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FINAL

Phase II Site Inspections
Site 3

Peterson AFB, Colorado

February 2013

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PHASE II SITE INSPECTIONS
SITE 3

PETERSON AFB, COLORADO

Prepared for:

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311th Human Systems Wing/PVK

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LIST OF ABBREVIATIONS AND ACRONYMS

AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center, formerly Air Force Center for Engineering and the Environment
ARAR	applicable or relevant and appropriate requirements
ANOVA	analysis of variance
bgs	below ground surface
CCR	Code of Colorado Regulations
CDPHE	Colorado Department of Public Health and the Environment
CI	confidence interval
COPC	contaminant of potential concern
EPA	Environmental Protection Agency, United States
KW	Kruskal-Wallis Test
LL	lower limit of the confidence interval around the mean
mg/L	milligram per liter
µg/L	microgram per liter
N	nitrogen
NFA	no further action
PA	preliminary assessment
PCB	polychlorinated biphenyl
PQL	practical quantitation limit
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
SI	Site Inspection
TPH	total petroleum hydrocarbons
USAF	United States Air Force
VOC	volatile organic compound

EXECUTIVE SUMMARY

This report for Site 3 (LF005, Landfill 3) at Peterson Air Force Base, Colorado, presents the results of the site inspection (*SI*) performed from April 2011 through January 2012, in accordance with the approved *Phase II SI Work Plan* (Earth Tech, Inc. [Earth Tech] 2010a), and *Work Plan Addendum* (Earth Tech 2010b). Site 3 covers approximately 36 acres and was in operation from 1962 to 1986. From 1962 to 1972, the landfill was operated as a mixed waste landfill. After 1972, only construction rubble was permitted in the landfill. In 1989, the landfill contents were removed and re-located, and the site was backfilled with native material. The SI was performed to provide data necessary to meet Colorado landfill closure requirements as requested by the Colorado Department of Public Health and Environment and also to support the decision process to determine whether no further action (NFA) would be applicable or if further investigation or remedial activity is required for this area of concern. As part of the SI, a monitoring system consisting of three existing wells (S3-MW01, S3-MW02 and S3-MW03) and three newly installed wells (S3-MW04, S3-MW05, and S3-MW06) were sampled at Site 3 with the objective of detecting migration of contaminants, if any, from the former landfill contents to the underlying groundwater. The sampling date, well depth, groundwater depth, and analytes detected above regulatory standards for each sampling event are summarized below.

Quarter	Monitoring Well	Sampling Date	Well Depth (feet bgs)	Depth to Groundwater (feet below TOC)	Analytes Detected Above Regulatory Standards[a]
1	S3-MW01	4/29/2011	98.85	93.12	None
	S3-MW02	4/28/2011	93.05	88.71	None
	S3-MW03	4/28/2011	89.87	81.31	Nitrate as Nitrogen
	S3-MW04	4/28/2011	99.30	94.37	None
	S3-MW05	4/29/2011	103.45	97.30	1,2-Dichloropropane
	S3-MW06	NA	97.65	Dry	NA
2	S3-MW01	7/28/2011	96.65	93.37	None
	S3-MW02	7/27/2011	93.00	88.70	None
	S3-MW03	7/28/2011	86.91	81.21	Nitrate as Nitrogen
	S3-MW04	7/28/2011	100.00	95.95	None
	S3-MW05	7/27/2011	103.45	97.46	1,2-Dichloropropane
	S3-MW06	7/27/2011	97.65	93.05	None
3	S3-MW01	11/9/2011	97.95	93.60	None
	S3-MW02	11/9/2011	93.18	88.87	None
	S3-MW03	11/9/2011	86.66	81.46	Nitrate as Nitrogen
	S3-MW04	11/9/2011	99.21	95.37	None
	S3-MW05	11/9/2011	103.42	97.98	1,2-DCA and 1,2Dichloropropane
	S3-MW06	11/10/2011	97.65	93.95	None
4	S3-MW01	1/26/2012	97.95	93.74	None
	S3-MW02	1/26/2012	93.18	88.88	None
	S3-MW03	1/26/2012	86.66	81.45	Nitrate as Nitrogen
	S3-MW04	1/26/2012	99.21	95.20	None
	S3-MW05	1/26/2012	103.43	98.05	1,2-Dichloropropane
	S3-MW05	7/2/2012	NM	NM	1,2-Dicholorpropane
	S3-MW06	1/26/2012	97.67	93.79	None

[a] For metals, only dissolved results were used for comparison against screening criteria in this table.

1,2-DCA = 1,2-Dichloroethane
bgs = below ground surface
NA = not applicable
NM = not measured
TOC = top of casing

In accordance with 6 Code of Colorado Regulations 1007-2, the new wells were installed at appropriate locations and depths to yield groundwater samples representative of conditions underlying the landfill in the downgradient direction. Data evaluation was performed by comparing analyte concentrations against regulatory standards and by using statistical methods such as the parametric analysis of variance (ANOVA) and confidence interval (CI) evaluation. A Kruskal-Wallis test (KW) was also used due to unequal sample sizes. The objective of the data evaluation was to determine if there were any impacts to groundwater from Site 3.

Sporadic exceedances were observed for total metals including arsenic, beryllium, chromium, cobalt, lead, nickel, and vanadium. No concentrations of dissolved metals exceeded regulatory standards. Exceedances of nitrate as nitrogen (N) were observed during all four quarters in cross-gradient monitoring well S3-MW03. Exceedances of 1,2-dichloropropane were observed during all sampling events in downgradient monitoring well S3-MW05 ranging from 0.76 to 2.5 micrograms per liter, and an exceedance of 1,2-dichloroethane was also observed during the third quarter sampling event in monitoring well S3-MW05. Further evaluation using ANOVA and the Kruskal-Wallis Test indicate that there is no evidence of significant contamination in the wells with the exception of nitrate as N. With the exception of nitrate as N, the CI evaluation concluded that all six wells are in compliance for all analytes with respect to regulatory standards. The CI result for nitrate as N appears to be a false positive considering 18 out of 22 observations were detected below standards (concentrations from all four quarters varied from 0.52 milligrams per liter to 7.1 milligrams per liter). Furthermore, nitrate as N concentrations exceeding regulatory standards were observed in a cross-gradient well, which may not represent contamination directly associated with former landfill operations, and monitoring well S3-MW03 is located in a landscaped area which may have had applications of fertilizer as a soil amendment. The statistical evaluation did not suggest 1,2-dichloropropane to be a contaminant of concern. Its presence in groundwater is anomalous considering the landfill contents were removed and the site was backfilled with native material. Therefore, since contaminants are not likely due to previous operations, Site 3 is recommended for no further action.

1. INTRODUCTION

This document has been prepared for the United States Air Force (USAF) and the Air Force Civil Engineer Center (AFCEC) 311th Human Systems Wing by Earth Tech, Inc., under Contract F8903-08-D-8770, Task Order 0134. This document describes the activities and findings associated with the site inspection (SI) performed at Peterson Air Force Base (AFB), Colorado. The SI was conducted under the USAF Installation Restoration Program (IRP). The SI was completed in January 2012 in accordance with the Air Force Center for Environmental Excellence (AFCEE) *Model Work Plan* (AFCEE 1996), *Model Field Sampling Plan*, version 1.2 (AFCEE 2002), and *Quality Assurance Project Plan*, version 4.0 (AFCEE 2005). The SI included four quarterly sampling events over a monitoring period of one year. In addition, the SI was performed in accordance with guidance from United States Environmental Protection Agency (EPA), Colorado Department of Public Health and the Environment (CDPHE), and AFCEC.

The area of concern addressed under this SI is Site 3 (LF005, Landfill 3). This document discusses project objectives, interprets quarterly groundwater monitoring results to determine if there are any impacts to groundwater from the landfill, and makes recommendations based on the findings of the SI.

1.1 Objectives

The objectives of the SI are as follows:

- Install three new monitoring wells in order to monitor groundwater in the downgradient direction;
- Collect groundwater samples to identify potential groundwater contamination, if any;
- Assess the data to provide definitive data to determine the presence and concentration of possible contamination;
- Identify contaminants of potential concern (COPCs) to determine if there are any impacts to groundwater from the landfill; and
- Evaluate the findings of the SI to determine whether any remedial actions or a determination of “no further action” (NFA) is applicable for Site 3.

To support the above objectives, the SI field effort included site reconnaissance, installation of three new monitoring wells, collection and laboratory analysis of groundwater samples, management of investigation-derived wastes, and record keeping. The sampling protocols and other SI activities are described in the approved *Phase II SI Work Plan* (Earth Tech, Inc. [Earth Tech] 2010a) and the *Work Plan Addendum* (Earth Tech 2010b).

1.2 Site Background

Peterson AFB is located in El Paso County, Colorado, adjacent to the eastern limits of the City of Colorado Springs, and approximately seven miles from the downtown area (Figure 1-1). The Base covers approximately 1,278 acres. Of this area, 1,094 acres are leased from the City of Colorado Springs. Peterson AFB is considered a joint-use installation as the airfield is owned

and operated by the City of Colorado Springs and collectively used by military and civilian aircraft.

Peterson AFB is used for a combination of administrative, industrial, special space mission, residential, community, recreational, and aircraft operations. Industrial operations have generally always been associated with aircraft and vehicle maintenance such as engine repair, aircraft systems maintenance, and painting. The area of concern addressed under this SI is:

Site 3: LF005, Landfill 3

1.3 Organization of Document

This SI Report is organized as follows:

- Section 1: Introduction
- Section 2: Site Description
- Section 3: Site Inspection Results
- Section 4: Conclusions and Recommendations

2. SITE DESCRIPTION

This section describes the physical setting of the area of concern evaluated during the SI and presents the results of previous SI activities conducted under the USAF IRP.

2.1 Physical Setting

During this SI, Site 3 (LF005, Landfill 3) was evaluated as the area of concern. Site 3 is located along the southern boundary of the City of Colorado Springs Municipal Airport, southwest of the former Peterson AFB Small Arms Ranges. Site 3 covers approximately 36 acres and was in operation from 1962 to 1986. From 1962 to 1972, the landfill was operated as a mixed waste landfill. After 1972, only construction rubble was permitted in the landfill. The landfill received excavated material from the Leach Field and the Old Fire Training Area during construction of the golf course and from Landfill 2 during construction of the CE Building during the mid- to late-1970s. Small quantities of paint and shop waste also may have been disposed of in the landfill. Disposal prior to 1970 consisted of burial in a series of landfills. By 1980, the present procedures for segregating waste and contract disposal of the waste were being implemented. These procedures resulted in elimination of on-base waste disposal with the exception of construction rubble, which was placed at Landfill 3. Since 1980, all base hazardous wastes have been disposed of by a licensed contractor.

