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October 21, 2008

Mr. Todd Richardson (3HS32)
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Subject: Final Trip Report for Jay-Cee Cleaners Site July 2008 Sampling Event
EPA Contract No. EP-S3-05-02
Technical Direction Document No. E33-020-08-07-024
Document Tracking No. 0554

Dear Mr. Richardson:

Tetra Tech EM Inc. (Tetra Tech) is submitting the final trip report for the Jay-Cee Cleaners site summarizing residential well sampling activities conducted at the site in July 2008. If you have any questions regarding this report, please contact me by phone at (215) 651-4022 or via electronic mail at jordan.vaughn@ttemi.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. Vaughn'.

Jordan Vaughn
Project Manager

Enclosure(s)
cc: TDD File

**FINAL TRIP REPORT
FOR THE
JAY-CEE CLEANERS SITE
JULY 2008 SAMPLING EVENT
NELSONIA, ACCOMACK COUNTY, VIRGINIA**

Prepared for

U.S. Environmental Protection Agency Region 3
1650 Arch Street
Philadelphia, Pennsylvania 19103

Submitted by

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EPA Contract No. EP-S3-05-02

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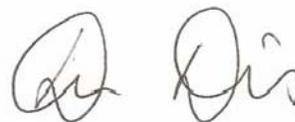
October 21, 2008

Prepared by



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Approved by



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START Point of Contact

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1.0 INTRODUCTION

Under Eastern Area Superfund Technical Assessment and Response Team (START) Contract No. EP-S3-05-02, Technical Direction Document (TDD) No. E33-020-08-07-024, U.S. Environmental Protection Agency (EPA) Region 3 tasked Tetra Tech EM Inc., (Tetra Tech) to assist with assessment activities at the Jay-Cee Cleaners site (site) in the Nelsonia, Accomack County, Virginia. The purpose of the investigation is to determine if residential wells near the site have been impacted by contamination of hazardous substances.

This trip report provides site background information in Section 2.0, describes geology and hydrogeology in Section 3.0, describes site activities in Section 4.0, summarizes analytical results in Section 5.0, and provides conclusions and recommendations in Section 6.0. References are provided in Section 7.0.

2.0 BACKGROUND

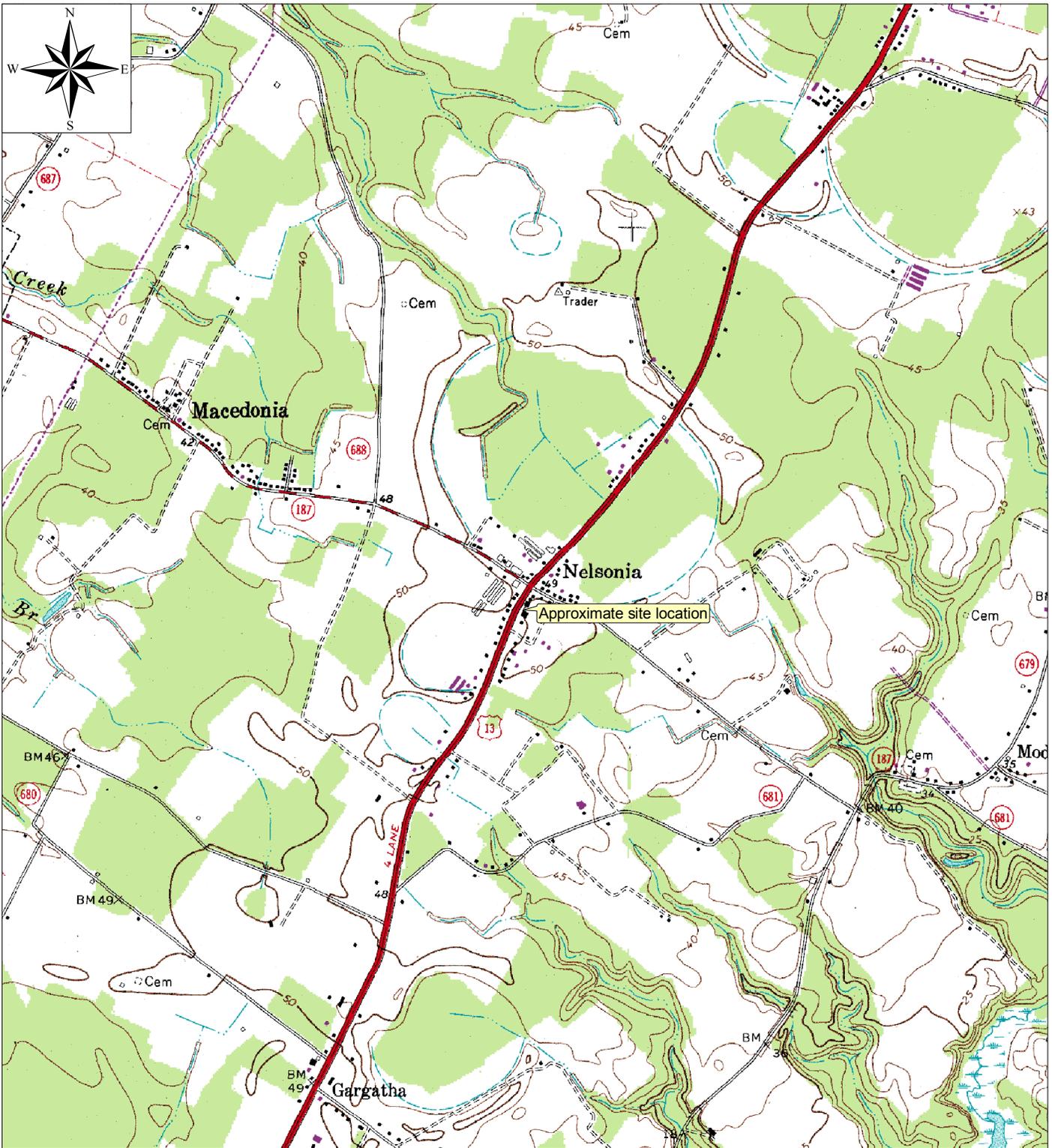
This section provides background information on the site, including its location, description, and history of site activities and investigations.

2.1 SITE LOCATION

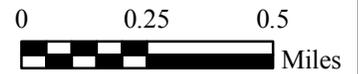
The site is located at 16163 Lankford Highway, approximately 300 feet south of the intersection of Lankford Highway (US Route 13) and Nelsonia Road (State Road 187), in Nelsonia, Accomack County, Virginia. The geographic coordinates of the approximate center of the site are latitude 37.8186 north and longitude 75.5883 west (U.S. Geological Survey [USGS] 1965, photorevised 1986). The Site Location Map is provided as Figure 1.

2.2 SITE DESCRIPTION

The site is an approximately 1.1-acre parcel of land with an approximately 3,000-square-foot, single-story structure located at the center of the property (ECS Mid-Atlantic, LLC [ECS] 2007). A dry cleaner operated on the property from approximately 1957 to 2003 (ECS 2007). Currently, a retail store operates on the site in the single-story structure. The site is located



Source: Modified from USGS 7.5-Minute Series Topographic Quadrangle; Bloxom, Virginia



Quadrangle Location = ■



Jay-Cee Cleaners Site
Nelsonia, Accomack County, Virginia

Figure 1
Site Location Map

TDD No. E33-020-08-07-024
EPA Contract No. EP-S3-05-02

Map created on November 19, 2007
by D. Call, Tetra Tech EM Inc.



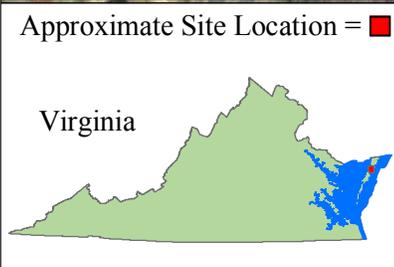
approximately 50 feet above mean sea level and slopes gently towards the southwest (USGS 1965, photorevised 1986).

