Jim Kay	Ref. No.:	018036
From:	Paul McMahon/mkd/7-NF	Date:	July 13, 2016
cc:	Kevin Lynch		

Re: Analytical Results and Reduced Validation
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site – Cheektowaga, New York
June 2016

1. Introduction

This document details a reduced validation of analytical results for surface water and groundwater samples collected at the Cheektowaga, New York Site on June 23, 2016. Samples were submitted to TestAmerica Laboratories, Inc. (TA), located in Pittsburgh, Pennsylvania. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2.

Standard GHD deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spikes (MS), and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", United States Environmental Protection Agency (USEPA) 540 R 10 011, January 2010

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540 R 08 01, June 2008

iii) "Groundwater and Surface Water Monitoring Program Quality Assurance Project Plan", September 2014

2. 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 analyzed

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within the required holding times except pH. pH is a field parameter, and the associated laboratory results were qualified as estimated (see Table 3).

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

3. Laboratory Method 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.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

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

4. Surrogate Spike Recoveries - Organic Analyses

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics 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 volatile organic compound (VOC) determinations were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries were acceptable, demonstrating good analytical efficiency.

5. Laboratory Control Sample 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, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

5.1 Organic Analyses

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

5.2 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.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the preparatory procedures, 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.

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

6.1 Organic Analyses

The MS/MSD samples were spiked with all compounds of interest. All percent recoveries and RPD values were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision.

6.2 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, demonstrating acceptable analytical accuracy and precision.

7. Duplicate Sample Analyses – Inorganic Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The laboratory performed additional site-specific duplicate analyses internally. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

8. Field QA/QC Samples

The field QA/QC consisted of two trip blank samples and two field duplicate sample sets.

8.1 Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, two trip blanks were submitted to the laboratory for VOC analysis. Most results were non-detect for the compounds of interest. Methylene chloride was detected in the surface water trip blank. Associated detected sample results with similar concentrations were qualified as non-detect (see Table 4).

8.2 Field Duplicate Sample Analysis

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

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

9. 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 reporting limit (RL) but greater than the MDL were qualified as estimated (J) unless qualified otherwise in this memorandum.

Due to matrix interferences, dilutions were required for the lead analysis for samples collected from locations MW-5, MW-28, and 2C. The reporting limit for lead was adjusted accordingly by the laboratory.

10. Conclusion

Based on the assessment detailed in the foregoing, the data are acceptable with the noted qualifications. These qualifications have been applied to the electronic files provided by the laboratory.

Table 1

Sample Collection and Analysis Summary
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
June 2016

Sample ID	Location ID	Collection Date (mm/dd/yy)	Collection Time (hr:min)	Analysis/Parameters: VOCs	Metals	pH/TSS	Comments
Surface Water							
SW-18036-062316-001	1B	06/23/2016	08:00	X	X	X	
SW-18036-062316-002	1C	06/23/2016	09:00	X	X	X	
SW-18036-062316-003	2A	06/23/2016	09:30	X	X	X	
SW-18036-062316-004	2B	06/23/2016	09:45	X	X	X	
SW-18036-062316-005	2C	06/23/2016	10:15	X	X	X	
SW-18036-062316-006	2C	06/23/2016	10:15	X	X	X	Duplicate of SW-18036-062316-05
SW-18036-062316-007	3A	06/23/2016	10:45	X	X	X	
SW-18036-062316-008	2D	06/23/2016	11:30	X	X	X	
SW-18036-062316-009	3C	06/23/2016	12:00	X	X	X	MS/MSD/DUP
SW-18036-062316-010	3B	06/23/2016	12:45	X	X	X	
SW-18036-062316-011	1A	06/23/2016	13:15	X	X	X	
TB-18036-062316-01	-	06/23/2016	-	X			Trip Blank
Groundwater							
WG-18036-062316-SG-001	MW-34D	06/23/2016	08:40	X	X		
WG-18036-062316-SG-002	MW-34	06/23/2016	08:40	X	X		
WG-18036-062316-SG-003	MW-30	06/23/2016	09:55	X	X		
WG-18036-062316-SG-004	MW-35	06/23/2016	09:35	X	X		MS/MSD
WG-18036-062316-SG-005	MW-33	06/23/2016	11:05	X	X		
WG-18036-062316-SG-006	MW-2	06/23/2016	11:00	X	X		
WG-18036-062316-SG-007	MW-32	06/23/2016	12:05	X	X		
WG-18036-062316-SG-008	MW-28	06/23/2016	11:55	X	X		
WG-18036-062316-SG-009	MW-32	06/23/2016	12:05	X	X		Duplicate of WG-18036-062316-SG-007
WG-18036-062316-SG-010	MW-31	06/23/2016	13:05	X	X		
WG-18036-062316-SG-011	MW-5	06/23/2016	13:55	X	X		
TB-18036-062316-SG	-	06/23/2016	-	X			Trip Blank

Notes:

- - Not applicable
DUP - Laboratory Duplicate
MS - Matrix Spike
MSD - Matrix Spike Duplicate
VOCs - Volatile Organic Compounds
TSS - Total Suspended Solids

Table 2

Sample Holding Time Criteria and Analytical Method Summary
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
June 2016

Parameter	Matrix	Analytical Method	Collection to Analysis
Total Metals	Water	200.7 (1)	180 Days
Volatile Organic Compounds	Water	624 (2)	14 Days
pH	Water	SM 4500 H+ B (3)	Immediate
Total Suspended Solids	Water	SM 2540D (3)	7 Days

Notes:

(1) - Referenced from "Methods for the Chemical Analysis of Water and Wastes", (MCAWW), USEPA-600/4-79-020, March 1983 and subsequent revisions

(2) - Referenced from "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", USEPA-600/4-82-057, July 1982 and subsequent revisions

(3) - "Standard Methods for the Examination of Water and Wastewater", 20th Edition, (with subsequent revisions)

Table 3

Qualified Sample Results Due to Holding Time Exceedances
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
June 2016

Parameter	Holding Time	Holding Time Criteria	Sample ID	Qualified Sample Results	Units
pH	4 days	15 minutes	SW-18036-062316-001	8.13 J	S.U.
			SW-18036-062316-002	8.06 J	S.U.
			SW-18036-062316-003	8.09 J	S.U.
			SW-18036-062316-004	11.2 J	S.U.
			SW-18036-062316-005	11.6 J	S.U.
			SW-18036-062316-006	11.6 J	S.U.
			SW-18036-062316-007	9.47 J	S.U.
			SW-18036-062316-008	8.13 J	S.U.
			SW-18036-062316-009	7.44 J	S.U.
			SW-18036-062316-010	7.72 J	S.U.
			SW-18036-062316-011	7.84 J	S.U.

Notes:

J - Estimated concentration
S.U. - Standard Units

Table 4

Qualified Sample Results Due to Analyte Concentrations in the Trip Blank
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
June 2016

Parameter	Blank Date	Analyte	Blank Result	Sample ID	Original Sample Result	Qualified Sample Result	Units
VOCs	06/23/2016	Methylene Chloride	0.43 J	SW-18036-062316-003	2.1 J	5.0 U	µg/L
				SW-18036-062316-004	1.3 J	3.0 U	µg/L
				SW-18036-062316-005	1.8 J	5.0 U	µg/L
				SW-18036-062316-009	3.0 J	5.0 U	µg/L
				SW-18036-062316-010	1.8 J	5.0 U	µg/L

Notes:

J - Estimated concentration
U - Not detected at the associated reporting limit
VOCs - Volatile Organic Compounds

Memorandum

October 11, 2016

To:	Leo Brausch [lbrausch@brauschenv.com], Jim Kay	Ref. No.:	018036
From:	Paul McMahon/adh/8	Tel:	716-205-1970
cc:	Kevin Lynch		

Subject: **Analytical Results and Reduced Validation**
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site - Cheektowaga, New York
September 2016

1. Introduction

This document details a reduced validation of analytical results for surface water and groundwater samples collected at the Cheektowaga, New York Site on September 20, 2016. Samples were submitted to TestAmerica Laboratories, Inc. (TA), located in Pittsburgh, Pennsylvania. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2.

Standard GHD deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spikes (MS), and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", United States Environmental Protection Agency (USEPA) 540 R 10 011, January 2010

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540 R 08 01, June 2008

iii) "Groundwater and Surface Water Monitoring Program Quality Assurance Project Plan", September 2014

2. 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 analyzed within the required holding times except pH. pH is a field parameter, and the associated laboratory results were qualified as estimated (see Table 3).

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

3. Laboratory Method 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.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

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

4. Surrogate Spike Recoveries - Organic Analyses

In accordance with the method employed, all samples, blanks, and QC samples analyzed for organics 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 volatile organic compound (VOC) determinations were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries were acceptable, demonstrating good analytical efficiency.

5. Laboratory Control Sample 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, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

5.1 Organic Analyses

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

5.2 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.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the preparatory procedures, 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.

MS/MSD analyses were performed as specified in Table 1. The laboratory performed additional site-specific MS/MSD analyses internally.

6.1 Organic Analyses

The MS/MSD samples were spiked with all compounds of interest. Most percent recoveries and RPD values were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision. One low methylene chloride MS recovery was reported. Based on the acceptable MSD recovery the result was accepted without qualification. One high methylene chloride RPD was reported; the associated sample result was non-detect and was not impacted by the indicated variability.

6.2 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, demonstrating acceptable analytical accuracy and precision.

7. Duplicate Sample Analyses – Inorganic Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The laboratory performed additional site-specific duplicate analyses internally. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

8. Field QA/QC Samples

The field QA/QC consisted of two trip blank samples and two field duplicate sample sets.