Based on a Landfill Relocation Report (Isbill Associates, Inc. 1989), the landfill was discovered during plans to develop a parking lot for the new Colorado Springs Airport terminal. Approximately 435,833 cubic yards of landfill debris consisting of approximately 90 percent paper, 5 percent construction rubble, and 5 percent miscellaneous debris, was removed from the landfill and placed in a new landfill. According to the report, the new landfill site was an area used by the Airport to store excess construction materials located southwest of Site 3. During removal of landfill materials, monitoring for volatile organics and combustible gases was performed using a photoionization detector and explosimeter, respectively. Volatile organics readings ranged from 0 to 18 parts per million and combustible gas readings ranged from 0-10 parts per million (Isbill Associates, Inc. 1989). The new landfill was covered with native material and seeded.

Since then, Site 3 has been regraded and airport parking structures have been constructed over almost all of the area. Based on site records and interviews with base personnel, the waste present at this site were typical of those found in landfills. Wastes included, but were not limited to, solvents from cleaning and stripping operations, residual herbicides and pesticides, oils and grease, petroleum products, metals, and general base refuse (USAF 2006). The location of Site 3 within Peterson AFB is shown on Figure 2-1.

2.1.1 Topography

Peterson AFB is located in an area dominated by gently to strongly rolling high plains in the Colorado Piedmont section of the Great Plains Physiographic Province. The ground surface slopes generally to the southwest. Elevations range from 6,000 to 6,300 feet above mean sea level (USAF 1989). Site 3 is currently flat with the topography rising slightly to the east beyond the site boundary.

2.1.2 Geology

The surficial deposit at Peterson AFB consists of unconsolidated alluvium comprising three alluvial units (Broadway Alluvium, Piney Creek Alluvium, and a windblown sand unit). The alluvial units are characterized by varying amounts of poorly sorted granitic gravel, well-stratified clay, silt, and sand and is up to 20 feet thick in some areas. The surficial deposits are underlain by bedrock composed primarily of sandstone, siltstone and shale (USAF 1989). Below surficial and alluvial deposits at Site 3 is the Pierre Shale which is composed primarily of shale beds.

2.1.3 Surface Water Hydrology

Peterson AFB is located within the Arkansas River Basin. Fountain Creek, a perennial stream originating seven miles northwest of Pikes Peak, flows southeast through Colorado Springs west of Peterson AFB and joins the Arkansas River in the vicinity of Pueblo, Colorado. Ephemeral tributaries to Fountain Creek in the vicinity of Peterson AFB include the East Fork of Sand Creek and Jimmy Camp Creek. These tributaries make up the local surface drainage for Peterson AFB and the surrounding area. The East Fork of Sand Creek is the only creek that flows across Peterson AFB, crossing the northwest corner of the Base.

2.1.4 Groundwater

The principal unconfined aquifer in the region of Peterson AFB is in the Piney Creek alluvial sediments of the Fountain Creek Valley. Alluvial sediments in the vicinity of Site 3 are underlain by bedrock (Pierre Shale), which acts as an aquitard, although, groundwater may flow in the upper weathered portions of the bedrock. This shallow aquifer is isolated from the Denver Basin aquifer system, which is present below some northern areas of Peterson AFB. The thickness of the shallow aquifer and the depth to the water table in this aquifer vary across the region. Regionally, the shallow aquifer flows to the southwest towards Fountain Creek. At Site 3, groundwater is found in gravelly sand beds just above bedrock and flows generally to the west-southwest.

2.2 Previous Investigations

A Preliminary Assessment (PA) was conducted in 1985 for Site 3. In accordance with recommendations in the PA, Site 3 was investigated during a remedial investigation in 1988 (USAF 2006).

Site 3 is located on approximately 36 acres along the southern boundary of the City of Colorado Springs Municipal Airport, southwest of the former Peterson AFB Small Arm Ranges. Previous investigations consisted of a soil gas survey and soil sampling. No groundwater samples were taken as a saturated interval did not appear to be present within the alluvium during drilling of the soil borings.

Soil Gas Survey: A soil gas survey was conducted to delineate any volatile organic compounds (VOCs) present in the soil pore volume. Soil gas samples were taken at a depth of 6 feet below the ground surface (bgs). A number of VOCs were detected in the soil gas; however, only 1,1,1-trichloroethane was found at a concentration of 1 microgram per liter. The soil gas survey indicated that little VOC contamination was present in the soil atmosphere.

Soil Sampling: Soil samples were collected from 11 locations within Site 3. Low concentrations of various contaminants, including metals, VOCs, pesticides, and polychlorinated biphenyls (PCBs), were present in soil samples collected from Site 3. These contaminants did not extend throughout the entire alluvial interval. Analysis for total petroleum hydrocarbons (TPH) showed concentrations of 12,000, 160, and 360 micrograms per kilogram. The PCB concentrations were below the EPA clean-up criterion of 2 milligrams per kilogram. The soil borings also showed varying concentrations of copper, lead, and zinc above background levels.

A risk assessment was not performed for Site 3. In a letter dated June 1, 2007, the CDPHE requested a groundwater investigation to determine potential impacts from the landfill to meet Colorado landfill closure requirements.

Groundwater Sampling: Three monitoring wells (S3-MW01, S3-MW02, and S3-MW03) were installed and monitored for four quarters from September 2008 to April 2009. The only analytes detected above regulatory standards were antimony, arsenic and thallium during the first two quarters of sampling. No analytes were detected above standards in samples collected during the last two quarters of sampling.

2.3 Conclusions from Previous Investigations

Although data evaluation confirmed that groundwater was not impacted by landfill contents, it was determined that monitoring was not adequately captured in the downgradient direction, and therefore, additional wells needed to be installed.

3. SITE INSPECTION RESULTS

The SI consisted of utility locates, installation of monitoring wells, and collection and laboratory analysis of groundwater samples. All SI activities were conducted in accordance with the approved *Phase II SI Work Plan* (Earth Tech 2010a) and *Work Plan Addendum* (Earth Tech 2010b). Analytical samples were shipped via Federal Express to the analytical laboratory following chain-of-custody procedures. As presented in Appendix A, data reduction, validation, assessment, and reporting were performed in accordance with the procedures described in the *Quality Assurance Project Plan of the Phase II SI Work Plan* (Earth Tech 2010a).

3.1 Groundwater Monitoring System

Three permanent monitoring wells, S3-MW04, S3-MW05, and S3-MW06, were installed at depths of 99.3 feet bgs, 103.5 feet bgs, and 98.0 feet bgs, respectively in the west, southwest, and northeast portions of Site 3. Wells were screened to straddle the water table and completed a foot or two within bedrock. The monitoring well locations and approximate site boundaries are shown on Figure 3-1. Two wells (S3-MW05 and S3-MW06) were primarily located in the downgradient groundwater direction and one well (S3-MW04) was located primarily in the upgradient groundwater direction. Well S3-MW06 was dry during the first quarter sampling event and had limited water volume during the second quarter sampling event.

A geologic cross section based on the boring logs obtained during the installation of these monitoring wells is presented on Figure 3-2. Groundwater was encountered in these borings at depths ranging from approximately 80 feet to 97 feet bgs; the saturated zone was limited to less than 10 feet in thickness. Monitoring well S3-MW06 was dry during the first quarter sampling event and only a partial sample for VOCs only could be collected during the second quarter sampling event. The groundwater wells were constructed using wire-wrapped PVC well screen instead of slotted PVC screen as stated in the approved Phase II SI Work Plan. Wire-wrapped PVC screen is preferred in the Colorado area (for typically dry areas such as the Peterson AFB) because it lets water into the screen more easily than the regular slotted PVC screen.

A total of 23 groundwater samples were collected from all six monitoring wells at Site 3 between April 2011 and January 2012. All groundwater samples (with the exception of first and second quarter samples from S3-MW06) were analyzed for VOCs, metals, cations, anions, and total organic carbon as listed in 6 Code of Colorado Regulations (CCR) 1007-2, Appendix I. During each sampling event, the groundwater elevation was measured in each well immediately prior to purging to establish a general groundwater flow direction in the area. Based on the groundwater elevation data, groundwater contours were plotted (Figure 3-1). Based on the current monitoring well network, groundwater flow is in a west-southwest direction.

3.2 Groundwater Data Evaluation

Four quarterly sampling events were conducted over a monitoring period of one year (April 2011 through January 2012). The groundwater monitoring data were compared against the regulatory standards and evaluated statistically to determine potential impacts, if any, to the underlying groundwater from Site 3. It should be noted that a sample was collected from S3-MW05 in June 2012 to confirm the concentration of 1,2-dicholoropropane in groundwater. This sample was not included in the statistical evaluation.

3.2.1 Comparative Analysis

A comparative analysis of the four sampling events is presented in Tables 3-1 through 3-4. The analyte concentrations were compared against the Basic Standards for Groundwater (5CCR 1002-41) for inorganics and against the CDPHE Water Standard (CDPHE, CSEV Table 1-2011) for the purpose of screening. All detected analytes (not including total metals analysis) remained below their respective regulatory standards with the exception of nitrate as nitrogen (N), 1,2-dichloropropane and 1,2-dichloroethane. Nitrate as N was detected above the domestic water supply standard of 10 milligrams per liter (mg/L) in monitoring well S3-MW03 during all four quarters of sampling. 1,2-Dichloropropane was detected above the CDPHE Water Standard of 0.52 µg/L in samples collected from S3-MW05 during all four quarters of sampling. The highest detection was from a fourth quarter sample at a concentration of 2.5 µg/L. 1,2-Dichloroethane was detected at a concentration of 0.43, which is slightly above the CDPHE Water Standard of 0.38 µg/L in a third quarter sample from S3-MW05. S3-MW05 was re-sampled in June 2012 and the concentration (0.78 µg/L) is still above the CDPHE Water Standard, but well below the fourth quarter result of 2.5 µg/L.

3.2.2 Statistical Evaluation

The statistical evaluation of groundwater monitoring data consisted of one-way parametric analysis of variance (ANOVA) and confidence interval (CI).