The site is located in a mixed commercial and residential area. Nearby commercial properties include the Royal Farm convenience store and gas station, located immediately northeast of the site, and Complete Auto vehicle maintenance and repair shop, located immediately south of the site. Nearby residential properties are located along Lankford Highway, Nelsonia Road, and Leigh Street. The surrounding area includes additional residential properties, agricultural land, and woodland. Figure 2, Site Layout Map, shows the location of Jay-Cee Cleaners, local streets, and nearby commercial properties (Accomack County 2002).

2.3 PREVIOUS SITE INVESTIGATIONS

In April 2007, a Phase II Environmental Site Assessment (ESA) was completed by ECS for the Jay-Cee Cleaners property. During the ESA, 11 soil borings were completed to maximum depths ranging from 4.0 and 8.0 feet below ground surface (bgs) at various locations of concern throughout the property. Soil samples were collected from three of the borings and analyzed for volatile organic compounds (VOC); groundwater samples were collected from two of the borings and also analyzed for VOCs. Soil and groundwater samples were not collected from the remaining borings. Soil sample analytical results showed elevated concentrations of tetrachloroethene (PCE) and several PCE-related compounds, including trichloroethene (TCE) and *cis*-1,2-dichloroethene (*cis*-1,2-DCE). The maximum concentrations of PCE, TCE, and *cis*-1,2-DCE in the soil were 9,200 milligrams per kilogram (mg/kg), 100 mg/kg, and 36 mg/kg, respectively. Both groundwater sample results also showed elevated concentrations of PCE, TCE, and *cis*-1,2-DCE. The maximum concentrations of PCE, TCE, and *cis*-1,2-DCE in groundwater were 100,000 micrograms per liter ($\mu\text{g/L}$), 6,300 $\mu\text{g/L}$, and 52,000 $\mu\text{g/L}$, respectively.

Following completion and review of the ESA, the Virginia Department of Environmental Quality (VDEQ) was notified of the elevated VOC concentrations. VDEQ, in turn, notified EPA of the elevated concentrations. In September 2007, EPA tasked Tetra Tech with collecting



Jay-Cee Cleaners Site
Nelsonia, Accomack County, Virginia

Figure 2
Site Layout Map

TDD No. E33-020-08-07-024
EPA Contract No. EP-S3-05-02

Map created on November 19, 2007
by D. Call, Tetra Tech EM Inc.



residential well samples from nearby residences for VOC analysis. In October 2007, Tetra Tech collected residential well samples from seven residential properties located near the site. All samples were analyzed for VOCs. Analytical results indicated trace amounts of PCE and/or TCE in two of the residential wells. The maximum concentrations of PCE and TCE detected in the residential wells were 0.6 µg/L and 0.06 µg/L, respectively. In April 2008, Tetra Tech collected additional groundwater samples from six of the seven properties sampled in 2007. The samples were analyzed for VOCs. PCE, TCE and *cis*-1,2-DCE were not detected in residential wells during the April 2008 sampling event. Also in April 2008, Tetra Tech collected 11 soil and 11 shallow groundwater samples from beneath the site. All samples were analyzed for VOCs. Analytical results indicated that soil samples collected from monitoring points beneath the site contained VOCs, including PCE, TCE, and *cis*-1,2-DCE. The maximum concentrations of PCE, TCE, and *cis*-1,2-DCE detected in soil were 130,000 micrograms per kilogram (µg/kg), 50,000 µg/kg, and 5,100 µg/kg, respectively. Analytical results indicated that shallow groundwater samples collected from monitoring points beneath the site contained VOCs, including PC, TCE, and *cis*-1,2-DCE. The maximum concentrations of PCE, TCE, and *cis*-1,2-DCE detected in shallow groundwater were 94,000 µg/L, 6,400 µg/L, and 5,000 µg/L, respectively.

3.0 SITE GEOLOGY AND HYDROGEOLOGY

This section discusses the local geology and hydrogeology at the site.

3.1 GEOLOGY

The site is located in the Coastal Plain physiographic province of Virginia (Bailey 1999). The Virginia Coastal Plain consists of a wedge of generally unconsolidated Jurassic and younger sediments increasing in thickness from nearly 0 feet in the east where the Coastal Plain bounds the Piedmont physiographic province to more than 6,000 feet beneath the northeastern part of the Eastern Shore Peninsula (Meng and Harsh 1988). The sediments consist of Jurassic and Cretaceous clay, sand, and gravel overlain by a thin sequence of Tertiary marine sands overlain by Quaternary sand, mud, and gravel (Bailey 1999). In Virginia, the Coastal Plain is dissected

by the Chesapeake Bay, which was created approximately 5000 to 6000 years ago when the lower course of the Susquehanna River was flooded by rising sea level (Hobbs 2004).

The site is directly underlain by Quaternary Columbia Group sediments (Cedarstrom 1957). The sediments can generally be characterized as unconsolidated fining-upwards depositional sequences of gravels, sands, and silts and clays (Meng and Harsh 1988). The sediments were deposited in fluvial-deltaic and estuarine settings similar to those that exist in the modern Chesapeake Bay and its tidal tributaries (Meng and Harsh 1988, Bailey 1999).

3.2 HYDROGEOLOGY

Sediments of the Coastal Plain physiographic province are classified into a series of 19 hydrogeologic units designated as aquifers or confining zones (Meng and Harsh 1988, McFarland and Bruce 2006). The uppermost aquifer is the unconfined surficial aquifer (also called the Columbia aquifer), which is composed of unconsolidated interbedded gravels, sands, and silts and clays (Meng and Harsh 1988, McFarland and Bruce 2006). The surficial aquifer is moderately to widely utilized for private domestic wells (McFarland and Bruce 2006). The aquifer is principally recharged by precipitation infiltration. Due to the stratified nature of the sediments, horizontal hydraulic conductivity is generally greater than vertical hydraulic conductivity, and most of the unconfined groundwater flows relatively short distances before discharging to nearby streams and water bodies (McFarland and Bruce 2006). A small amount, however, reaches deeper, confined aquifers. In the area of Jay-Cee Cleaners, the surficial aquifer is underlain by the Yorktown confining zone (Meng and Harsh 1988, McFarland and Bruce 2006). It consists of finer grained sediments and is generally tens of feet thick (McFarland and Bruce 2006). The Yorktown confining zone is underlain by the Yorktown-Eastover aquifer, which is composed of thick to massively bedded shelly sands and lesser clay intervals (Meng and Harsh 1988, McFarland and Bruce 2006). The Yorktown-Eastover aquifer is used for both commercial and private domestic water supply wells.

Commercial well logs recorded in the vicinity of the site and described by Meng and Harsh (1988) indicate that the surficial aquifer near the site extends from ground surface to between 64 and 66 feet bgs. The well logs indicate a thickness for the Yorktown confining zone of between

60 and 74 feet (from between 64 and 66 feet bgs to between 124 and 140 feet bgs). The described wells are completed in the Yorktown-Eastover aquifer and, based on well total depths, indicate that the aquifer extends from the base of the Yorktown confining zone to greater than 340 feet bgs.

A domestic well log completed by Boggs Water & Sewage (1999) for a residence located approximately 500 feet from the site indicates that “top soil” and “sand” (likely belonging to the surficial aquifer) extend from ground surface to 60 feet bgs. The well log indicates that “sand clay” and “clay” (likely belonging to the Yorktown confining zone) extend from 60 to 215 feet bgs. The well is completed in “sand gravel shell” (likely the Yorktown-Eastover aquifer), which is described as extending from the base of the confining zone to greater than 235 feet bgs (the total depth of the well).

Shallow borings completed at the site as part of the April 2008 sampling event encountered surficial groundwater at between 6.40 and 11.13 feet bgs (Tetra Tech 2008). Depth to water measurements collected from monitoring points during the April 2008 sampling event indicate that surficial groundwater flow is to the southeast (Tetra Tech 2008).

