D	Environmenta Planning 8	/	1983 Marcus Ave., Lake Success, New	1983 Marcus Ave., Suite 109 Lake Success, New York 11042			LETTER OF TRANSMITTAL			
	Management, Inc.		5. (516) 328-1194 Fax (516) 328-13	(516) 328-1194 Fax (516) 328-13 $\bigcirc$ ECEIVE OCT <b>1 9</b> 2006		ate: 10/18/06 ttention: e: Katon	Job No. 26001 Mr. Carl Hoffman			
10.	NYSDEC 625 Broadway Albany, NY 122	233-7013	R	EMEDIAL BUI	REAU D		Monitoring			
WE ARE	SENDING YOU:	Drawings of Letter	Included	Under separate co	ver via	Qualifications	the following items:			
	DATE 10/18/06	NO.	Katonah Quarterly Water N	Nonitoring Report -	1st Quarter					
THESE A	RE TRANSMITT For Approval For your use As requested For review & cor S	ED AS INE	DICATED BELOW:	ved as submitted ved as noted led for corrections		Resubmit	Copies for Approval Copies for distribution Corrected Prints			
If there	e are any questio	ns, please	call me.							
COPY TO	File				SIGNED	Indal				



James Hahn James J. Hahn Engineering Putnam Business Park 1689 Route 22 Brewster, NY 10509

October 2, 2006

Dear Mr. Hahn:

Enclosed please find the quarterly monitoring report for the end of the 2<sup>nd</sup> quarter of 2006 for the Katonah Municipal Well, Town of Bedford, Westchester County, New York (NYSDEC Site ID # 3-60-007).

Please call me with any questions.

Sincerely,

Francesco Portelos

Project Engineer

cc: Kenneth Caffrey, PE, NYSDOH Carl Hoffman, NYSDEC William Nixon, Town of Bedford Paul Kutzy, Westchester County DOH Damian Duda, USEPA Region 2

# GROUNDWATER QUALITY MONITORING QUARTERLY REPORT JUNE 2006 KATONAH MUNICIPAL WELL TOWN OF BEDFORD WESTCHESTER, NEW YORK NYSDEC Site ID # 3-60-007

**PREPARED FOR:** 

James J. Hahn Engineering Millbrook Office Center Route 22 & Milltown Road Brewster, New York 10509

# **PREPARED BY:**

Environmental Planning & Management, Inc. 1983 Marcus Avenue, Suite 109 Lake Success, New York 11042

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## 1.0 INTRODUCTION

This quarterly groundwater sampling and analysis report has been prepared for the Katonah Municipal Well Site in Katonah, Town of Bedford, New York. This submittal is in accordance with the groundwater monitoring requirements of the New York State Department of Health (NYSDOH) and the U.S. Environmental Protection Agency (USEPA). This report includes the data collection and analysis results of the remedial system operation, for the end of the 2<sup>nd</sup> quarter of 2006. Sampling of the remedial system was conducted on June 29<sup>th</sup>, 2006.

## 2.0 SAMPLE COLLECTION

Environmental Planning & Management, Inc., collected samples on June 29<sup>th</sup>, 2006. Three sample sets were collected from sampling taps; the raw water sampling tap (RW), the stripper number two effluent sampling tap (STEFF), and the distribution sampling tap (DIST). One field duplicate sample (DUP) of was collected on June 29<sup>th</sup>, 2006 of the RW sampling tap. Sample locations are shown on Figure 1 - Sampling Tap Location Schematic. Sampling was conducted in accordance with the approved Project Operation Plan.

Samples were labeled at the field location and placed into transport coolers containing ice. A trip blank and chain-of-custody documentation accompanied the samples to the laboratory for analysis. The samples were analyzed by Chemtech , in accordance with CLP methods, for volatile organics (Principal Organic Contaminants), by method 524.2, revision number 3.

# 3.0 FINDINGS

Table 1 provides a summary of the analytical results for the quarterly water quality monitoring, as well as the applicable NYSDOH Drinking Water Standards and the U.S. EPA clean-up requirement for Tetrachloroethene. As indicated by the laboratory analysis, the treatment system effluent meets the NYSDOH drinking water standards and the USEPA clean-up level of less than one part per billion (ppb) (or non-detectable) for Tetrachloroethene and meets the levels of less than 100 parts per billion for Trihalomethanes.

Tetrachloroethene was detected in the raw water (untreated) sample, RW, at a concentration of 20ug/l (ppb), exceeding the NYSDOH drinking water standard for that compound.

No VOC's were detected in the treated (stripper number 2) water sample, STEFF.