3.2.2.1 ANOVA

When contamination of the groundwater occurs from a landfill and if the monitoring wells are hydraulically upgradient and hydraulically downgradient from the site, then contamination is unlikely to change the levels of a constituent in all wells by the same amount. Thus, contamination from a landfill can be seen as differences in average concentrations among wells, and such differences can be detected by ANOVA.

A one-way parametric ANOVA was performed to determine whether the groundwater monitoring data for Site 3 provide evidence of the presence of, or an increase in, the level of contamination. The one-way parametric ANOVA was particularly suitable for such evaluation since groundwater data were generated from more than two wells and were typically based on more than three observations with no significant variations due to seasonality. The hypothesis tests assumed that the errors are normally distributed with constant variance. In accordance with EPA guidance (EPA 1989), statistical evaluation consisting of one-way parametric ANOVA was performed for analytes with one or more detections. ANOVA computations for each analyte were performed using the following steps:

Step 1: The concentrations were arranged per well in a data table across all six wells where ni is the number of samples for well i, p is the number of wells (6), and N is the total sample size. A dry well during some of the sampling events results in N values of 22 and 23 for some analytes. The non-detected values were assigned one-half their respective practical quantitation limits (PQLs).

Step 2: The well count (ni), well total, and well mean were calculated for each well along with the grand count (N), grand total, and grand mean across wells. The sum of squared deviates (SS), the sum of the difference between an individual sample result and the well mean, was

calculated for each well, along with the total sum of squared deviates, SStotal, across wells. The sum of squared deviates (SS) may also be termed the sum of squares.

Step 3: The sum of squares between well means and the grand mean, SSwells, was calculated.

Step 4: The sum of squares of the differences of observations within wells from the well mean, SSerror, was calculated. SSerror is the sum of the SS across wells and may also be calculated as SSerror = SStotal – SSwells.

Step 5: The degrees of freedom (dF) were calculated between wells (p-1), within wells (N-p), and across wells (N-1). The mean square (MS) was calculated both between wells ($_{MSwells}$) and within wells (MS_{error}) as the quotient of SS/dF. An F ratio, (MS_{wells}/M_{Serror}) was then calculated.

Step 6: The ANOVA table was constructed as shown below.

ANOVA TABLE					
Source of Variation	**Sum of Squares**	**Degrees of Freedom**	**Mean Squares**	**F**	**Fcrit**
Between wells	SS_{wells}	p-1	$MS_{wells}= SS_{wells}/(p-1)$	$F= MS_{wells}/MS_{error}$	$Fcrit_{(p-1,N-p)}$
Error (within wells)	SS_{error}	N-p	$MS_{error}= SS_{error}/ (N-p)$		
Total	SS_{total}	N-1			

Notes:
F = F-statistic (ability to detect differences among group means).
N = total sample size.
p = number of wells.

Step 7: The assumption of equal variances among the wells was tested by comparing the calculated F ratio against the tabulated F statistic with (p-1) and (N-p) degrees of freedom at a 5 percent significance level. If the calculated F ratio is less than the tabulated F critical value, the assumption of equal variances holds true and there is no evidence of significant contamination. If the calculated F ratio exceeds the tabulated F critical value, the null hypothesis of equal variances among the wells is unlikely and possible groundwater contamination is suggested.

The above procedures are shown in a sample calculation in Table 3-5. Calculations for all analytes are presented in Appendix B. A dry well during two sampling events created groups of results with unequal sample sizes; a possible complication will be explored below.

3.2.2.2 Possible Difficulties with ANOVA

The use of ANOVA to determine whether differences among the means are random or significant, i.e. the null hypothesis holds or fails, respectively, is dependent upon several assumptions and hinges upon equal sample sizes. Intrinsic assumptions in ANOVA include samples measured upon an equal interval scale, independent samples, a normally distributed population, and approximately equal variance among the groups. Fortunately, the ANOVA test is extremely robust for groups of samples of the same size, providing a relatively unperturbed analysis when the number of samples is the same from each well. An ANOVA with equal sample size is robust to population distributions, robust to group variance, and relatively robust to scale intervals. Unfortunately, equal sample size may not hold true for all sample results.

While the groundwater sampling results fulfill the first two assumptions, and the third assumption is relatively met, the assumption of relatively equal variance must be explored further.

With unequal sample size, the assumption of relatively equal variance becomes more important. The variance, the ratio of the sum of squares divided by the degrees of freedom or SSi/(ni-1), is determined for each well. To comply with the fourth assumption of approximately equal variance, the ratio between the largest variance and the smallest variance must be less than 1.5. While ANOVA with an equal number of samples provides a robust measure even when the relative variance exceeds 1.5, confidence in ANOVA results with an unequal number of samples hinges upon the relative variance not exceeding 1.5.

Analysis of results with unequal sample sizes using ANOVA requires all four assumptions to be met. When independent samples fail to meet these assumptions, a nonparametric alternative to a one-way ANOVA may be run with the Kruskal-Wallis test (KW).

3.2.2.3 Kruskal-Wallis Test

The Kruskal-Wallis test (KW) is a nonparametric alternative to the one-way ANOVA. KW is similar to the ANOVA test; replacing sample results with relative rank across samples. The determination of the same versus a different population, i.e the null hypothesis that the differences in the mean of the ranks is random and not statistically significant versus a large variance in the mean of the ranks, respectively, progresses similarly to the ANOVA analysis.

Step 1: Using the concentrations arranged per well in a data table across all six wells in the previous ANOVA analysis, a second table is generated tabulating the relative ranks of each sample result. Similar to ANOVA, statistics are determined where ni is the number of samples for well i, p is the number of wells (6), and N is the total sample size. A dry well during some of the sampling events results in N values of 22 and 23 for some analytes.

Step 2: Relative rank is determined in ascending order; using a rank of 1 for the smallest result. Tied ranks are corrected by using the average rank of the tied values. For example, a dataset with seven samples {3,5,7,7,7,9,10} would not be ranked {1,2,3,4,5,6,7}, but instead provides ranks {1,2,4,4,4,6,7} where rank for the 3 values of 7 is determined as the sum of the uncorrected ranks divided by the number of samples in that tie or (3+4+5)/3 = 4.

Step 3: Using the relative ranks, the well count (ni), well total, and well mean were calculated for each well along with the grand count (N), grand total, and grand mean across wells. Continuing along ANOVA lines, relative ranks were then used as the sum of squares (SS) was calculated for each well.

Step 4: Similarly, the sum of squares between well means and the grand mean, SS_{wells}, was calculated.

Step 5: The degrees of freedom (dF) was calculated between wells (p-1). The mean of the sampling distribution was calculated (dF (N (N+1)/12). An H statistic (SS_{wells}/(N(N+1)/12) was then calculated.

Step 6: The Kruskal-Wallis table was constructed as shown below.

KRUSKAL - WALLIS TABLE					
Source of Variation	**Sum of Squares**	**Degrees of Freedom**	**Mean Distribution**	**H**	**Hcrit**
Between wells	SS_{wells}	p-1	(p-1) (N(N+1) / 12)	SS_{wells}/(N(N+1)/12)	Chi-square$_{(p-1)}$

Notes:
H = H-statistic (ability to detect differences among group means).
N = total sample size.
p = number of wells.

Step 7: The assumption of equal variances among the wells was tested by comparing the calculated H statistic against the H critical with 95% probability and (p-1) degrees of freedom. When each of the wells includes at least five sample results, the sampling distribution for H is very nearly distributed as the chi-square distribution with (p-1) degrees of freedom and is a fairly close approximation with as few as three observations per well. A calculated H statistic less than the H critical value, as approximated by the chi-square distribution at 95% probability and (p-1) degrees of freedom, means that the assumption of equal variances holds and there is no evidence of significant contamination. If the calculated H statistic exceeds the H critical value, the null hypothesis of equal variances among the wells is unlikely and possible groundwater contamination is suggested.

The above procedures are shown in Table 3.5-2 for total arsenic. Calculations for all analytes are shown in Appendix B.

3.2.2.4 Confidence Intervals

A CI designed to contain the specified population parameter (the mean concentration at a well in groundwater monitoring) with a designated level of confidence or probability, is determined for each analyte. The CI was calculated for each well using the four rounds of sampling data. Calculations were performed using the following steps:

Step 1: The mean (M) and standard deviation (St.Dev.) of the analyte concentrations were calculated for each well.

Step 2: The CI was calculated for each well using the following equation:

$M + t_{(0.99,\ n-1)}\ St.Dev./n^{1/2}$ (upper limit); $M - t_{(0.99,\ n-1)}\ St.Dev./n^{1/2}$ (lower limit)

where t (0.99, n-1) is obtained from the statistical t-table. The 99th percentile of the t-distribution for four observations is 4.541. The dry well reduced the number of analyzed samples for one of the Site 3 wells to two and three observations, with a 99th percentile t-distribution of 31.82 and 6.965, respectively.

Step 3: The intervals calculated in Step 2 were compared to the regulatory limits. If the regulatory limit is contained in the interval or is above the upper limit, the unit remains within compliance. Statistically significant evidence of contamination is concluded only if the lower limit of the CI exceeds the regulatory limit.

The above procedures are shown in a sample calculation in Table 3-6. The calculations of the CI for each well for all the analytes are presented in Appendix B.

3.2.2.5 Statistical Analysis Results

A downgradient well, PAFB03-MW06, was dry during one sampling event and produced limited water volume during another sampling event. This well created groups of results with unequal sample sizes; thus reducing the robust nature of the ANOVA test and promoting the use of the nonparametric KW. In addition, CI evaluation was performed upon all analytes.

While 24 analytes produced an ANOVA F statistic that exceeded the critical F value, confidence in these ANOVA results is diminished by the unequal number of sample results from the wells. For sample groups with unequal sample counts, the ratio of the variance must be less than 1.5. Of the 24 ANOVA analytes, the only five with a variance ratio less than 1.5 were almost exclusively solitary detects each sampling event. Of the five passing variance analysis, 1,2-dichloropropane, chloroform, and cis-1,2-dichloroethene had only solitary detects each sampling quarter from PAFB03-MW05; trichlorofluoromethane had only solitary detects each sampling quarter from PAFB03-MW02; and nitrite had only three detections (PAFB03-MW01 quarter 1 and PAFB03-MW06 quarters 3 and 4). Further examination of the nitrite results reveals the 1st quarter result of 0.04F to be much smaller than the PQL of 0.5, producing an inflated measure of the mean when ½ the PQL is substituted for the nondetected results for this well in quarters 2, 3, and 4. Although KW analysis of these five ANOVA analytes did not reveal a significant variance in the mean, the variance ratio less than 1.5 lends dependability to the ANOVA conclusion of possible groundwater contamination. Fortunately, CI evaluation showed that all five of these variance analytes were within regulatory compliance.