4.0 SITE ACTIVITIES

Residential well sampling activities occurred in July 2008. Tetra Tech documented site activities in accordance with Tetra Tech Standard Operating Procedure (SOP) No. 024, “Recording of Notes in Field Logbook” (Tetra Tech 1999). Field logbook notes are provided in Appendix A.

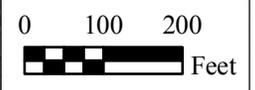
4.1 RESIDENTIAL WELL SAMPLING

On July 9, 2008, Tetra Tech and EPA mobilized to the site to sample residential wells located on Lankford Highway, Nelsonia Road, and Lehigh Street near the Jay-Cee Cleaners property. All seven residential wells sampled during the October 2007 and April 2008 sampling events were re-sampled in July 2008. Residential well sampling locations are shown in Figure 3, Sampling Location Map. Samples collected on July 9, 2008, arrived at the analytical laboratory above acceptable temperatures. As a result, Tetra Tech and EPA returned to the site on July 17, 2008, and collected a duplicate sample set. A total of nine residential well samples were collected,



Legend

● Sampling location



Approximate Site Location = ■

Virginia

Jay-Cee Cleaners Site
 Nelsonia, Accomack County, Virginia

Figure 3
 Sampling Location Map

TDD No. E33-020-08-07-024
 EPA Contract No. EP-S3-05-02

Map created on November 19, 2007
 by D. Call, Tetra Tech EM Inc.



including one duplicate sample and one trip blank. All residential well samples were collected from outside sources prior to any treatment systems. All water systems were purged by Tetra Tech for a minimum of 15 minutes prior to sampling. Table 1 summarizes the July 17, 2008 residential well sampling activities.

TABLE 1
JULY 2008 RESIDENTIAL WELL SAMPLING SUMMARY

Sample Identifier	Laboratory Identifier	Sample Matrix	Sample Date	Collection Time	Analysis	Comments
RW-01	C05A9	Potable Water	7/17/2008	9:37	VOC	
RW-02	C05B8	Potable Water	7/17/2008	9:45	VOC	MS/MSD
RW-03	C05B1	Potable Water	7/17/2008	9:49	VOC	
RW-04	C05B2	Potable Water	7/17/2008	10:07	VOC	
RW-05	C05B3	Potable Water	7/17/2008	10:12	VOC	
RW-06	C05B7	Potable Water	7/17/2008	10:16	VOC	
RW-07	C05B5	Potable Water	7/17/2008	9:30	VOC	
RW-08	C05B6	Potable Water	7/17/2008	9:40	VOC	Duplicate of RW-01
JCC-TB	C05A8	Potable Water	7/17/2008	9:00	VOC	Trip Blank

Notes:

MS/MSD = Matrix spike/matrix spike duplicate

VOC = Volatile organic compounds

4.2 SAMPLE MANAGEMENT

Samples were handled and packaged in accordance with the Tetra Tech SOP No. 019, “Packaging and Shipping Samples” (Tetra Tech 2000) and with the Tetra Tech “Quality Assurance Project Plan (QAPP) for START” (Tetra Tech 2006). All shipping containers were properly labeled with EPA custody seals and were delivered with signed chain-of-custody forms and appropriate hazard warnings for laboratory personnel. Samples were submitted to Datachem Laboratories, Inc., (Datachem) on July 17, 2008 under Contract Laboratory Program (CLP) Number 37588 for VOC analysis.

5.0 ANALYTICAL RESULTS

This section summarizes analytical results for the groundwater samples collected during the Jay-Cee Cleaners July 2008 sampling event.

All samples were analyzed by Datachem in Salt Lake City, Utah. Data were qualified as part of the laboratory quality control. Tetra Tech compared the residential well analytical data to EPA maximum contaminant levels (MCL) established for public drinking water systems, EPA risk-based screening levels for tap water published on July 7, 2008, and EPA emergency removal guidelines (ERG) for tap water (100 times the risk-based screening level). Two samples (collected as an original and duplicate sample from the same residence) had concentrations greater than EPA risk-based screening levels. PCE concentrations in RW-01 and RW-08 (the duplicate of RW-01) were 0.30 µg/L and 0.27 µg/L, respectively, exceeding the risk-based screening level for tap water of 0.11 µg/L. However, PCE concentrations for RW-01 and RW-08 were qualified with a “J,” indicating that PCE is present but that the reported value is estimated and concentrations are outside the range of accurate quantitation. The contract-required quantitation limit for PCE is 0.5 µg/L. No other samples had concentrations exceeding EPA risk-based screening levels for tap water, and no samples had concentrations exceeding EPA MCLs or ERGs.

A summary of residential well analytical results from the July 2008 sampling event is provided in Appendix C. A copy of the validated analytical results is provided in the attachment to this report.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Tetra Tech collected residential well water samples from seven residential properties located near the Jay-Cee Cleaners site. Samples were analyzed for VOCs. Analytical results indicated one residential well water sample and one duplicate sample collected from the same residence had PCE concentrations exceeded the EPA risk-based screening level. No other samples had concentrations exceeding EPA risk-based screening levels. No samples had concentrations exceeding EPA MCLs or ERGs.

Tetra Tech recommends continuing quarterly monitoring of residential wells in order to evaluate the possible influence of seasonal fluctuations on VOC concentrations, to determine the range of VOC fluctuations, and to establish whether or not VOCs are migrating to new wells. As outlined in the April 2008 sampling event trip report for the site, Tetra Tech also recommends installing an intermediate monitoring point to determine the vertical extent of soil and groundwater

contamination at the site, removing contaminated soil at the site, and collecting air samples from inside of the building at the site to evaluate the possible presence of interior VOC vapors.