Two VOC's, Dibromochloromethane and Bromodichloromethane were found in the distribution water sample, DIST, at concentrations of 3.4ppb and 1.7ppb respectively. These values are well below the NYSDOH drinking water standards.

No VOC's were detected in the trip blank water sample, TB.

Analytical results found in DUP, a duplicate sample of the Raw Water sample, RW, are similar.

Refer to Table 1 for a summary of the groundwater analysis results for volatile organic compounds (VOC's). Table 1 reflects the detectable concentration values which have been qualified as a result of data validation. Refer to Appendix A for the data validation report which details the changes in the detectable concentration values discussed above.

The PCE concentration in the Influent (raw water) has decreased over the last sampling event (see Figure 2). To date, the PCE level in the raw water samples is not of significant concern, since the treated water and distribution water samples continue to exhibit non-detectable or insignificant concentrations of PCE. However, changes in PCE levels will continue to be closely monitored.



# Table 1 - SUMMARY OF QUARTERLY ANALYTICAL RESULTS KATONAH MUNICIPAL WELL October 2005

Date Collected	6/29/2006							
Sample Location	Raw Water (Influent)	RW DUP	STEFF (Treated Water)	DIST (Distribution Water)	TB (Trip Blank)	NYSDOH USEPA Standard		
Volatile Organic Compounds (ppb)								
Tetrachloroethene	20J	20	0.16U	0.16U	0.16U	5/1*		
Trichloroethene	0.5J	0.6J	0.15U	0.15U	0.15U	5		
cis-1,2-Dichloroethene	0.7J	0.7J	0.12U	0.12U	0.12U	5		
Methylene Chloride	0.3J	0.3J	0.3J	0.3J	0.3UJ	5		
Dibromochloromethane	0.17U	0.17U	0.17U	3.4	0.17U	50		
Bromodichloromethane	0.17U	0.17U	0.17U	1.7	0.17U	50		

\* 1 ppb is the USEPA cleanup standard for the site

1 - Determined undetect following data validation

Level exceeds the USEPA/NYSDOH standard

U Denotes detection limit/not detected

J Denotes an estimated value

N Presumptive evidence of a compound

R Determined unusable following data validation

NS No standard

B Denotes Detection in the Field Blank as well.



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# 4.0 FUTURE ACTIONS

Water quality monitoring will continue to be conducted quarterly at the treatment system influent, stripper number 2 effluent, and distribution entry point. Groundwater monitoring well samples will be collected bi-annually.

The next sampling event, the end of the third quarterly event for year fifteen, is tentatively scheduled for the end of September 2006.

# APPENDIX A

Katonah Municipal Well Site Data Validation Groundwater Quality Monitoring Quarterly Report – June 2006

Samples Collected by Environmental Planning & Management, Inc. Samples Analyzed by Chemtech

Data Validation Performed by:

Andrea Schuessler Environmental Chemist

# DATA VALIDATION REPORT #1

## VOLATILE ORGANIC ANALYSES

## WATER SAMPLES

Katonah Water Sampling 2nd Quarter 2006 Project

Lab Project No. X3544

Sampling Date of June 29, 2006

#### PREPARED FOR:

Environmental Planning & Management, Inc. 1983 Marcus Avenue Suite 109 Lake Success, New York 11042

September 2006

#### PREPARED BY:

ChemWorld Environmental, Inc. 14 Orchard Way North Rockville, Maryland 20854

(301) 294 - 6144

ChemWorld Environmental, Inc. (EP-2006.1)

Katonah Water Sampling 2<sup>nd</sup> Quarter 2006 Project Data Validation Report #1: Volatile Organic Analyses

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#### DATA VALIDATION SUMMARY #1: VOLATILE ORGANIC ANALYSES WATER SAMPLES

## Katonah Water Sampling 2<sup>nd</sup> Quarter 2006 Project

#### Lab Project No. X3544

#### Sampling Dates of June 29, 2006

#### INTRODUCTION

This Data Validation Summary Report for organic analyses was generated for 4 water samples, 1 Trip Blank and the associated quality control samples for Lab Project No. X3544. Sampling activities were conducted in support of the field investigation for the Katonah Water Sampling 2<sup>nd</sup> Quarter 2006 Project. The analytical laboratory work was performed by CHEMTECH Laboratories, Mountainside, NJ.

Analytical testing was performed for Volatile organic compounds using United States Environmental Protection Agency (USEPA) Method 524.2 by Gas Chromatography / Mass Spectrometry (GC/MS). This report provides a summary of data acceptability and deviations in accordance with the USEPA **Region II Standard Operating Procedure for the Validation of Organic Data Acquired Using Method 524.2 (October 2001)**; and the appropriate method from the New York State Department of Environmental Conservation (NYSDEC) Analytical Service Protocols (ASP), where applicable and relevant.