Seventeen analytes produced a KW H statistic that exceeded the critical H value. These analytes included 1,1,1-trichlkoroethane, alkalinity bicarbonate, barium, total beryllium, calcium, total calcium, chloride, magnesium, total magnesium, nitrate as N, potassium, selenium, total selenium, sodium, total sodium, sulfate, and tetrachloroethene. KW analysis of the sampling results of these seventeen analytes suggests possible groundwater contamination. With the exception of alkalinity bicarbonate and total beryllium, all of these KW analytes had also exceeded their ANOVA critical value. CI evaluation of these KW analytes reveals only one analyte, nitrate as N, with evidence of contamination. Nitrate as N will be explored further in a moment.

Seven analytes produced a lower limit of the confidence interval around the mean (LL) that exceeded the regulatory limit. Six of these analytes, 1,1,2,2-tetrachloroethane, 1,2-dibromo-3-chloropropane, 1,2-dibromoethane, arsenic, carbon tetrachloride, and vinyl chloride, were nondetected analytes. The mean generated by substituting ½ PQL produced a LL greater than the regulatory standard for these nondetected analytes.

The individual sampling results were also compared against the regulatory GW standard. Only 2 of the twenty-four ANOVA analytes, 1,2-dichloropropane and nitrate as N, had sampling results that exceeded the regulatory limit. Only two of the 16 KW analytes, total beryllium and nitrate as N, had sampling results that exceeded the regulatory limit. All four 1,2-dichloropropane detections (out of 23 samples) exceeded regulatory standard. One of total beryllium's 18 detections (out of 22 samples) exceeded the GW standard. And four out of twenty-two detected nitrate as N samples exceeded the regulatory limit and were from the same well: PAFB03-MW03.

Closer examination of the nitrate as N results shows that results from a solitary well, PAFB03-MW03, produced a LL that exceeded the regulatory groundwater standard of 10mg/L. The only detected exceeder was nitrate as N, and only one well, PAFB03-MW03, produced a LL exceeding the regulatory standard of 10mg/L. All four sampling events at PAFB03-MW03, produced a sampling result of 14mg/L, which produced a well mean of 14mg/L. The resultant LL (14mg/L) exceeded the 10mg/L standard; suggesting statistically significant evidence of contamination by nitrate as N.

In summary, nitrate as N was the only analyte where KW results suggested possible groundwater contamination and where CI evaluation revealed statistically significant evidence of contamination for Site 3.

3.3 Nature and Extent of Contamination

The monitoring program was consistent with the requirements of 40 Code of Federal Regulations 258.531 to ensure that monitoring results provided an accurate representation of the groundwater quality at Site 3. The concentrations of the majority of the analytes do not exceed the regulatory standards that were used as risk screening criteria. Exceedances were observed for total metals (arsenic, beryllium, chromium, cobalt, lead, nickel, and vanadium), nitrate as N, 1,2-dicholoroethane, and 1,2-dichloropropane. It should be noted that the data show no exceedances of dissolved metals.

Exceedances of 1,2-dicholorethane and 1,2-dichloropropane occurred in samples from downgradient well S3-MW05. Although evaluation using ANOVA indicated possible groundwater contamination, further statistical evaluation using KW and CI concluded that there is no significant evidence of contamination with respect to 1,2-dichloroethane and 1,2-dichloropropane. Furthermore, the presence of these analytes in groundwater appears anomalous due to the fact that the landfill source area has been removed. An additional sample from S3-MW05, collected in July 2012 showed a decrease in the 1,2-dichloropropane concentration, which further indicates that contamination is not from a continuing source. Exceedances of Nitrate as N occurred in cross gradient well S3-MW03. Statistical evaluation using ANOVA, KW, and CI indicated evidence of contamination. With the exception of nitrate as N, the CI evaluation concluded that all six wells are in compliance for all analytes with respect to regulatory standards. The CI result for nitrate as N appears to be a false positive considering 18 out of 22 observations (including those from downgradient wells) were detected below standards (concentrations varied from 0.52 milligrams per liter to 7.1 milligrams per liter). Its presence above standards in a cross-gradient well may suggest an upgradient source. Monitoring well S3-MW03 is located within a landscaped area of trees and grass. It is possible that the presence of nitrate as N is due to the use of fertilizer as a soil amendment.

3.4 Conceptual Site Model

Site 3 covers approximately 36 acres and was in operation from 1962 to 1986. In 1989, the landfill contents were removed during initial phases of parking lot construction at the Airport, and the landfill was backfilled with native material and seeded. Currently, airport parking structures have been constructed over almost all of the area. Based on site records and interviews with base personnel, the wastes present at this site included, but were not limited to,

solvents from cleaning and stripping operations, residual herbicides and pesticides, oils and grease, petroleum products, metals, and general base refuse.

The geology at Site 3 consists of approximately 60 to 80 feet of silty and clayey sands, and approximately 10 to 20 feet of gravelly sand overlying weathered bedrock. Groundwater depths range from approximately 80 to 97 feet bgs and groundwater flow is to the west, southwest. Groundwater is encountered within the gravelly sand near the bedrock interface. The groundwater gradient at Site 3 is approximately 0.008.

During a remedial investigation in 1998 at Site 3, soil samples were collected and a soil gas survey was conducted. Soil contaminants did not extend throughout the entire alluvial interval. The soil gas survey did not identify any significant contamination in the soil atmosphere.

An evaluation of groundwater analytical data identified some metals (total results only), and three other analytes (nitrate as N, 1,2-dicholoroethane, and 1,2-dichloropropane) as exceeding regulatory standards. A further statistical evaluation only identified nitrate as N as possibly contributing to groundwater contamination. Since 18 out of 22 nitrate as N observations (samples from all wells except S3-MW03) were detected below standards (concentrations varied from 0.52 milligrams per liter to 7.1 milligrams per liter), and monitoring well S3-MW03 is located in a landscaped area where soil amendments may have been used, the statistical result may be a false positive. The analytes 1,2-dicholoroethane, and 1,2-dichloropropane were only detected above regulatory standards in one well. Since the landfill contents have been removed, it is unlikely that their presence is due to past operations at the site.

3.5 Potential Applicable or Relevant and Appropriate Requirement Identification

Potential applicable or relevant and appropriate requirements (ARARs) include promulgated environmental requirements, criteria, standards, and other limitations and are typically divided into three categories: chemical-specific, location-specific, and action-specific. Chemical-specific ARARs are regulatory cleanup levels or screening criteria. Location-specific ARARs are requirements that affect the management of contaminated media or the land parcels in which they are managed because of the location of the sites. Action-specific ARARs are requirements that are triggered by the selected remedial alternative and may place restrictions on the manner in which a selected alternative may be achieved. Table 3-7 lists the ARARs that were considered during site inspections at Site 3. Colorado Ground Water Standards were specifically considered for screening of definitive data.

4. CONCLUSIONS AND RECOMMENDATIONS

Table 4-1 summarizes the project objectives introduced in Section 1.1, along with a summary of findings and a reference to the appropriate section in which the issue was addressed. Although the SI data confirm nitrate as N as a possible groundwater contaminant, the location of the exceedances (in cross-gradient well S3-MW03) may suggest evidence of an upgradient or isolated source. Furthermore, nitrate as N was not detected above regulatory standards in previous Site Investigations at Site 3. The extent of 1,2-dichloropropane above regulatory standards appears to be isolated. Since there is no longer a landfill contamination source, its presence is not likely due to previous operations at the site. Furthermore, a continuing source in soil would most likely show the presence of other contaminants in groundwater. .

An evaluation of all soil and groundwater data show that analytes detected in groundwater above standards are not due to previous operations and therefore, Site 3 is recommended for NFA and may be closed with no use restrictions.