7.0 REFERENCES

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APPENDIX A

LOGBOOK NOTES

Jay-Cee Cleaners

Wednesday, 7-9-08

0900 Arrive at Royal Farms, adjacent to Jay-Cee site.

0910 Collected **JCC-TB**. _____ w

0916 Fresh air calibration on MultiRAE. Using SIN 095-504438. _____ w

0934 Begin purging RW-07. outside faucet. _____ w

0939 Begin purging RW-06. outside faucet. Photo: purging at RW-06. _____ w

0943 Begin purging RW-05. outside back faucet. _____ w

0944 Begin purging RW-04. outside right faucet. Photo: purging at RW-04. _____ w

0954 Collected **RW-07**. PID = 0.0 ppm. _____ w

1002 Collected **RW-06**. MS/MSD. PID = 0.0 ppm _____ w

1008 Collected **RW-05**. PID = 0.0 ppm _____ w

1012 Collected **RW-04**. PID = 0.0 ppm _____ w

1016 Begin purging RW-03. outside shed faucet. _____ w

1019 Begin purging RW-02. outside back faucet. _____ w

1021 Begin purging RW-01. outside back faucet. _____ w

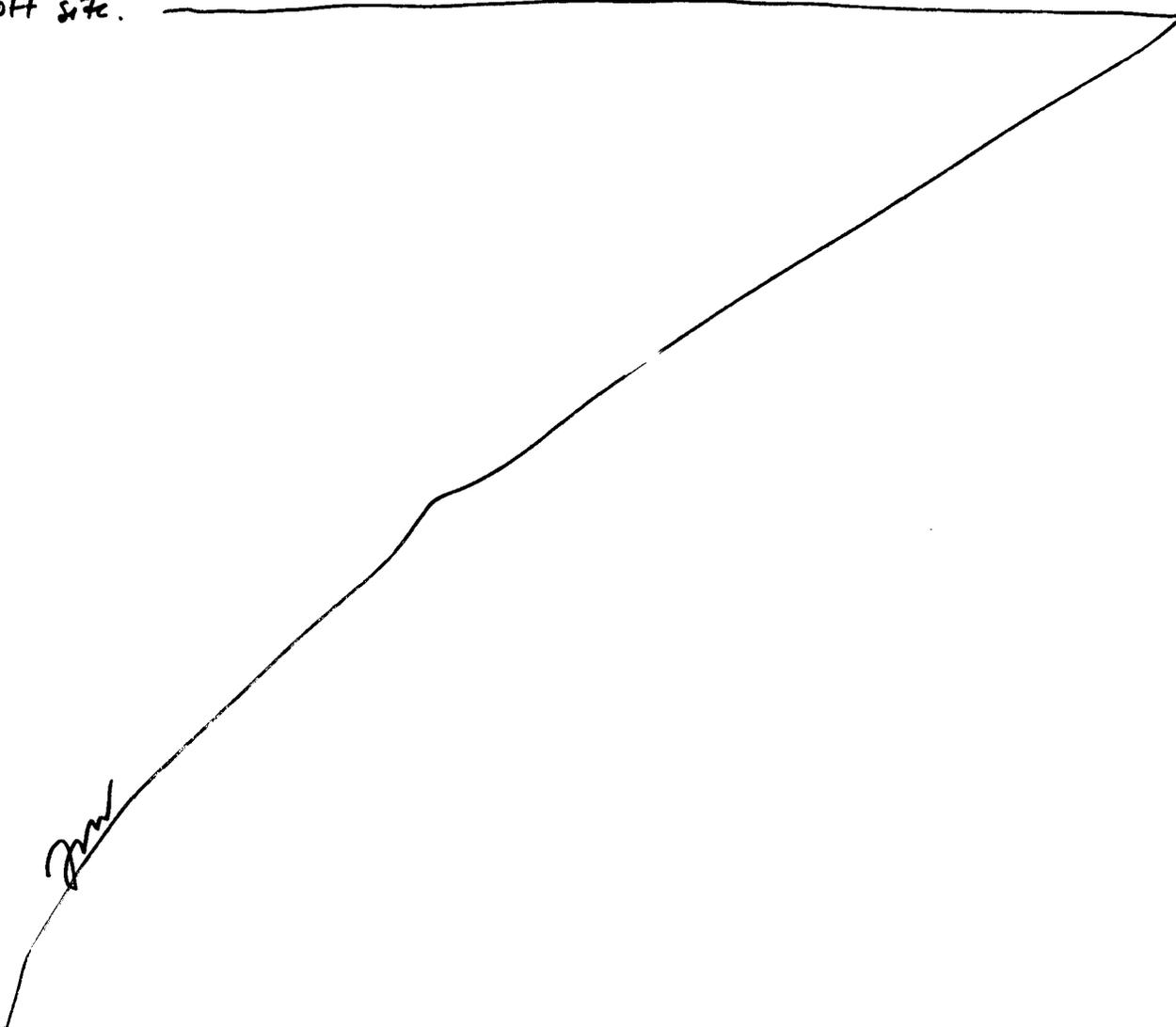
1033 Collected **RW-03**. PID = 0.0 ppm _____ w

1038 Collected **RW-02**. PID = 0.0 ppm _____ w

1041 Collected **RW-01**. PID = 0.0 ppm _____ w

1044 Collected **RW-08**. Duplicate of RW-01. _____ w

1102 off site. _____ w



Jay-Cee Cleaners Site

Thursday, 7-17-08

0850 Arrive at Royal Farms, Nelsonra, VA for resampling of residential wells.

0910 Water on at RW-07 outside side faucet. _____ w

0916 Water on at RW-01 outside back faucet. _____ w

0920 Water on at RW-02 outside back faucet. _____ w

0922 Water on at RW-03 outside back faucet in back entry way. _____ w

0930 Collect RW-07. _____ w

0937 Collect RW-01. _____ w

0940 Collect RW-08. Duplicate of RW-01. _____ w

0945 Collect RW-02. MS/MSD. _____ w

0949 Collect RW-03. _____ w

0952 Water on at RW-04 ^{outside side faucet} w _____ w

Note: RW-04 house for sale; appears vacant. _____ w

0957 Water on at RW-05 ^{outside back faucet} w _____ w

0959 Water on at RW-06 ^{outside side faucet} w _____ w

1007 Collect RW-04 Photo: view West of purging RW-06. _____ w

1012 Collect RW-05. Photo: collecting RW-04. _____ w

1016 Collect RW-06. _____ w

1017 Photo: sample collection equipment. _____ w

LATE NOTE: collected RW-TB at 0900, prior to residential well sampling. _____ w

1033 off site. _____ w

[Handwritten signature]

APPENDIX B

JULY 2008 RESIDENTIAL WELL RESULTS

July 2008 Residential Well Results
Jay-Cee Cleaners Site

Sampling Location :						RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	JCC-TB					
Field QC :							MS/MSD						Duplicate of RW-01	Trip blank					
Matrix :						Water	Water												
Date Sampled :						7/17/2008	7/17/2008	7/17/2008	7/17/2008	7/17/2008	7/17/2008	7/17/2008	7/17/2008	7/17/2008					
Time Sampled :						9:37	9:45	9:49	10:07	10:12	10:16	9:30	9:40	9:00					
ANALYTE	CRQL	MCL	RBSL	C/N	ERG	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Acetone	5.0	NE	22,000	N	2,200,000		R		R		R		R		R		R		R
Benzene	0.5	5.0	0.41	C	41		UL		UL		UL		UL		UL		UL		UL
Bromochloromethane	0.5	NE	NE		NE		UL		UL		UL		UL		UL		UL		UL
Bromodichloromethane	0.5	NE	1.1	C	110		UL		UL		UL		UL		UL		UL		UL
Bromoform	0.5	NE	8.5	C	850		UL		UL		UL		UL		UL		UL		UL
Bromomethane	0.5	NE	8.7	N	870		UL		UL		UL		UL		UL		UL		UL
2-Butanone	5.0	NE	NE		NE		R		R		R		R		R		R		R
Carbon disulfide	0.5	NE	1,000	N	100,000		UL		UL		UL		UL	0.20	B		UL		UL
Carbon tetrachloride	0.5	5.0	0.2	C	20		UL		UL		UL		UL		UL		UL		UL
Chlorobenzene	0.5	100	91	N	9,100		UL		UL		UL		UL		UL		UL		UL
Chloroethane	0.5	NE	NE		NE		UL		UL		UL		UL		UL		UL		UL
Chloroform	0.5	NE	0.19	C	19		UL		UL		UL		UL		UL		UL	1.6	L
Chloromethane	0.5	NE	1.8	C	180		UL		UL		UL		UL		UL		UL		UL
Cyclohexane	0.5	NE	13,000	N	130		UL		UL		UL		UL		UL		UL		UL
1,2-Dibromo-3-chloropropane	1.0	0.2	0.00032	C	0.03		UL		UL		UL		UL		UL		UL		UL
1,2-Dibromoethane	0.5	0.05	0.0065	C	0.65		UL		UL		UL		UL		UL		UL		UL
Dibromomethane	0.5	NE	370	N	37,000		UL		UL		UL		UL		UL		UL		UL
1,2-Dichlorobenzene	0.5	600	370	N	37,000		UL		UL		UL		UL		UL		UL		UL
1,3-Dichlorobenzene	0.5	NE	NE		NE		UL		UL		UL		UL		UL		UL		UL
1,4-Dichlorobenzene	0.5	75	0.43	C	43		UL		UL		UL		UL		UL		UL		UL
Dichlorodifluoromethane	0.5	NE	390	N	39,000		UL		UL		UL		UL		UL		UL		UL
1,1-Dichloroethane	0.5	NE	2.4	C	240		UL		UL		UL		UL		UL		UL		UL
1,2-Dichloroethane	0.5	5.0	0.15	C	15		UL		UL		UL		UL		UL		UL		UL
1,1-Dichloroethene	0.5	7.0	340	N	34,000		UL		UL		UL		UL		UL		UL		UL
trans-1,2-Dichloroethene	0.5	NE	NE		NE		UL		UL		UL		UL		UL		UL		UL
cis-1,2-Dichloroethene	0.5	70	370	N	37,000		UL		UL		UL		UL		UL		UL		UL
1,2-Dichloropropane	0.5	5.0	0.39	C	39		UL		UL		UL		UL		UL		UL		UL
cis-1,3-Dichloropropene	0.5	NE	NE		NE		UL		UL		UL		UL		UL		UL		UL
trans-1,3-Dichloropropene	0.5	NE	NE		NE		UL		UL		UL		UL		UL		UL		UL
Ethylbenzene	0.5	700	1.5	C	150		UL		UL		UL		UL		UL		UL		UL
2-Hexanone	5.0	NE	NE		NE		UL		UL		UL		UL		UL		UL		UL
Isopropylbenzene	0.5	NE	NE		NE		UL		UL		UL		UL		UL		UL		UL
Methyl acetate	1.0	NE	37,000	N	3,700,000		R		R		R		R		R		R		R
Methylcyclohexane	0.5	NE	6,300	N	630,000		UL		UL		UL		UL		UL		UL		UL
Methyl tertiary-butyl ether	0.5	NE	12	C	1,200		UL		UL		UL		UL		UL		UL		UL
Methylene chloride	0.5	5.0	4.8	C	480		UL		UL		UL		UL		UL		UL	0.69	L
4-Methyl-2-pentanone	5.0	NE	NE		NE		UL		UL		UL		UL		UL		UL		UL
Styrene	1.0	100	1,600	N	160,000		UL		UL		UL		UL		UL		UL		UL
1,1,2-Trichloro-1,2,2-trifluoroethane	0.5	NE	NE		NE		UL		UL		UL		UL		UL		UL		UL
1,1,1,2-Tetrachloroethane	0.5	NE	0.52	C	52		UL		UL		UL		UL		UL		UL		UL
Tetrachloroethene	0.5	5.0	0.11	C	11	0.30	J		UL		UL		UL		UL	0.27	J		UL
Toluene	0.5	1000	2,300	N	230,000		UL		UL		UL		UL		UL		UL	0.30	J
1,2,3-Trichlorobenzene	0.5	NE	NE		NE		UL		UL		UL		UL		UL		UL		UL
1,2,4-Trichlorobenzene	0.5	70	19	C	1,900		UL		UL		UL		UL		UL		UL		UL
1,1,1-Trichloroethane	0.5	200	9,100	N	910,000		UL		UL		UL		UL		UL		UL		UL
1,1,2-Trichloroethane	0.5	5.0	0.24	C	24		UL		UL		UL		UL		UL		UL		UL