#### 1.0 VOLATILE ORGANICS BY GC/MS

The following items/criteria were reviewed, as method appropriate:

- Completeness of Data Package
- Chain-of-Custody Forms
- Holding Times from Verified Time of Sample Receipt (VTSR)
- Surrogate Recovery
- Matrix Spike / Matrix Spike Duplicates (MS/MSD)
- Laboratory Control Sample (LCS)
- Calibration (Initial and Continuing)
- Blanks (Method and Field)
- GC/MS Instrument Performance Check
- Internal Standards
- Field Duplicates (Table 1)
- Compound Identification and Quantitation

All items above were generated within acceptable Quality Control (QC) specifications with deviations detailed as follows. All data reviewed is considered to be valid and usable with the appropriate qualifiers, as noted on the data summary forms in Appendix A and within the following text.

#### 1.1 Holding Times

All holding times were met within the acceptable time frame of 10 days from Verified Time of Sample Receipt (VTSR) for the preserved water samples.

#### 1.2 Surrogate Recovery

All surrogate recovery was found to be generated within the acceptable limits for 4-Bromofluorobenzene and 1,2-Dichlorobenzene-d4.

#### 1.3 MS/MSD and LCS

One MS/MSD sample set using project sample RW and one LCS were analyzed for Lab Project No. X3544. Acceptable accuracy (percent recovery) and precision (relative percent difference (RPD)) were generated for the QC samples, with the following exceptions.

Acetone generated low recovery at 48% and 44% for the MS/MSD (Limit 65-147), with Tetrachloroethene generating a high RPD at 40% (Limit 20%). In addition, Acetone generated low recovery for the LCS at 60% (Limit 70-130). The project samples were qualified as 'UJ', estimated, for the non-detectable results for Acetone. Positive results for this compound were not detected in the project samples. Sample RW was qualified as 'J', estimated, for the positive result for Tetrachloroethene, due to poor precision for the MS/MSD sample set.

#### 1.4 Calibration

All initial and continuing calibrations were performed within acceptable limits for the GC/MS analyses, with the exceptions as noted below. Review items included average Relative Response Factors (avgRRF), limit of  $\geq 0.05$ ; Percent Relative Standard Deviation (% RSD), limit of 20%; Relative Response Factors (RRF), limit of  $\geq 0.05$ ; and Percent Difference (% D), limit of 30%.

Initial Calibration, 6/14/2006:

Eight Volatile compounds generated avgRRF's at or above 0.01 but below 0.05. The compounds included: tert-butyl alcohol, Acrylonitrile, Acetone, 2-Butanone, t-1,4-Dichloro-2-butene, Propionitrile, Tetrahydrofuran and 1,2-Dibromo-3-chloropropane. The project samples were qualified as 'UJ', estimated, for the non-detectable results for the compounds noted. Positive results were not detected for the affected compounds. In addition, lodomethane generated an RSD of 39.8%. Positive results were not detected for this compound, therefore, qualification was not required.

Continuing Calibration, 7/10/2006 at 12:46:

The same compounds noted above generated RRF's at > 0.01 but < 0.05 for the associated continuing calibration. Additional qualification of the data set was not required.

#### 1.5 Blanks

#### 1.5.1 Field Blanks

One Trip Blank was collected on 6/29/06 and analyzed for volatiles by Method 524.2. Methylene Chloride was detected in the Trip Blank at 0.3 ug/L. A limit of ten times this result was used for review and qualification of the associated water samples. The Methylene Chloride sample results found to be less than the respective field blank limit and reported at less than the Contract Required Quantitation Limit (CRQL) and were qualified as 'U', not detected, at the CRQL.

#### 1.5.2 Method Blanks

One method blank was analyzed by Method 524.2 for Volatile organics for the water samples. Acetone was detected in the Method Blank at 3.9 ug/L. A limit of ten times this result was used for review and qualification of the associated water samples. The Trip Blank sample, only, was qualified as 'U', not

detected for Acetone, due to the compound's presence at less than 10 times the method blank result and being reported over the CRQL. Acetone was not detected in the remaining project samples.

#### 1.6 GC/MS Instrument Performance Check

Instrument performance was generated within acceptable limits and frequency for Bromofluorobenzene (BFB).

#### 1.7 Internal Standards

The internal standard Fluorobenzene generated acceptable area counts and retention time variation for all of the project samples.