5. REFERENCES

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TABLES

TABLE 3-1
CHEMICALS DETECTED DURING FIRST QUARTER SAMPLING EVENT
PHASE II SI, SITE 3, PETERSON AFB

Method	Analyte	Units	Screening Criteria: CDPHE Water Standard	Screening Criteria: Domestic Water Supply Standard	Screening Criteria: Agricultural Standard	S3-MW01 4/29/2011 TAMQ	S3-MW01 5/5/2011 TAMQ	S3-MW02 4/28/2011 TAMQ	S3-MW02(FD) 4/28/2011 TAMQ	S3-MW03 4/28/2011 TAMQ	S3-MW04 4/28/2011 TAMQ	S3-MW05 4/29/2011 TAMQ	S3-MW05 5/5/2011 TAMQ
A2320	ALKALINITY, BICARBONATE (AS CACO3)	mg/L	--	--	--	NA	210	210	210	400	270	NA	310
E300	CHLORIDE	mg/L	--	250	--	NA	24	13	13	13	21	NA	28
E300	NITRATE AS NITROGEN	mg/L	10	10	100	NA	3.7	3.1	3.2	**14**	4	NA	6.7
E300	SULFATE (AS SO4)	mg/L	--	250	--	NA	27	32	32	15	26	NA	27
SW6010B	ARSENIC	µg/L	10	10	100	ND (30)	NA	5.7	**17**	8.8	8.2	**64**	NA
SW6010B	ARSENIC (DIS)	µg/L	10	10	100	ND (30)	NA	ND (30)	ND (30)	ND (30)	ND (30)	ND (30)	NA
SW6010B	BARIUM	µg/L	2000	2000	--	140	NA	180	210	130	310	1300	NA
SW6010B	BARIUM (DIS)	µg/L	2000	2000	--	110 (J)	NA	82 (J)	63 (J)	73 (J)	81 (J)	220 (J)	NA
SW6010B	BERYLLIUM	µg/L	4	4	100	ND (4)	NA	1.4	1.6	ND (4)	1.4	**9.4**	NA
SW6010B	BERYLLIUM (DIS)	µg/L	4	4	100	ND (4)	NA	ND (4)	ND (4)	ND (4)	ND (4)	1.1	NA
SW6010B	CALCIUM	µg/L	--	--	--	72000 (J)	NA	57000	59000	100000	92000	180000 (J)	NA
SW6010B	CALCIUM (DIS)	µg/L	--	--	--	75000	NA	55000	55000	95000	84000	110000	NA
SW6010B	CHROMIUM	µg/L	--	100	--	15 (J)	NA	22 (J)	26 (J)	11 (J)	38 (J)	**190 (J)**	NA
SW6010B	CHROMIUM (DIS)	µg/L	--	100	--	6.8	NA	9.8	7.6	ND (10)	ND (10)	11	NA
SW6010B	COBALT	µg/L	50	--	50	2.5	NA	7.1	8.4	3.4	8.6	71	NA
SW6010B	COBALT (DIS)	µg/L	50	--	50	1.8	NA	2.8	2.7	ND (60)	ND (60)	8.8	NA
SW6010B	COPPER	µg/L	100	--	200	7.2 (J)	NA	17 (J)	20 (J)	4.9 (J)	26 (J)	150 (J)	NA
SW6010B	COPPER (DIS)	µg/L	100	--	200	4.5	NA	7.4	6.1	ND (10)	ND (10)	12	NA
SW6010B	LEAD	µg/L	50	50	100	6.3 (J)	NA	22 (J)	28 (J)	3.9 (J)	24 (J)	**150 (M)**	NA
SW6010B	LEAD (DIS)	µg/L	50	50	100	4.8	NA	11	6.9	ND (25)	ND (25)	16	NA
SW6010B	MAGNESIUM	µg/L	--	--	--	13000	NA	13000	13000	20000	21000	53000	NA
SW6010B	MAGNESIUM (DIS)	µg/L	--	--	--	13000	NA	11000	11000	20000	13000	19000	NA
SW6010B	NICKEL	µg/L	100	100	200	6.9 (J)	NA	17 (J)	21 (J)	4.3 (J)	23 (J)	**150 (J)**	NA
SW6010B	NICKEL (DIS)	µg/L	100	100	200	5.1	NA	6.9	5.8	ND (20)	2.6	16	NA
SW6010B	POTASSIUM	µg/L	--	--	--	3800	NA	4700	5100	4100	7100	19000	NA
SW6010B	POTASSIUM (DIS)	µg/L	--	--	--	2200 (J)	NA	2900 (J)	2400 (J)	2700 (J)	2100 (J)	3200 (J)	NA
SW6010B	SODIUM	µg/L	--	--	--	24000	NA	46000	46000	71000	32000	33000	NA
SW6010B	SODIUM (DIS)	µg/L	--	--	--	27000	NA	47000	47000	73000	33000	36000	NA
SW6010B	VANADIUM	µg/L	100	--	100	22	NA	44	51	11	63	270	NA
SW6010B	VANADIUM (DIS)	µg/L	100	--	100	7 (J)	NA	20 (J)	15 (J)	1.2 (J)	1.3 (J)	18 (J)	NA
SW6010B	ZINC	µg/L	2000	5000	2000	29 (J)	NA	87 (J)	110 (J)	21 (J)	110 (J)	650 (J)	NA
SW6010B	ZINC (DIS)	µg/L	2000	5000	2000	21 (J)	NA	40 (J)	33 (J)	5.6 (J)	14 (J)	57 (J)	NA
SW6020	ANTIMONY	µg/L	6	6	--	0.21 (M)	NA	0.37 (M)	0.39 (M)	0.54 (M)	0.31 (M)	0.25 (M)	NA
SW6020	ANTIMONY (DIS)	µg/L	6	6	--	0.16	NA	0.2	0.2	0.52	0.37	0.27	NA
SW6020	CADMIUM	µg/L	5	5	10	0.46	NA	0.58	0.64	0.2	0.34	0.7	NA
SW6020	CADMIUM (DIS)	µg/L	5	5	10	0.07	NA	0.17	0.15	ND (2)	0.04	0.26	NA
SW6020	SELENIUM	µg/L	20	50	20	4.8	NA	4.1	4.4	6	2.7	6.4	NA
SW6020	SELENIUM (DIS)	µg/L	20	50	20	1.1	NA	2.4 (J)	2 (J)	5.4 (J)	0.7 (J)	1.3	NA
SW6020	THALLIUM	µg/L	2	2	--	0.45	NA	0.33	0.34	0.11 (B)	0.3	0.55	NA
SW6020	THALLIUM (DIS)	µg/L	2	2	--	0.05 (B)	NA	0.083 (B)	0.053 (B)	0.025 (B)	ND (0.2)	0.14 (B)	NA
SW8260B	1,1,1-TRICHLOROETHANE	µg/L	200	--	--	NA	ND (1)	0.38	0.32	ND (1)	0.15	NA	0.15
SW8260B	1,1-DICHLOROETHANE	µg/L	61	--	--	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	1.2
SW8260B	1,1-DICHLOROETHYLENE	µg/L	7	--	--	NA	ND (1)	0.53	0.52	ND (1)	ND (1)	NA	ND (1)
SW8260B	1,2-DICHLOROETHANE	µg/L	0.38	--	--	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	ND (0.5)
SW8260B	1,2-DICHLOROPROPANE	µg/L	0.52	--	--	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	0.77
SW8260B	1,4-DICHLOROBENZENE	µg/L	75	--	--	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	ND (0.5)

Method	Analyte	Units	Screening Criteria			S3-MW01	S3-MW01	S3-MW02	S3-MW02(FD)	S3-MW03	S3-MW04	S3-MW05	S3-MW05
						4/29/2011	5/5/2011	4/28/2011	4/28/2011	4/28/2011	4/28/2011	4/29/2011	5/5/2011
			CDPHE Water Standard	Domestic Water Supply Standard	Agricultural Standard	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ
SW8260B	CHLOROFORM	µg/L	3.5	--	--	NA	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	NA	0.29
SW8260B	CIS-1,2-DICHLOROETHYLENE	µg/L	70	--	--	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	0.57
SW8260B	DICHLOROMETHANE	µg/L	4.7	--	--	NA	0.34 (B)	ND (2)	ND (2)	ND (2)	ND (2)	NA	0.55 (B)
SW8260B	TETRACHLOROETHENE	µg/L	5	--	--	NA	ND (1)	ND (1)	ND (1)	ND (1)	0.31	NA	1.2
SW8260B	TRICHLOROETHENE (TCE)	µg/L	5	--	--	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	0.49
SW8260B	TRICHLOROFLUOROMETHANE	µg/L	2100	--	--	NA	ND (1)	0.36	0.34	ND (1)	ND (1)	NA	ND (1)
SW9060	TOTAL ORGANIC CARBON	mg/L	--	--	--	NA	3.8	0.98	1	1.8	1	NA	1.5

Notes:
Monitoring well S3-MW06 was dry and therefore could not be sampled.
Inorganics are only compared against the domestic water supply standard and the agricultural standard
Shading indicates an exceedance of the CDPHE water standard
Shading and bolding indicates an exceedance of the domestic water supply standard
Shading and underlining indicates an exceedance of the agricultural standard
--- = no screening criteria available
CDPHE = Colorado Department of Public Health and Environment
DIS = dissolved
FD = field duplicate
NA = not analyzed
ND = not detected (associated reporting limit in parentheses)
mg/L = milligrams per liter
µg/L = micrograms per liter
TAMQ = Test America Laboratory, Arvada, Colorado

Validation Flag Definitions (denoted by letter codes within parentheses):
B = The value is considered a non-detect due to a detection in an associated QC blank.
J = The value is an estimated detect.
M = The value is estimated due to an associated matrix spike sample being outside of quality control criteria.
UB = The value is considered a non-detect due to a detection in an associated QC blank.
UM = The value is an estimated non-detect due to an associated matrix spike sample being outside of quality control criteria.

Regulatory Standards
Water Standard: CDPHE Hazardous Materials and Waste Management Division, Table 1. Colorado Soil Evaluation Values. July 2011.
Domestic and Agricultural Standard: CDPHE Water Quality Control Commission. 5 CCR 1002-41, Regulation No. 41, Basic Standards for Ground Water. Effective November 30, 2009