July 2008 Residential Well Results
Jay-Cee Cleaners Site

Sampling Location :						RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	JCC-TB					
Field QC :							MS/MSD						Duplicate of RW-01	Trip blank					
Matrix :						Water	Water												
Date Sampled :						7/17/2008	7/17/2008	7/17/2008	7/17/2008	7/17/2008	7/17/2008	7/17/2008	7/17/2008	7/17/2008					
Time Sampled :						9:37	9:45	9:49	10:07	10:12	10:16	9:30	9:40	9:00					
ANALYTE	CRQL	MCL	RBSL	C/N	ERG	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Trichloroethene	0.5	5.0	1.7	C	170		UL		UL		UL		UL		UL		UL		UL
Trichlorofluoromethane	0.5	NE	1,300	N	130,000		UL		UL		UL		UL		UL		UL		UL
Vinyl chloride	0.5	2.0	0.016	C	1.6		UL		UL		UL		UL		UL		UL		UL
m-Xylene/p-Xylene*	1.0	10000	200	N	20,000		UL		UL		UL		UL		UL		UL		UL
o-Xylene*	1.0	10000	200	N	20,000		UL		UL		UL		UL		UL		UL		UL

Notes:

A blank results cell indicates that the analyte was not detected

All values are presented in parts per billion

B = Not detected at a concentration substantially above the level reported in laboratory or field blanks

C/N = Carcinogenic or non-carcinogenic contaminants; EPA Region 3 recommends clean-up levels for carcinogenic contaminants at 10 times less than listed RBSL

CRQL = Contract-required quantitation limit

EPA = U.S. Environmental Protection Agency

ERG = Emergency Removal Guideline concentration

J = Analyte present; reported value is estimated; concentration is outside the range of accurate quantitation

L = Analyte present; reported value may be biased low; actual value is expected to be higher

MCL = Maximum contaminant level

MS/MSD = Matrix spike/matrix spike duplicate

NE = Not established

Q = Analytical Data Qualifier

QC = Quality control

R = Unreliable result; analyte may or may not be present in sample; supporting data necessary to confirm result

RBSL = Risk-based screening level established for tapwater

UL = Not detected; quantitation probably higher

* = MCL and RBSL are for total xylenes

ATTACHMENT
VALIDATED ANALYTICAL RESULTS



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
ENVIRONMENTAL SCIENCE CENTER
701 MAPES ROAD
FORT MEADE, MARYLAND 20755-5350

DATE : August 14, 2008

SUBJECT: Region III Data QA Review

FROM : Colleen Walling *for CW.*
Region III ESAT PO (3EA20)

TO : Todd Richardson
Regional Program Manager (3HS32)

Attached is the organic validation report for the Jaycee Cleaners site (CASE #: 37588; SDG#: C05A8) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2763.

Attachment

cc: Jordan Vaughn (TETRA TECH EMI)

TO File##: 0014 TDF# 0808

OFFICE OF ANALYTICAL SERVICES AND QUALITY ASSURANCE



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Lockheed Martin Enterprise Solutions & Services
ESAT Region 3
US EPA Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-530
Telephone 410-305-3037 Facsimile 410-305-3597

DATE: August 11, 2008

SUBJECT: Organic Data Validation (M2 Level)
Case: 37588
SDG: C05A8
Site: Jay-CEE Cleaners

FROM: Habteab Ghebreyesus *HG*
Organic Data Reviewer

Mahboobeh Mecanic *hm*
Senior Oversight Chemist

TO: Colleen Walling
ESAT Region 3 Project Officer

OVERVIEW

Case 37588, Sample Delivery Group (SDG) C05A8, consisted of nine (9) water samples submitted to DataChem Laboratories, Inc. (DATAC) for trace volatile analysis. The sample set included one (1) trip blank and (1) field duplicate pair. Samples were analyzed according to Contract Laboratory Program (CLP) Statement of Work (SOW) SOM01.2 through the Routine Analytical Services (RAS) program.

SUMMARY

Data were validated according to Innovative Approaches for Validation of Organic Data, Level M2. This level of review includes assessment of all Quality Assurance/Quality Control (QA/QC) data and review of chromatograms, but excludes review of raw data and sample spectra. Areas that may impact data usability are listed below.

MAJOR PROBLEM

- Relative Response Factors (RRFs) were less than 0.05 for acetone, methyl acetate and 2-butanone in the initial and continuing calibrations. Quantitation limits for these compounds were rejected and qualified "R" on the Data Summary Forms (DSFs).

MINOR PROBLEMS

- Recoveries of deuterated monitoring compounds (DMCs) listed below were outside the lower control limits in samples listed. No positive results were reported for compounds associated with these DMCs. Quantitation limits for compounds associated with these DMCs were qualified "UL" on the DSFs unless superseded by "R".

<u>DMC</u>	<u>Sample(s)</u>
2-butanone-d5, 1,2-dichloroethane-d4	C05B8
1,1,2,2-tetrachloroethane-d2	C05A9, C05B8

- The cooler chest containing the samples had an elevated temperature of 8°C upon arrival at the laboratory. This temperature exceeded the required temperature of 4°C± 2°C. Positive results were qualified "L" on the DSFs unless superseded by "J" or "B". Quantitation limits were qualified "UL" on the DSFs unless superseded by "R".