#### 1.8 Field Duplicates

Samples RW and DUP were collected as the field duplicate water samples and analyzed for Volatiles. Acceptable precision (Relative Percent Difference) was generated for all of the volatiles for the duplicate pair. A limit of 20% was used to evaluate RPD. However, it should be noted that 1,1,2-Trichloroethane generated a slightly high RPD at 28.6%. The calculated RPD for the duplicate pair ranged from 0% to 28.6%. Table 1 attached includes the calculated RPD's for the duplicates.

#### 1.9 Compound Identification

GC/MS qualitative analyses are considered to be acceptable for the data set. Retention times and mass spectra were generated within appropriate quality control specifications.

#### 1.10 Compound Quantitation and Reported Detection Limits

GC/MS quantitative analyses are considered to be acceptable. Sample dilutions, internal standards, and response factors were found to be within acceptable limits.

APPENDIX B LABORATORY ANALYSIS SUMMARY REPORT

# CHEMITECH

284 Sheffield Street, Mountainside, NJ 07092 (908) 789-8900 Fax: (908) 789-8922 www.chemtech.net

Sample ID Lab Sample Number Sampling Date Matrix	RW X3544-01 06/29/06 WATER	X3544-03 06/29/06 WATER	DIST X3544-04 06/29/06 WATER	STEFF X3544-05 06/29/06 WATER	X3544- 06/29/ WATI
Dilution Factor	1.0	1.0	1.0	1.0	
Onas	ug/L	սցու	ug/L	uy/L	υį
COMPOUND	AS #				
Dichlorodifluoromethane 75	-71-8 0.06	U 0.06 U	0.06 U	0.06 U	0
Chloromethane 74	-87-3 0.07	U 0.07 U	0.07 U	0.07 U	0
Vinyl Chloride 75	-01-4 0.07	U 0.07 U	0.07 U	0.07 U	0
Bromomethane 74	-83-9 0.23	U 0.23 U	0.23 U	0.23 U	0
Chloroethane 75	-00-3 0.17	U 0.17 U	0.17 U	0.17 U	0
Trichlorofluoromethane 75	-69-4 0.09	U 0.09 U	0.09 U	0.09 U	C
tert-Butyl Alcohol 75	-65-0 2.9	U 2.9 U	2.9 U	2.9 0	0
Dietnyi Etner 60	-29-7 0.16	0 0.16 0	0.16 U	0.16 0	0
1,1-Dicnioroetnene 75	-35-4 0.14	U 0.14 U	0.14 0	0.14 0	0
	-88-4 0.08	0 0.06 0	0.06 U	0.08 0	0
Any Chioride	7 12 1 0.15	0 0.150	0.15 0	0.15 0	0
Acetopa 67	64.1 1.1	U 0.40 U	111	1 1 1	0
Carbon Disulfide	-15-0 0.14		0.14.U	0.14.0	0
Methyl tert-Ruhyl Ether	34-04-4 0.15	U 0.14 U	0.14 0	0.14 0	0
Methyl acrylate 79	-20-9 0.16	U 0.16 U	0.16 U	0.16 U	0
Methylene Chloride 75	-09-2 0.3	J 0.3 J	0.3 J	0.3 J	0
trans-1.2-Dichloroethene	6-60-5 0 14	U 0.14 U	0.14 U	0.14 U	0
1 1-Dichloroethane	-34-3 0.16	U 0.16 U	0.16 U	0.16 U	0
2-Butanons 78	-93-3 0.99	U 0.99 U	0.99 U	0.99 U	0
Carbon Tetrachloride 56	-23-5 0.15	U 0.15 U	0.15 U	0.15 U	0
2.2-Dichloropropane 59	4-20-7 0.19	U 0.19 U	0.19 U	0.19 U	0
cis-1,2-Dichloroethene 15	6-59-2 0.7	J 0.7 J	0.12 U	0.12 U	0
Chloroform 67	-66-3 0.16	U 0.16 U	0.6 J	0.16 U	0
1,1,1-Trichloroethane 71	-55-6 0.14	U 0.14 U	0.14 U	0.14 U	0
t-1,4-Dichloro-2-butene 11	0-57-6 0.45	U 0.45 U	0.45 U	0.45 U	0
1,1-Dichloropropene 56	3-58-6 0.16	U 0.16 U	0.16 U	0.16 U	0
Isopropyl Ether	8-20-3 0.18	U 0.18 U	0.18 U	0.18 Ų	0
Propionitrile 10	7-12-0 1.7	U 1.7 U	1.7 U	1.7 U	
Benzene 71-	-43-2 0.14	U 0.14 U	0.14 U	0.14 U	0
1,2-Dichioroethane 10	7-06-2 0.21	U 0.21 U	0.21 U	0.21 U	0
Trichloroethene 79-	-01-6 0.5	J 0.6 J	0.15 U	0.15 U	0
1,2-Dichloropropane 78-	-87-5 0.14	U 0.14 U	0.14 U	0.14 U	0
Methacrylonitrile 120	6-98-7 0.62	U 0.62 U	0.62 U	0.62 U	0
Tetrahydrofuran 109	9-99-9 0.45	U 0.45 U	0.45 U	0.45 U	0
1-Chlorobutane 10	9-69-3 0.17	U 0.17 U	0.17 U	0.17 U	0
Dibromomethane 74-	-95-3 0.19	U 0.19 U	0.19 U	0.19 U	0
Bromodichloromethane 75	-27-4 0.17	U 0.17 U	1.7	0.17 U	0
4-methyl-2-Pentanone 100	8-10-1 0.90	U 0.90 U	0.90 U	0.90 U	0
Metnyi methacrylate 80	-oz-o 0.32	0.32 U	0.32 U	0.32 U	0
	-03-2 U.16	U.16 U	0.16 U	U.16 U	0
	0-00-3 0.13		0.13 0	0.13 U	0
cis-1 3-Dichioropropene	061-02-0 0.14		0.14 U	0.14 U	0 0
1.1.2-Trichloroethane	-00-5 0.13	J 03 -	0.18 U	0.18 U	0 0
1.3-Dichloropropane	2-28-9 0.14	U 0.14 U	0.14 U	0.14 U	n
2-Hexanone 59	1-78-6 0.81	U 0.81 U	0.81 U	0.81 U	0
Dibromochloromethane 124	4-48-1 0.17	U 0.17 U	3.4	0.17 U	0
1,2-Dibromoethane	6-93-4 0.17	U 0.17 U	0.17 U	0.17 U	0
Tetrachloroethene 12	7-18-4 20	20	0.16 U	0.16 U	0
Chlorobenzene 108	8-90-7 0.13	U 0.13 U	0.13 U	0.13 Ū	0
1,1,1,2-Tetrachloroethane 630	0-20-6 0.17	U 0.17 U	0.17 U	0.17 U	0
Hexachloroethane 67-	-72-1 0.17	U 0.17 U	0.17 U	0.17 U	0
Ethyl Benzene 100	0-41-4 0.14	J 0.14 U	0.14 U	0.14 U	0
m/p-Xylenes 126	6777-61-2 0.29	J 0.29 U	0.29 U	0.29 U	0
o-Xylene 95-	-47-6 0.15	U 0.15 U	0.15 U	0.15 U	0
Styrene 100	0-42-5 0.14	U 0.14 U	0.14 U	0.14 U	0.
Bromoform 75-	25-2 0.17	J 0 17 U	22	0.17 U	0