TABLE 3-2
CHEMICALS DETECTED DURING SECOND QUARTERLY SAMPLING EVENT
PHASE II SI, SITE 3, PETERSON AFB

Method	Analyte	Units	Screening Criteria			S3-MW01	S3-MW01(FD)	S3-MW02	S3-MW03	S3-MW04	S3-MW05	S3-MW06
						7/28/2011	7/28/2011	7/27/2011	7/28/2011	7/28/2011	7/27/2011	7/28/2011
			CDPHE Water Standard	Domestic Water Supply Standard	Agricultural Standard	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ
A2320	ALKALINITY, BICARBONATE (AS CACO3)	mg/L	--	--	--	210	210	220	520	290	330	NA
A2320	ALKALINITY, CARBONATE (AS CACO3)	mg/L	--	--	--	ND	ND	ND	ND	ND	ND	NA
E300	CHLORIDE	mg/L	--	250	--	20	20	12	13	13	29	NA
E300	NITRATE AS NITROGEN	mg/L	10	10	100	3.9	3.9	2.9	**14**	0.96	6.7	NA
E300	SULFATE (AS SO4)	mg/L	--	250	--	23	23	33	11	21	27	NA
SW6010B	ARSENIC	µg/L	10	10	100	**12**	**11**	5.7	ND (30)	ND (30)	**11**	NA
SW6010B	ARSENIC (DIS)	µg/L	10	10	100	ND (30)	ND (30)	ND (30)	ND (30)	ND (30)	ND (30)	NA
SW6010B	BARIUM	µg/L	2000	2000	--	350	300	96	130	220	290	NA
SW6010B	BARIUM (DIS)	µg/L	2000	2000	--	64 (J)	98 (J)	19 (J)	78 (J)	77 (J)	100 (J)	NA
SW6010B	BERYLLIUM	µg/L	4	4	100	1.8	1.5	0.57	ND (4)	0.72	1.6	NA
SW6010B	BERYLLIUM (DIS)	µg/L	4	4	100	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	NA
SW6010B	CALCIUM	µg/L	--	--	--	79000	73000	54000	130000	78000	110000	NA
SW6010B	CALCIUM (DIS)	µg/L	--	--	--	71000	76000	53000	140000	77000	110000	NA
SW6010B	CHROMIUM	µg/L	--	100	--	76 (J)	61 (J)	11 (J)	7.7 (J)	20 (J)	49 (J)	NA
SW6010B	CHROMIUM (DIS)	µg/L	--	100	--	4.6	6.9	1.6	1.1	0.87	4.8	NA
SW6010B	COBALT	µg/L	50	--	50	14	12	2.7	2.2	4	8.7	NA
SW6010B	COBALT (DIS)	µg/L	50	--	50	ND (60)	2.4	ND (60)	ND (60)	ND (60)	ND (60)	NA
SW6010B	COPPER	µg/L	100	--	200	34 (J)	28 (J)	7.3 (J)	5.6 (J)	13 (J)	24 (J)	NA
SW6010B	COPPER (DIS)	µg/L	100	--	200	4.2	8	2.2	3.1	2.8	4.3	NA
SW6010B	LEAD	µg/L	50	50	100	36	32	10 (J)	3.9	13	27 (J)	NA
SW6010B	LEAD (DIS)	µg/L	50	50	100	ND (25)	6.9	ND (25)	ND (25)	ND (25)	2.9	NA
SW6010B	MAGNESIUM	µg/L	--	--	--	22000	20000	10000	21000	15000	20000	NA
SW6010B	MAGNESIUM (DIS)	µg/L	--	--	--	11000 (J)	13000 (J)	8900 (J)	23000 (J)	12000 (J)	16000 (J)	NA
SW6010B	NICKEL	µg/L	100	100	200	35 (J)	28 (J)	7.4 (J)	11 (J)	11 (J)	19 (J)	NA
SW6010B	NICKEL (DIS)	µg/L	100	100	200	2.3	4.5	ND (20)	4.4	1.6	2.8	NA
SW6010B	POTASSIUM	µg/L	--	--	--	7100	6100	2900	3500	4900	6500	NA
SW6010B	POTASSIUM (DIS)	µg/L	--	--	--	2100	2000	1200	2800	2000	2900	NA
SW6010B	SODIUM	µg/L	--	--	--	21000	19000	46000	67000	33000	33000	NA
SW6010B	SODIUM (DIS)	µg/L	--	--	--	21000	22000	46000	72000	33000	35000	NA
SW6010B	VANADIUM	µg/L	100	--	100	95 (J)	80 (J)	21 (J)	11 (J)	36 (J)	61 (J)	NA
SW6010B	VANADIUM (DIS)	µg/L	100	--	100	6.5	9.4	2.1	2.2	1.8	6.1	NA
SW6010B	ZINC	µg/L	2000	5000	2000	140	120	42	21	60	100	NA
SW6010B	ZINC (DIS)	µg/L	2000	5000	2000	10	26	ND (20)	5.8	6	13	NA
SW6020	ANTIMONY	µg/L	6	6	--	0.14 (M)	0.15 (M)	0.24 (M)	0.35 (M)	0.18 (M)	0.21 (M)	NA
SW6020	ANTIMONY (DIS)	µg/L	6	6	--	0.13	0.15	0.17	0.34	0.24	0.13	NA
SW6020	CADMIUM	µg/L	5	5	10	0.57	0.37	0.3	0.2	0.2	0.46	NA
SW6020	CADMIUM (DIS)	µg/L	5	5	10	0.087	0.14	0.053	0.07	0.047	0.14	NA
SW6020	SELENIUM	µg/L	20	50	20	4.3	3.8	2.3	5.8	1.7	4.9	NA
SW6020	SELENIUM (DIS)	µg/L	20	50	20	1.7	1.8	2	6.1	ND (2)	2.4	NA
SW6020	THALLIUM	µg/L	2	2	--	0.43 (J)	0.36 (J)	0.17 (B)	0.1 (B)	0.18 (B)	0.37 (J)	NA
SW6020	THALLIUM (DIS)	µg/L	2	2	--	0.067 (B)	0.095 (B)	0.033 (B)	0.025 (B)	0.053 (B)	0.065 (B)	NA
SW8260B	1,1,1-TRICHLOROETHANE	µg/L	200	--	--	ND (1)	ND (1)	0.44	ND (1)	0.1	0.16	ND (1)
SW8260B	1,1-DICHLOROETHANE	µg/L	61	--	--	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	1.7	0.35
SW8260B	1,1-DICHLOROETHYLENE	µg/L	7	--	--	ND (1)	ND (1)	0.9	ND (1)	ND (1)	ND (1)	ND (1)
SW8260B	1,2-DICHLOROPROPANE	µg/L	0.52	--	--	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	0.89	ND (1)
SW8260B	ACETONE	µg/L	6300	--	--	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	28 (M)	ND (10)

Method	Analyte	Units	Screening Criteria			S3-MW01	S3-MW01(FD)	S3-MW02	S3-MW03	S3-MW04	S3-MW05	S3-MW06
						7/28/2011	7/28/2011	7/27/2011	7/28/2011	7/28/2011	7/27/2011	7/28/2011
			CDPHE Water Standard	Domestic Water Supply Standard	Agricultural Standard	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ
SW8260B	CHLOROFORM	µg/L	3.5	--	--	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	0.32	ND (0.3)
SW8260B	CIS-1,2-DICHLOROETHYLENE	µg/L	70	--	--	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	0.85	ND (1)
SW8260B	DICHLOROMETHANE	µg/L	4.7	--	--	0.45 (B)	0.42 (B)	0.49 (B)	0.46 (B)	0.41 (B)	0.98 (B)	0.48 (B)
SW8260B	TETRACHLOROETHENE	µg/L	5	--	--	ND (1)	ND (1)	ND (1)	ND (1)	0.21	1.1	ND (1)
SW8260B	TOLUENE	µg/L	560	--	--	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	0.079
SW8260B	TRICHLOROETHENE (TCE)	µg/L	5	--	--	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	0.56	ND (1)
SW8260B	TRICHLOROFLUOROMETHANE	µg/L	2100	--	--	ND (1)	ND (1)	0.43	ND (1)	ND (1)	ND (1)	ND (1)
SW9060	TOTAL ORGANIC CARBON	mg/L	--	--	--	0.98 (J)	1.4 (J)	2.9 (J)	1.5 (J)	1.6 (J)	4 (J)	NA

Notes:
Monitoring well S3-MW06 had limited water and therefore only a sample for VOCs could be collected.
Inorganics are only compared against the domestic water supply standard and the agricultural standard
Shading indicates an exceedance of the CDPHE water standard
Shading and bolding indicates an exceedance of the domestic water supply standard
Shading and underlining indicates an exceedance of the agricultural standard
--- = no screening criteria available
CDPHE = Colorado Department of Public Health and Environment
DIS = dissolved
FD = field duplicate
NA = not analyzed
ND = not detected (associated reporting limit in parentheses)
mg/L = milligrams per liter
µg/L = micrograms per liter
TAMQ = Test America Laboratory, Arvada, Colorado

Validation Flag Definitions (denoted by letter codes within parentheses):
B = The value is considered a non-detect due to a detection in an associated QC blank.
J = The value is an estimated detect.
M = The value is estimated due to an associated matrix spike sample being outside of quality control criteria.
UB = The value is considered a non-detect due to a detection in an associated QC blank.
UM = The value is an estimated non-detect due to an associated matrix spike sample being outside of quality control criteria.

Regulatory Standards
Water Standard: CDPHE Hazardous Materials and Waste Management Division, Table 1. Colorado Soil Evaluation Values. July 2011.
Domestic and Agricultural Standard: CDPHE Water Quality Control Commission. 5 CCR 1002-41, Regulation No. 41, Basic Standards for Ground Water. Effective November 30, 2009