NOTES

- Results for field duplicate pair C05A9/C05B6 were comparable for all compounds.
- Compounds detected below the Contract Required Quantitation Limits (CRQLs) were qualified "J" on the DSFs unless superseded by "B".
- Several compounds failed precision criteria [percent difference (%D)] in the volatile continuing calibrations. No positive results were reported for these compounds. The precision did not exceed fifty percent (50%) criteria. No data were qualified based on these outliers.
- No tentatively Identified Compounds (TICs) were detected in these samples.
- Carbon disulfide was detected in the analysis of trace volatile storage, VHBLKT1, at a concentration of 1.7 ug/L. Sample C05B5, which had a concentration of this contaminant less than five times (<5X) the blank concentration, has been qualified "B" on the DSF.
- Trace volatile sample C05B8 was requested for Matrix Spike/Matrix Spike Duplicate (MS/MSD) analyses on Chain of Custody (COC) records. As per Region 3 MS/MSD analyses are not required and the laboratory did not analyze a MS/MSD for this sample.
- Data for Case 37588, SDG C05A8, were reviewed in accordance with EPA Region 3 Innovative Approaches (Level M2) for Validation of Organic Data, June 1995.

ATTACHMENTS

- 1) Appendix A Glossary of Data Qualifier Terms
- 2) Appendix B Data Summary Forms
- 3) Appendix C Chain-of-Custody Records
- 4) Appendix D Laboratory Case Narrative

DCN: 37588_C05A8

Appendix A

Glossary of Data Qualifier Codes

GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

CODES RELATED TO IDENTIFICATION

(confidence concerning presence or absence of analytes):

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

N = Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

CODES RELATED TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

J = Analyte Present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

NJ = Qualitative identification questionable due to poor resolution. Presumptively present at approximate quantity.

Q = No analytical result.

Appendix B

Data Summary Forms

DATA SUMMARY FORM: Trace Volatiles

Case #: 37588
 Site :
 Lab. :

SDG : C05A8
 JAY-CEE CLEANERS
 DATAC

Number of Soil Samples : 0
 Number of Water Samples : 9
 Number of Sediment Samples : 0

Sample Number :	C05A8	C05A9	C05B1	C05B2	C05B3
Sampling Location :	JCC-TB	RW-01	RW-03	RW-04	RW-05
Field QC:	Trip Blank	Dup of C05B6			
Matrix :	Water	Water	Water	Water	Water
Units :	ug/L	ug/L	ug/L	ug/L	ug/L
Date Sampled :	7/17/2008	7/17/2008	7/17/2008	7/17/2008	7/17/2008
Time Sampled :	09:00	09:37	09:49	10:07	10:12
pH :	1.0	1.0	1.0	1.0	1.0
Dilution Factor :	1.0	1.0	1.0	1.0	1.0

Trace Volatile Compound	CRQL	Result	Flag								
Dichlorodifluoromethane	0.50		UL								
Chloromethane	0.50		UL								
*Vinyl chloride	0.50		UL								
Bromomethane	0.50		UL								
Chloroethane	0.50		UL								
Trichlorofluoromethane	0.50		UL								
*1,1-Dichloroethene	0.50		UL								
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50		UL								
Acetone	5.0		R		R		R		R		R
Carbon disulfide	0.50		UL								
Methyl acetate	0.50		R		R		R		R		R
*Methylene chloride	0.50	0.69	L		UL		UL		UL		UL
trans-1,2-Dichloroethene	0.50		UL								
Methyl tert-butyl ether	0.50		UL								
1,1-Dichloroethane	0.50		UL								
cis-1,2-Dichloroethene	0.50		UL								
*2-Butanone	5.0		R		R		R		R		R
Bromochloromethane	0.50		UL								
Chloroform	0.50	1.6	L		UL		UL		UL		UL
*1,1,1-Trichloroethane	0.50		UL								
Cyclohexane	0.50		UL								
*Carbon tetrachloride	0.50		UL								
*Benzene	0.50		UL								
*1,2-Dichloroethane	0.50		UL								
Trichloroethene	0.50		UL								
Methylcyclohexane	0.50		UL								
*1,2-Dichloropropane	0.50		UL								
Bromodichloromethane	0.50		UL								
cis-1,3-Dichloropropene	0.50		UL								
4-Methyl-2-Pentanone	5.0		UL								
*Toluene	0.50	0.30	J		UL		UL		UL		UL
trans-1,3-Dichloropropene	0.50		UL								
1,1,2-Trichloroethane	0.50		UL								

Case #: 37588

SDG : C05A8

Site :

JAY-CEE CLEANERS

Lab. :

DATA C

Sample Number :	C05A8	C05A9	C05B1	C05B2	C05B3
Sampling Location :	JCC-TB	RW-01	RW-03	RW-04	RW-05
Field QC:	Trip Blank	Dup of C05B6			
Matrix :	Water	Water	Water	Water	Water
Units :	ug/L	ug/L	ug/L	ug/L	ug/L
Date Sampled :	7/17/2008	7/17/2008	7/17/2008	7/17/2008	7/17/2008
Time Sampled :	09:00	09:37	09:49	10:07	10:12
pH :	1.0	1.0	1.0	1.0	1.0
Dilution Factor :	1.0	1.0	1.0	1.0	1.0

Trace Volatile Compound	CRQL	Result	Flag								
*Tetrachloroethene	0.50		UL	0.30	J		UL		UL		UL
2-Hexanone	5.0		UL								
Dibromochloromethane	0.50		UL								
1,2-Dibromoethane	0.50		UL								
*Chlorobenzene	0.50		UL								
*Ethylbenzene	0.50		UL								
o-Xylene	0.50		UL								
m,p-Xylene	0.50	0.26	J		UL		UL		UL		UL
*Styrene	0.50		UL								
Bromoform	0.50		UL								
Isopropylbenzene	0.50		UL								
1,1,2,2-Tetrachloroethane	0.50		UL								
*1,3-Dichlorobenzene	0.50		UL								
*1,4-Dichlorobenzene	0.50		UL								
1,2-Dichlorobenzene	0.50		UL								
1,2-Dibromo-3-chloropropane	0.50		UL								
1,2,4-Trichlorobenzene	0.50		UL								
1,2,3-Trichlorobenzene	0.50		UL								

CRQL = Contract Required Quantitation Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor)

Revised 09/99

DATA SUMMARY FORM: Trace Volatiles

Case #: 37588

SDG : C05A8

Site :

JAY-CEE CLEANERS

Lab. :

DATA C

Sample Number :	C05B5	C05B6	C05B7	C05B8					
Sampling Location :	RW-07	RW-08	RW-06	RW-02					
Field QC:		Dup of C05A9							
Matrix :	Water	Water	Water	Water					
Units :	ug/L	ug/L	ug/L	ug/L					
Date Sampled :	7/17/2008	7/17/2008	7/17/2008	7/17/2008					
Time Sampled :	09:30	09:40	10:16	09:45					
pH :	1.0	1.0	1.0	1.0					
Dilution Factor :	1.0	1.0	1.0	1.0					
Trace Volatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	0.50		UL		UL		UL		UL
Chloromethane	0.50		UL		UL		UL		UL
*Vinyl chloride	0.50		UL		UL		UL		UL
Bromomethane	0.50		UL		UL		UL		UL
Chloroethane	0.50		UL		UL		UL		UL
Trichlorofluoromethane	0.50		UL		UL		UL		UL
*1,1-Dichloroethene	0.50		UL		UL		UL		UL
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50		UL		UL		UL		UL
Acetone	5.0		R		R		R		R
Carbon disulfide	0.50	0.20	B		UL		UL		UL
Methyl acetate	0.50		R		R		R		R
*Methylene chloride	0.50		UL		UL		UL		UL
trans-1,2-Dichloroethene	0.50		UL		UL		UL		UL
Methyl tert-butyl ether	0.50		UL		UL		UL		UL
1,1-Dichloroethane	0.50		UL		UL		UL		UL
cis-1,2-Dichloroethene	0.50		UL		UL		UL		UL
*2-Butanone	5.0		R		R		R		R
Bromochloromethane	0.50		UL		UL		UL		UL
Chloroform	0.50		UL		UL		UL		UL
*1,1,1-Trichloroethane	0.50		UL		UL		UL		UL
Cyclohexane	0.50		UL		UL		UL		UL
*Carbon tetrachloride	0.50		UL		UL		UL		UL
*Benzene	0.50		UL		UL		UL		UL
*1,2-Dichloroethane	0.50		UL		UL		UL		UL
Trichloroethene	0.50		UL		UL		UL		UL
Methylcyclohexane	0.50		UL		UL		UL		UL
*1,2-Dichloropropane	0.50		UL		UL		UL		UL
Bromodichloromethane	0.50		UL		UL		UL		UL
cis-1,3-Dichloropropene	0.50		UL		UL		UL		UL
4-Methyl-2-Pentanone	5.0		UL		UL		UL		UL
*Toluene	0.50		UL		UL		UL		UL
trans-1,3-Dichloropropene	0.50		UL		UL		UL		UL
1,1,2-Trichloroethane	0.50		UL		UL		UL		UL