Bromobenzene	108-86-1	0.14 U				
Isopropylbenzene	98-82-8	0.14 U				
1,1,2,2-Tetrachioroethane	79-34-5	0.18 U				
1,2,3-Trichloropropane	96-18-4	0.20 U				
n-propylbenzene	103-65-1	0.14 U				
2-Chlorotoluene	95-49-8	0.11 U				
1,3,5-Trimethylbenzene	108-67-8	0.15 U				
4-Chlorotoluene	106-43-4	0.15 U				
tert-Butylbenzene	98-06-6	0.15 U				
1,2,4-Trimethylbenzene	95-63-6	0.15 U				
sec-Butylbenzene	135-98-8	0.14 U				
p-isopropyitoluene	99-87-6	0.14 U				
1,3-Dichlorobenzene	541-73-1	0.15 U				
1,4-Dichlorobenzene	106-46-7	0.17 U				
n-Butylbenzene	104-51-8	0.12 U				
1,2-Dichlorobenzene	95-50-1	0.16 U				
1,2-Dibromo-3-Chloropropane	96-12-8	0.19 U				
1,2,4-Trichlorobenzene	120-82-1	0.11 U				
Hexachlorobutadiene	87-68-3	0.13 U				
Naphthalene	91-20-3	0.14 U				
1,2,3-Trichlorobenzene	87-61-6	0.16 U				
Total Confident Conc. VOC		21.9	21.9	8.2	0.3	13.3
Total TICs		0	0	0	0	0

Qualifiers

U - The compound was not detected at the indicated concentration.

J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.

B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.

P - For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.

\* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.

NR - Not analyzed