TABLE 3-3
CHEMICALS DETECTED DURING THIRD QUARTER SAMPLING EVENT
PHASE II SI, SITE 3, PETERSON AFB

Method	Analyte	Units	Screening Criteria: CDPHE Water Standard	Screening Criteria: Domestic Water Supply Standard	Screening Criteria: Agricultural Standard	S3-MW01 11/9/2011 TAMQ	S3-MW02 11/9/2011 TAMQ	S3-MW03 11/9/2011 TAMQ	S3-MW04 11/9/2011 TAMQ	S3-MW05 11/9/2011 TAMQ	S3-MW05(FD) 11/9/2011 TAMQ	S3-MW06 11/10/2011 TAMQ
A2320	ALKALINITY, BICARBONATE (AS CACO3)	mg/L	--	--	--	210	220	570	300	460	450	400
E300	CHLORIDE	mg/L	--	250	--	20	13	13	9.2	41	41	27
E300	NITRATE AS NITROGEN	mg/L	10	10	100	4.4	3.2	**14**	0.63	7.1	7	3.7
E300	NITRITE AS N	mg/L	1	1	100	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	0.76
E300	SULFATE (AS SO4)	mg/L	--	250	--	23	32	16	17	25	25	180
SW6010B	ARSENIC	µg/L	10	10	100	**12**	ND (30)	**23**	7.5	6.1	5.7	9.3
SW6010B	ARSENIC (DIS)	µg/L	10	10	100	ND (30)	ND (30)	ND (30)	ND (30)	ND (30)	ND (30)	ND (30)
SW6010B	BARIUM	µg/L	2000	2000	--	310 (J)	93 (J)	550 (J)	320 (J)	210 (J)	290 (J)	280 (J)
SW6010B	BARIUM (DIS)	µg/L	2000	2000	--	61	18	96	91	120	130	41
SW6010B	BERYLLIUM	µg/L	4	4	100	1.6	0.47	2.6	1.6	0.73	1.3	1.1
SW6010B	BERYLLIUM (DIS)	µg/L	4	4	100	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)
SW6010B	CALCIUM	µg/L	--	--	--	84000	55000	200000	88000	140000	150000	140000
SW6010B	CALCIUM (DIS)	µg/L	--	--	--	65000	52000	150000	75000	130000	130000	120000
SW6010B	CHROMIUM	µg/L	--	100	--	60 (J)	7.4 (J)	59 (J)	37 (J)	18 (J)	31 (J)	58 (J)
SW6010B	CHROMIUM (DIS)	µg/L	--	100	--	ND (10)	1.5	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
SW6010B	COBALT	µg/L	50	--	50	13	2.6	27	10	5.6	10	11 (J)
SW6010B	COBALT (DIS)	µg/L	50	--	50	ND (60)	ND (60)	1.9	ND (60)	ND (60)	ND (60)	1.2
SW6010B	COPPER	µg/L	100	--	200	29 (J)	6 (J)	53 (J)	27 (J)	11 (J)	19 (J)	35 (J)
SW6010B	COPPER (DIS)	µg/L	100	--	200	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
SW6010B	LEAD	µg/L	50	50	100	32	7.6	43	30	12	22	20
SW6010B	LEAD (DIS)	µg/L	50	50	100	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)
SW6010B	MAGNESIUM	µg/L	--	--	--	22000	9900	37000	21000	23000	25000	31000
SW6010B	MAGNESIUM (DIS)	µg/L	--	--	--	10000	9100	24000	12000	20000	20000	20000
SW6010B	NICKEL	µg/L	100	100	200	30	6.9	**110**	24	11	19	33
SW6010B	NICKEL (DIS)	µg/L	100	100	200	ND (20)	6.3	9.5	1.5	1.9	1.6	4.1
SW6010B	POTASSIUM	µg/L	--	--	--	6900 (J)	3000 (J)	9200 (J)	6400 (J)	4800 (J)	5900 (J)	8300 (J)
SW6010B	POTASSIUM (DIS)	µg/L	--	--	--	1700	2100	3100	2200	2600	2500	4300
SW6010B	SODIUM	µg/L	--	--	--	22000	48000	74000	34000	45000	45000	110000
SW6010B	SODIUM (DIS)	µg/L	--	--	--	22000	49000	76000	35000	44000	44000	110000
SW6010B	VANADIUM	µg/L	100	--	100	81 (J)	15 (J)	98 (J)	61 (J)	30 (J)	48 (J)	67 (J)
SW6010B	VANADIUM (DIS)	µg/L	100	--	100	1.3	1.5	1.7	ND (10)	ND (10)	1.2	ND (10)
SW6010B	ZINC	µg/L	2000	5000	2000	130 (J)	37 (J)	210 (J)	120 (J)	57 (J)	96 (J)	130 (J)
SW6010B	ZINC (DIS)	µg/L	2000	5000	2000	ND (20)	ND (20)	ND (20)	ND (20)	12	ND (20)	ND (20)
SW6020	ANTIMONY	µg/L	6	6	--	0.25 (M)	0.49 (M)	0.35 (M)	0.27 (M)	0.24 (M)	0.3 (M)	0.63 (M)
SW6020	ANTIMONY (DIS)	µg/L	6	6	--	0.092	0.28	0.33	0.15	0.082	0.093	0.76
SW6020	CADMIUM	µg/L	5	5	10	0.31	0.23	1	0.42	0.23	0.38	0.97
SW6020	CADMIUM (DIS)	µg/L	5	5	10	ND (2)	ND (2)	ND (2)	ND (2)	0.062	0.055	0.18
SW6020	SELENIUM	µg/L	20	50	20	4 (J)	3.2 (J)	13 (J)	4.1 (J)	3 (J)	4.6 (J)	7.9 (J)
SW6020	SELENIUM (DIS)	µg/L	20	50	20	1.3	2	6	ND (2)	1.6	1.5	4.5
SW6020	THALLIUM	µg/L	2	2	--	0.36 (J)	0.12 (UB)	0.88 (J)	0.38 (J)	0.2 (J)	0.33 (J)	0.37 (J)
SW6020	THALLIUM (DIS)	µg/L	2	2	--	0.061 (UB)	0.023 (UB)	0.035 (UB)	ND (0.2)	0.024 (UB)	0.03 (UB)	0.027 (UB)
SW8260B	1,1,1-TRICHLOROETHANE	µg/L	200	--	--	ND (1)	0.29	ND (1)	0.075	0.13	0.14	ND (1)
SW8260B	1,1,2-TRICHLOROETHANE	µg/L	2.8	--	--	ND (1)	ND (1)	ND (1)	ND (1)	0.26	0.26	ND (1)
SW8260B	1,1-DICHLOROETHANE	µg/L	61	--	--	ND (1)	ND (1)	ND (1)	ND (1)	3.9	3.9	0.47
SW8260B	1,1-DICHLOROETHYLENE	µg/L	7	--	--	ND (1)	0.51	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
SW8260B	1,2-DICHLOROETHANE	µg/L	0.38	--	--	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	0.43	0.42	ND (0.5)
SW8260B	1,2-DICHLOROPROPANE	µg/L	0.52	--	--	ND (1)	ND (1)	ND (1)	ND (1)	2.3	2.3	ND (1)

Method	Analyte	Units	Screening Criteria			S3-MW01	S3-MW02	S3-MW03	S3-MW04	S3-MW05	S3-MW05(FD)	S3-MW06
						11/9/2011	11/9/2011	11/9/2011	11/9/2011	11/9/2011	11/9/2011	11/10/2011
			CDPHE Water Standard	Domestic Water Supply Standard	Agricultural Standard	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ
SW8260B	1,4-DICHLOROBENZENE	µg/L	75	--	--	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	0.12	0.14	ND (0.5)
SW8260B	ACETONE	µg/L	6300	--	--	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	9.6
SW8260B	CHLOROFORM	µg/L	3.5	--	--	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	0.32	0.35	ND (0.3)
SW8260B	CHLOROMETHANE	µg/L	--	--	--	ND (1) (UM)	ND (1) (UM)	ND (1) (UM)	ND (1) (UM)	ND (1) (UM)	ND (1) (UM)	0.12 (M)
SW8260B	CIS-1,2-DICHLOROETHYLENE	µg/L	70	--	--	ND (1)	ND (1)	ND (1)	ND (1)	1.4	1.4	ND (1)
SW8260B	DICHLOROMETHANE	µg/L	4.7	--	--	ND (2)	ND (2)	ND (2)	ND (2)	1	1.2	ND (2)
SW8260B	TETRACHLOROETHENE	µg/L	5	--	--	ND (1)	ND (1)	ND (1)	0.2	1.6	1.5	ND (1)
SW8260B	TRICHLOROETHENE (TCE)	µg/L	5	--	--	ND (1)	ND (1)	ND (1)	ND (1)	0.68	0.65	ND (1)
SW9060	TOTAL ORGANIC CARBON	mg/L	--	--	--	0.94	3.3	2.6	1.3	1.6	1.8	2.6

Notes:
Inorganics are only compared against the domestic water supply standard and the agricultural standard
Shading indicates an exceedance of the CDPHE water standard
Shading and bolding indicates an exceedance of the domestic water supply standard
Shading and underlining indicates an exceedance of the agricultural standard
--- = no screening criteria available
CDPHE = Colorado Department of Public Health and Environment
DIS = dissolved
FD = field duplicate
NA = not analyzed
ND = not detected (associated reporting limit in parentheses)
mg/L = milligrams per liter
µg/L = micrograms per liter
TAMQ = Test America Laboratory, Arvada, Colorado

Validation Flag Definitions (denoted by letter codes within parentheses):
B = The value is considered a non-detect due to a detection in an associated QC blank.
J = The value is an estimated detect.
M = The value is estimated due to an associated matrix spike sample being outside of quality control criteria.
UB = The value is considered a non-detect due to a detection in an associated QC blank.
UM = The value is an estimated non-detect due to an associated matrix spike sample being outside of quality control criteria.

Regulatory Standards
Water Standard: CDPHE Hazardous Materials and Waste Management Division, Table 1. Colorado Soil Evaluation Values. July 2011.
Domestic and Agricultural Standard: CDPHE Water Quality Control Commission. 5 CCR 1002-41, Regulation No. 41, Basic Standards for Ground Water. Effective November 30, 2009