Case #: 37588

SDG : C05A8

Site :

JAY-CEE CLEANERS

Lab. :

DATA C

Sample Number :	C05B5	C05B6	C05B7	C05B8	
Sampling Location :	RW-07	RW-08	RW-06	RW-02	
Field QC:		Dup of C05A9			
Matrix :	Water	Water	Water	Water	
Units :	ug/L	ug/L	ug/L	ug/L	
Date Sampled :	7/17/2008	7/17/2008	7/17/2008	7/17/2008	
Time Sampled :	09:30	09:40	10:16	09:45	
pH :	1.0	1.0	1.0	1.0	
Dilution Factor :	1.0	1.0	1.0	1.0	

Trace Volatile Compound	CRQL	Result	Flag								
*Tetrachloroethene	0.50		UL	0.27	J		UL		UL		
2-Hexanone	5.0		UL		UL		UL		UL		
Dibromochloromethane	0.50		UL		UL		UL		UL		
1,2-Dibromoethane	0.50		UL		UL		UL		UL		
*Chlorobenzene	0.50		UL		UL		UL		UL		
*Ethylbenzene	0.50		UL		UL		UL		UL		
o-Xylene	0.50		UL		UL		UL		UL		
m,p-Xylene	0.50		UL		UL		UL		UL		
*Styrene	0.50		UL		UL		UL		UL		
Bromoform	0.50		UL		UL		UL		UL		
Isopropylbenzene	0.50		UL		UL		UL		UL		
1,1,2,2-Tetrachloroethane	0.50		UL		UL		UL		UL		
*1,3-Dichlorobenzene	0.50		UL		UL		UL		UL		
*1,4-Dichlorobenzene	0.50		UL		UL		UL		UL		
1,2-Dichlorobenzene	0.50		UL		UL		UL		UL		
1,2-Dibromo-3-chloropropane	0.50		UL		UL		UL		UL		
1,2,4-Trichlorobenzene	0.50		UL		UL		UL		UL		
1,2,3-Trichlorobenzene	0.50		UL		UL		UL		UL		

CRQL = Contract Required Quantitation Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor)

Revised 09/99

Appendix C

Chain-of-Custody Records

**EPA USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record**

Case No: 37588
DAS No: R

Region: 3	Date Shipped: 7/17/2008	Carrier Name: FedEx
Project Code: VAND00306600	Carrier Name: FedEx	857499684393
Account Code: AJR	Shipped to: Datachem Laboratories, Inc.	
CERCLIS ID: Jay-Cee Cleaners July 2008 RWVA	960 West LeVoy Drive	
Site Name/State: Jordan Vaughn	Salt Lake City UT 84123	
Project Leader: Jordan Vaughn	(801) 266-7700	
Action: Tetra Tech		
Sampling Co: Tetra Tech		

Chain of Custody Record

Relinquished By	(Date / Time)	Sampler Signature	(Date / Time)
1 <i>JW</i>	7/17/08 18:30	<i>JW</i>	
2			
3			
4			

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	PRESERVATIVE/ Bottles	TAG No./	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	QC Type
C05A8	Potable Well/ Jordan Vaughn	L/G	TVOA (14)	JCC967 (HCL) (1)		JCC-TB	S: 7/17/2008 9:00		Trip Blank
C05A9	Potable Well/ Jordan Vaughn	L/G	TVOA (14)	JCC968 (HCL), JCC969 (HCL), JCC970 (HCL) (3)		RW-01	S: 7/17/2008 9:37		
C05B1	Potable Well/ Jordan Vaughn	L/G	TVOA (14)	JCC974 (HCL), JCC975 (HCL), JCC976 (HCL) (3)		RW-03	S: 7/17/2008 9:49		
C05B2	Potable Well/ Jordan Vaughn	L/G	TVOA (14)	JCC977 (HCL), JCC978 (HCL), JCC979 (HCL) (3)		RW-04	S: 7/17/2008 10:07		
C05B3	Potable Well/ Jordan Vaughn	L/G	TVOA (14)	JCC980 (HCL), JCC981 (HCL), JCC982 (HCL) (3)		RW-05	S: 7/17/2008 10:12		
C05B5	Potable Well/ Jordan Vaughn	L/G	TVOA (14)	JCC992 (HCL), JCC993 (HCL), JCC994 (HCL) (3)		RW-07	S: 7/17/2008 9:30		
C05B6	Potable Well/ Jordan Vaughn	L/G	TVOA (14)	JCC995 (HCL), JCC996 (HCL), JCC997 (HCL) (3)		RW-08	S: 7/17/2008 9:40		Duplicate of RW-01
C05B7	Potable Well/ Jordan Vaughn	L/G	TVOA (14)	JCC1000 (HCL), JCC998 (HCL), JCC999 (HCL) (3)		RW-06	S: 7/17/2008 10:16		
C05B8	Potable Well/ Jordan Vaughn	L/G	TVOA (14)	JCC1001 (HCL), JCC1002 (HCL), JCC1003 (HCL), JCC1004 (HCL), JCC1005 (HCL), JCC1006 (HCL), JCC1007 (HCL), JCC1008 (HCL), JCC1009 (HCL) (9)		RW-02	S: 7/17/2008 9:45		MS/MSD

Shipment for Case Complete ? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key: TVOA = SOM01.2 TVOA	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

TR Number: 3-023200937-071708-0001
 PR provides preliminary results. Requests for preliminary results will increase analytical costs.
 Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4200

REGION COPY

975 6-6-08

U.S. EPA Region III Analytical Request Form

Revision 10.06

ASQAB USE ONLY	
RAS# CT4278	Analytical TAT
DAS#	14
NSF#	

37588

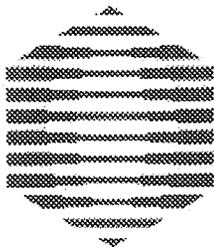
Date: 6/5/2008		Site Activity: RS Removal Site Evaluation <i>Assessment</i>	
Site Name: Jay-Cee Cleaners		Street Address: 16163 Lankford Highway	
City: Nelsonia, Accomack Co. VA		Longitude: 75.5883° W	
State: VA		Latitude: 37.8186° N	
Program: Superfund		CERCLIS #: VAN000306600	
Site ID: A3JR		Operable Unit:	
Site Specific QA Plan Submitted: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		Title: Abbreviated SAP	
EPA Project Leader: Todd Richardson		Phone#: 215-814-5264	
Request Preparer: Marian Murphy		Cell Phone #: 215-779-4592	
Site Leader: Jordan Vaughn		Cell Phone #: 267-446-2839	
Contractor: Tetra Tech EM Inc.		Cell Phone #: 215-651-4022	
#Samples 8+8		EPA CO/PO: Lorrrie Murray/Karen Wodarczyk	
#Samples 1 7-15-08		Parameter: Trace TCL VOCs	
#Samples 6		Parameter: Trace TCL VOCs	
#Samples 2		Parameter: TCL VOC	
#Samples		Parameter: TCL VOC	
#Samples		Parameter: TCL VOC	
#Samples		Parameter: TCL VOC	
#Samples		Parameter: TCL VOC	
#Samples		Parameter: TCL VOC	
#Samples		Parameter: TCL VOC	
#Samples		Parameter: TCL VOC	
Ship Date From: 7/7/2008		Ship Date To: 7/10/2008	
Unvalidated Data Requested: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		If Yes, TAT Needed: <input checked="" type="checkbox"/> 14days <input type="checkbox"/> 7days <input type="checkbox"/> 48hrs <input type="checkbox"/> 24hrs <input type="checkbox"/> Other (Specify)	
Validated Data Package Due: <input type="checkbox"/> 42 days <input checked="" type="checkbox"/> 30 days <input type="checkbox"/> 21 days <input type="checkbox"/> 14 days <input type="checkbox"/> Other (Specify)		14/16	
Electronic Data Deliverables Required: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes (EDDs will be provided in Region 3 EDD Format)			
Special Instructions: See attached for DLS needed.			