8.1 Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, two trip blanks were submitted to the laboratory for VOC analysis. Most results were non-detect for the compounds of interest. Methylene chloride was detected in the surface water trip blank. All associated sample results were non-detect and were not impacted.

8.2 Field Duplicate Sample Analysis

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

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

9. 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 RL but greater than the MDL were qualified as estimated (J) unless qualified otherwise in this memorandum.

Due to matrix interferences, dilutions were required for the lead analysis of samples collected from locations MW-2, MW-28, and MW-31. The reporting limit for lead was adjusted accordingly by the laboratory.

Due to matrix interferences, a dilution was required for the VOC analysis of the sample collected from location 3B. The reporting limits for VOCs were adjusted accordingly by the laboratory.

10. Conclusion

Based on the assessment detailed in the foregoing, the data are acceptable with the noted qualifications. These qualifications have been applied to the electronic files provided by the laboratory.

Table 1

Sample Collection and Analysis Summary
Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
September 2016

Sample ID	Location ID	Collection Date (mm/dd/yy)	Collection Time (hr:min)	Analysis/Parameters: VOCs	Metals	pH/TSS	Comments
Surface Water							
SW-18036-092016-001	1B	9/20/2016	8:30	X	X	X	
SW-18036-092016-002	1C	9/20/2016	9:05	X	X	X	
SW-18036-092016-003	2D	9/20/2016	9:45	X	X	X	
SW-18036-092016-004	2A	9/20/2016	10:15	X	X	X	
SW-18036-092016-005	2B	9/20/2016	10:30	X	X	X	
SW-18036-092016-006	2B	9/20/2016	10:30	X	X	X	Duplicate of SW-18036-092016-005
SW-18036-092016-007	2C	9/20/2016	11:15	X	X	X	
SW-18036-092016-008	3A	9/20/2016	11:45	X	X	X	
SW-18036-092016-009	3C	9/20/2016	12:30	X	X	X	
SW-18036-092016-010	3B	9/20/2016	12:45	X	X	X	MS/MSD/DUP
SW-18036-092016-011	1A	9/20/2016	13:30	X	X	X	
18036-092016-Trip Blank 01	-	9/20/2016	-	X			Trip Blank
Groundwater							
WG-18036-092016-SG-001	MW-34D	9/20/2016	9:10	X	X		
WG-18036-092016-SG-002	MW-34	9/20/2016	9:05	X	X		
WG-18036-092016-SG-003	MW-30	9/20/2016	10:30	X	X		
WG-18036-092016-SG-004	MW-35	9/20/2016	10:00	X	X		
WG-18036-092016-SG-005	MW-33	9/20/2016	11:15	X	X		
WG-18036-092016-SG-006	MW-35	9/20/2016	10:00	X	X		Duplicate of WG-18036-092016-SG-004
WG-18036-092016-SG-007	MW-32	9/20/2016	12:20	X	X		MS/MSD
WG-18036-092016-SG-008	MW-2	9/20/2016	11:35	X	X		
WG-18036-092016-SG-009	MW-5	9/20/2016	13:50	X	X		
WG-18036-092016-SG-010	MW-28	9/20/2016	13:25	X	X		
WG-18036-092016-SG-011	MW-31	9/20/2016	15:00	X	X		
TB-18036-092016-SG	-	9/20/2016	-	X			Trip Blank

Notes:
- - Not applicable
DUP - Laboratory Duplicate
MS - Matrix Spike
MSD - Matrix Spike Duplicate
VOCs - Volatile Organic Compounds
TSS - Total Suspended Solids

Table 2

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Cheektowaga, New York
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Total Metals	Water	200.7 (1)	180 Days
Volatile Organic Compounds	Water	624 (2)	14 Days
pH	Water	SM 4500 H+ B (3)	Immediate
Total Suspended Solids	Water	SM 2540D (3)	7 Days

Notes:

(1) - Referenced from "Methods for the Chemical Analysis of Water and Wastes", (MCAWW), USEPA-600/4-79-020, March 1983 and subsequent revisions

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Table 3

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Groundwater and Surface Water Monitoring Program
CBS Corporation Airport Site
Cheektowaga, New York
September 2016

Parameter	Holding Time	Holding Time Criteria	Sample ID	Qualified Sample Results	Units
pH	2 days	15 minutes	SW-18036-092016-001	8.2 J	S.U.
			SW-18036-092016-002	8.2 J	S.U.
			SW-18036-092016-003	8.0 J	S.U.
			SW-18036-092016-004	8.1 J	S.U.
			SW-18036-092016-005	11.5 J	S.U.
			SW-18036-092016-006	11.5 J	S.U.
			SW-18036-092016-007	11.3 J	S.U.
			SW-18036-092016-008	9.1 J	S.U.
			SW-18036-092016-009	7.9 J	S.U.
			SW-18036-092016-010	7.8 J	S.U.
			SW-18036-092016-011	7.6 J	S.U.

Notes:

J - Estimated concentration
S.U. - Standard Units