CLP SOW SOM01.2 TARGET COMPOUND LIST TRACE VOLATILE ORGANICS FOR WATER
SAMPLES (ug/L)

Volatle Compound	CAS Number	DL	Volatle Compound	CAS Number	DL
Dichlorodifluoromethane	75718	0.5	Toluene	108883	0.5
Chloromethane	74873	0.5	trans-1,3-Dichloropropene	10061026	0.5
Vinyl Chloride	75014	0.5	1,1,2-Trichloroethane	79005	0.5
Bromomethane	74839	0.5	Tetrachloroethene	127184	0.5
Chloroethane	75003	0.5	2-Hexanone	591786	0.5
Trichlorofluoromethane	75694	0.5	Dibromochloromethane	124481	0.5
1,1-Dichloroethene	75354	0.5	1,2-Dibromoethane	106934	0.5
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	0.5	Chlorobenzene	108907	0.5
Acetone	67641	5.0	Ethylbenzene	100414	0.5
Carbon Disulfide	75150	0.5	Xylenes (total)	1330207	0.5
Methyl Acetate	79209	0.5	Styrene	100425	0.5
Methylene Chloride	75092	0.5	Bromoform	75252	0.5
trans-1,2-Dichloroethene	156605	0.5	Isopropylbenzene	98828	0.5
tert-Butyl Methyl Ether	1634044	0.5	1,1,2,2-Tetrachloroethane	79345	0.5
1,1-Dichloroethane	75343	0.5	1,3-Dichlorobenzene	541731	0.5
cis-1,2-Dichloroethene	156592	0.5	1,4-Dichlorobenzene	106467	0.5
2-Butanone	78933	5.0	1,2-Dichlorobenzene	95501	0.5
Chloroform	67663	0.5	1,2-Dibromo-3-chloropropane	96128	0.5
1,1,1-Trichloroethane	71556	0.5	1,2,4-Trichlorobenzene	120821	0.5
Cyclohexane	110827	0.5			
Carbon Tetrachloride	56235	0.5			
Benzene	71432	0.5			
1,2-Dichloroethane	107062	0.5			
1,4-Dioxane	123911	20			
Trichloroethene	79016	0.5			
Methylcyclohexane	108872	0.5			
1,2-Dichloropropane	78875	0.5			
Bromodichloromethane	75274	0.5			
cis-1,3-Dichloropropene	10061015	0.5			
4-Methyl-2-pentanone	108101	5.0			

Appendix D

Laboratory Case Narrative



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**SDG Narrative
Trace Volatiles**

Contract: EPW05026

Case: 37588

SDG: C05A8

Laboratory Name: Datachem Laboratories

Sample Number	DCL Sample ID	pH	Dilution
C05A8	8200012001	1	
C05A9	8200012002	1	
C05B1	8200012003	1	
C05B2	8200012004	1	
C05B3	8200012005	1	
C05B5	8200012006	1	
C05B6	8200012007	1	
C05B7	8200012008	1	
C05B8	8200012009	1	

General SDG Information: Samples were analyzed according to USEPA CLP Statement of Work SOM01.2. There were no deviations from the SOW except as listed below.

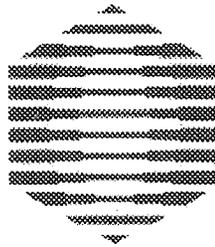
Instrumentation: Hewlett Packard 5972-P GC/MSD with electron impact ionization and quadrupole detector scanning at a mass range of 35 to 300 amu.
Column: J&W Scientific DB624 – 75 meters, 0.53 mm id., 3 µm film
Temperature Program: *10°C (2.0 min) 8°/min ramp to 180° (0.1 min) 60°/min ramp to 220° *Cryogenically cooled with liquid nitrogen.
Purge & Trap Device: Tekmar Dynamic Headspace Concentrator ALS 2016/LSC 2000
Purge Flow: 35 mL/min Trap: Vocarb 3000 Trap Temp: 35°C
Carrier Gas: Helium Purge Gas: Helium

Sample Preparation: This method has no extraction procedure for the water matrix. Twenty-five milliliters of water sample was spiked with Internal Standard/DMC Solution and purged.

Instrument Calibration: The GC/MS was hardware tuned to meet the criteria for a 50 ng purging of 4-Bromofluorobenzene as specified in the SOW. This tune check is valid for 12 hours.

Initial and Continuing Calibration Verification: The five point initial calibration curve, which is used for the quantitation of each target compound, met the specified criteria in the SOW. A continuing calibration standard (CCAL) was analyzed prior to sample

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analysis. A final calibration standard (FCAL) was analyzed after sample analysis. All calibration standards met all method criteria as specified in the SOW. Manual edits were made in the calibration standards and in some samples for various mis-called peaks. Every manual integration is noted by an "m" footnote on the quantitation report, and an additional graphics page is included for each manual integration to show how the peak was integrated. Analytes that required manual integrations are listed.

Blank Analysis: Method blanks were prepared using 25 mL of spiked reagent water. The blanks were analyzed prior to sample analysis and were free of volatile organic contaminants within the specifications of the SOW.

Sample Analysis: All deuterated monitoring compounds and internal standard area responses were within the required acceptance criteria. All samples were analyzed within ten days of verified sample receipt.

MS/MSD Analysis: As per Region 3, Matrix Spike/Matrix Spike Duplicate analyses are not required.

Miscellaneous Comments: As instructed in the SOW, alkanes are not reported separately on the Form 1J but rather are summarized as "total alkanes."

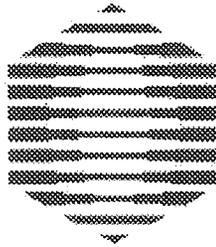
With regard to the naming of tentatively-identified compounds (TICs), spectral matches above 85 percent are reported as a specific isomer unless the analyst has a specific reason to assign a different name. The exact isomer configuration, as reported, may not be absolutely accurate. Reasons for assigning a TIC name other than the match with the highest fit value above 85% include: instances in which the analyst has previous experience with respect to a specific compound; when the first computer-generated match is a target compound and retention time information clearly indicates the TIC is in fact not the target compound; and when a specific compound name has already been assigned to a peak. Even though specific names will usually be given to TICs with spectral fits above 85%, it must be understood by the data user that TIC names are very tentative, and it cannot be assumed that the specific isomers reported are correct.

Sample Calculations:

$$\text{Relative Response Factor: } \text{RRF} = \left[\frac{A_x}{A_{is}} \right] \left[\frac{C_{is}}{C_x} \right]$$

Where A_x is the area of the characteristic ion for the compound to be measured, A_{is} is the area of the characteristic ion for the internal standard, C_{is} is the concentration of the internal standard, and C_x is the concentration of the compound to be measured.

$$\text{Concentration in ug/L: } C = \left[\frac{(A_x) (I_s) (Df)}{(A_{is}) (RRF) (V_o)} \right]_{R_1}$$



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Where I_s is the amount of internal standard spiked in ng (125 ng), Df is a dilution factor (1 if no dilutions are made), RRF is the mean relative response factor (assumed to be 1 for non target analytes) and V_o is the total volume purged in mL.

I certify that this Sample Data Package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy Sample Data Package and in the electronic data deliverable has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.



July 29, 2008

Joseph Gress
Chemist
Volatile Organic Analysis Section