TABLE 3-4
CHEMICALS DETECTED DURING FOURTH QUARTER SAMPLING EVENT
PHASE II SI, SITE 3, PETERSON AFB

Method	Analyte	Units	Screening Criteria			S3-MW01	S3-MW02	S3-MW03	S3-MW04	S3-MW05	S3-MW05(FD)	S3-MW05	S3-MW05(FD)	S3-MW06
						1/27/2012	1/26/2012	1/26/2012	1/26/2012	1/26/2012	1/26/2012	7/2/2012	7/2/2012	1/26/2012
			CDPHE Water Standard	Domestic Water Supply Standard	Agricultural Standard	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ
A2320	ALKALINITY, BICARBONATE (AS CACO3)	mg/L	--	--	--	1100	54	560	350	460	460	NA	NA	450
A2320	ALKALINITY, CARBONATE (AS CACO3)	mg/L	--	--	--	140	ND	ND	ND	ND	ND	NA	NA	ND
E300	CHLORIDE	mg/L	--	250	--	16	13	14	8.1	42	43	NA	NA	26
E300	NITRATE AS NITROGEN	mg/L	10	10	100	4.8	3.1	**14**	0.52	7.1	7.1	NA	NA	4.6
E300	SULFATE (AS SO4)	mg/L	--	250	--	23	29	17	12	25	25	NA	NA	160
SW6010B	ARSENIC	µg/L	10	10	100	**16**	9.2	ND (30)	7.1	10	**16**	NA	NA	**16**
SW6010B	ARSENIC (DIS)	µg/L	10	10	100	ND (30)	ND (30)	ND (30)	ND (30)	ND (30)	ND (30)	NA	NA	ND (30)
SW6010B	BARIUM	µg/L	2000	2000	--	350	220	160	210	330	360	NA	NA	280
SW6010B	BARIUM (DIS)	µg/L	2000	2000	--	61	21	99	100	140	140	NA	NA	51
SW6010B	BERYLLIUM	µg/L	4	4	100	1.9	1.3	ND (4)	0.63	1.4	1.7	NA	NA	0.94
SW6010B	BERYLLIUM (DIS)	µg/L	4	4	100	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	NA	NA	ND (4)
SW6010B	CALCIUM	µg/L	--	--	--	85000	59000	150000	93000	150000	150000	NA	NA	140000
SW6010B	CALCIUM (DIS)	µg/L	--	--	--	65000	53000	150000	87000	140000	140000	NA	NA	120000
SW6010B	CHROMIUM	µg/L	--	100	--	63	16	8.8	15	32	37	NA	NA	62
SW6010B	CHROMIUM (DIS)	µg/L	--	100	--	ND (10)	1.7	0.89	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)
SW6010B	COBALT	µg/L	50	--	50	14	6.6	3.5	3.1	13	15	NA	NA	9.8
SW6010B	COBALT (DIS)	µg/L	50	--	50	ND (60)	ND (60)	ND (60)	ND (60)	ND (60)	ND (60)	NA	NA	ND (60)
SW6010B	COPPER	µg/L	100	--	200	34	14	6.7	11	22	26	NA	NA	33
SW6010B	COPPER (DIS)	µg/L	100	--	200	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)
SW6010B	LEAD	µg/L	50	50	100	36	21	6.1	10	26	28	NA	NA	19
SW6010B	LEAD (DIS)	µg/L	50	50	100	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	NA	NA	ND (25)
SW6010B	MAGNESIUM	µg/L	--	--	--	24000	12000	24000	17000	27000	27000	NA	NA	30000
SW6010B	MAGNESIUM (DIS)	µg/L	--	--	--	9500	8900	22000	13000	20000	21000	NA	NA	21000
SW6010B	NICKEL	µg/L	100	100	200	38	16	8.9 (UB)	9.4 (UB)	20	24	NA	NA	29
SW6010B	NICKEL (DIS)	µg/L	100	100	200	1.6	ND (20)	2.5	ND (20)	2.1	2.5	NA	NA	5
SW6010B	POTASSIUM	µg/L	--	--	--	7000	4100	4300	4500	6400	7200	NA	NA	7700
SW6010B	POTASSIUM (DIS)	µg/L	--	--	--	1700	1500	3100	2100	2600	3000	NA	NA	3900
SW6010B	SODIUM	µg/L	--	--	--	24000	46000	74000	38000	47000	46000	NA	NA	100000
SW6010B	SODIUM (DIS)	µg/L	--	--	--	25000	48000	74000	38000	46000	47000	NA	NA	100000
SW6010B	VANADIUM	µg/L	100	--	100	85	36	15	27	52	62	NA	NA	58
SW6010B	VANADIUM (DIS)	µg/L	100	--	100	ND (10)	ND (10)	1.7	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)
SW6010B	ZINC	µg/L	2000	5000	2000	150	85	33	50	100	110	NA	NA	100
SW6010B	ZINC (DIS)	µg/L	2000	5000	2000	ND (20)	ND (20)	ND (20)	ND (20)	4.8	4.9	NA	NA	4.9
SW6020	ANTIMONY	µg/L	6	6	--	0.48 (M)	0.2 (M)	0.42 (M)	ND (1) (M)	ND (1) (M)	0.25 (M)	NA	NA	0.64 (M)
SW6020	ANTIMONY (DIS)	µg/L	6	6	--	0.28 (UB)	0.2 (UB)	0.39 (UB)	0.27 (UB)	ND (1)	ND (1)	NA	NA	0.94 (J)
SW6020	CADMIUM	µg/L	5	5	10	ND (2)	0.24	0.18	ND (2)	0.18 (UB)	0.27 (UB)	NA	NA	0.9
SW6020	CADMIUM (DIS)	µg/L	5	5	10	0.05	0.072	ND (2)	0.043 (UB)	ND (2)	0.17 (UB)	NA	NA	ND (2)
SW6020	SELENIUM	µg/L	20	50	20	2	1.9	6.1	ND (2)	2	1.9	NA	NA	3.7
SW6020	SELENIUM (DIS)	µg/L	20	50	20	1.5	1.7	5.3	ND (2)	1.5	1.4	NA	NA	2
SW6020	THALLIUM	µg/L	2	2	--	0.38	0.36	0.16 (UB)	0.19 (UB)	0.38	0.45	NA	NA	0.33
SW6020	THALLIUM (DIS)	µg/L	2	2	--	0.059 (UB)	ND (0.2)	0.034 (UB)	ND (0.2)	0.046 (UB)	0.046 (UB)	NA	NA	0.037 (UB)
SW8260B	1,1,1-TRICHLOROETHANE	µg/L	200	--	--	ND (1)	0.43	ND (1)	0.083	0.14	0.14	NA	NA	ND (1)
SW8260B	1,1,2-TRICHLOROETHANE	µg/L	2.8	--	--	ND (1)	ND (1)	ND (1)	ND (1)	0.19	0.2	NA	NA	ND (1)
SW8260B	1,1-DICHLOROETHANE	µg/L	61	--	--	ND (1)	ND (1)	ND (1)	ND (1)	4	4.1	NA	NA	0.66
SW8260B	1,2-DICHLOROPROPANE	µg/L	0.52	--	--	ND (1)	ND (1)	ND (1)	ND (1)	2.4	2.5	0.78	0.76	ND (1)
SW8260B	1,4-DICHLOROBENZENE	µg/L	75	--	--	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	0.16	0.12	NA	NA	ND (0.5)
SW8260B	ACETONE	µg/L	6300	--	--	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA	NA	61
SW8260B	CHLOROFORM	µg/L	3.5	--	--	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	0.42	0.43	NA	NA	ND (0.3)

Method	Analyte	Units	Screening Criteria			S3-MW01	S3-MW02	S3-MW03	S3-MW04	S3-MW05	S3-MW05(FD)	S3-MW05	S3-MW05(FD)	S3-MW06
						1/27/2012	1/26/2012	1/26/2012	1/26/2012	1/26/2012	1/26/2012	7/2/2012	7/2/2012	1/26/2012
			CDPHE Water Standard	Domestic Water Supply Standard	Agricultural Standard	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ	TAMQ
SW8260B	CIS-1,2-DICHLOROETHYLENE	µg/L	70	--	--	ND (1)	ND (1)	ND (1)	ND (1)	1.4	1.5	NA	NA	ND (1)
SW8260B	DICHLOROMETHANE	µg/L	4.7	--	--	0.42 (UB)	0.45 (UB)	0.42 (UB)	0.47 (UB)	1.2 (UB)	1.3 (UB)	NA	NA	0.47 (UB)
SW8260B	TETRACHLOROETHENE	µg/L	5	--	--	ND (1)	0.16	ND (1)	0.25	1.9	2	NA	NA	ND (1)
SW8260B	TRICHLOROETHENE (TCE)	µg/L	5	--	--	0.11	ND (1)	ND (1)	ND (1)	0.79	0.83	NA	NA	ND (1)
SW8260B	TRICHLOROFLUOROMETHANE	µg/L	2100	--	--	ND (1)	0.54	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA	ND (1)
SW9060	TOTAL ORGANIC CARBON	mg/L	--	--	--	1.6	1.1	1.2	1.1	1.7	1.7	NA	NA	2.4

Notes:
Inorganics are only compared against the domestic water supply standard and the agricultural standard
Shading indicates an exceedance of the CDPHE water standard
Shading and bolding indicates an exceedance of the domestic water supply standard
Shading and underlining indicates an exceedance of the agricultural standard
--- = no screening criteria available
CDPHE = Colorado Department of Public Health and Environment
DIS = dissolved
FD = field duplicate
NA = not analyzed
ND = not detected (associated reporting limit in parentheses)
mg/L = milligrams per liter
µg/L = micrograms per liter
TAMQ = Test America Laboratory, Arvada, Colorado

Validation Flag Definitions (denoted by letter codes within parentheses):
B = The value is considered a non-detect due to a detection in an associated QC blank.
J = The value is an estimated detect.
M = The value is estimated due to an associated matrix spike sample being outside of quality control criteria.
UB = The value is considered a non-detect due to a detection in an associated QC blank.
UM = The value is an estimated non-detect due to an associated matrix spike sample being outside of quality control criteria.

Regulatory Standards
Water Standard: CDPHE Hazardous Materials and Waste Management Division, Table 1. Colorado Soil Evaluation Values. July 2011.
Domestic and Agricultural Standard: CDPHE Water Quality Control Commission. 5 CCR 1002-41, Regulation No. 41, Basic Standards for Ground Water. Effective November 30, 2009

TABLE 3-5
SAMPLE COMPUTATION FOR ANOVA
PHASE II SI, SITE 3, PETERSON AFB, COLORADO

Analyte: Total Arsenic

Step 1: Resultant sampling concentrations were arranged per well in a data table across all six wells where n_i is the number of samples for well i, p is the number of wells (6), and N is the total sample size. The non-detected values were assigned one-half their respective practical quantitation limits (PQLs).

Arsenic-Total	S3-MW01	S3-MW02	S3-MW03	S3-MW04	S3-MW05	S3-MW06	Total
Quarter 1	15	17	8.8	8.2	64	--	
Quarter 2	12	5.7	15	15	11	--	
Quarter 3	12	15	23	7.5	6.1	9.3	
Quarter 4	16	9.2	15	7.1	16	16	

Step 2: The well count (n_i), well total, and well mean were calculated for each well along with the grand count (N), grand total, and grand mean across wells. The sum of squared deviates (SS), the sum of the difference between an individual sample result and the well mean, was calculated for each well, along with the total sum of squared deviates, SS_{total}, across wells. The sum of squared deviates (SS) may also be termed the sum of squares.

Arsenic-Total	S3-MW01	S3-MW02	S3-MW03	S3-MW04	S3-MW05	S3-MW06	Total
Quarter 1	15	17	8.8	8.2	64	--	
Quarter 2	12	5.7	15	15	11	--	
Quarter 3	12	15	23	7.5	6.1	9.3	
Quarter 4	16	9.2	15	7.1	16	16	
Count	4	4	4	4	4	2	22
SUM(x)	55	46.9	61.8	37.8	97.1	25.3	323.9
SUM(x^2)	769	631.13	1056.44	398.9	4510.21	342.49	7708.17
St.Dev.	2.061553	5.203444	5.820367	3.727823	26.78997	4.737615	11.83111
Mean	13.75	11.725	15.45	9.45	24.275	12.65	14.72273
SS	12.75	81.2275	101.63	41.69	2153.108	22.445	2939.479
Variance	4.25	27.07583	33.87667	13.89667	717.7025	22.445	

x = sampling result.

Using total arsenic sampling results from the first well (PAFB03-MW01),
Count = n = 4 samples
Sum(x) = $\sum x$ = (15+12+12+16) = 55
Sum(x^2) = $\sum(x^2)$ = ($15^2+12^2+12^2+16^2$) = (225+144+144+256) = 769
St. Dev. = Standard Deviation{15,12,12,16} = 2.06
Mean = (15+12+12+16)/4 = 13.75
Sum of squares = SS = 769-$(55)^2$/4 = 12.75
Variance = SS / (n-1) = 12.75 / (4-1) = 4.25

In finer detail, the sum of squares for each individual well is the sum of the squares of the difference between the sample result x and the well mean and equal to the sum across sampling events of $(x-M_i)^2$ for each well *i*; thus

$SS_1 = \sum(x_i - M_1)^2$
$= (15-13.75)^2 + (12-13.75)^2 + (12-13.75)^2 + (16-13.75)^2$
$= 12.75$

Luckily, this summary is equivalent to the more easily calculated form
$SS_1 = \sum(x_i^2) - (\sum(x_i)^2/n_1)$
$= 769 – (55)^2/4$
$= 12.75$

Similarly, the values across wells are determined for the Total statistics as
Count = N_T = (4+4+4+4+4+2) = 22 samples across all wells
Sum($\sum$x) = (55+46.9+61.8+37.8+97.1+25.3) = 323.9
Sum($\sum x^2$) = (55^2+46.9^2+61.8^2+37.8^2 +97.1^2++25.3^2) = 7708.17
St. Dev. = Standard Deviation{15,12,12,16,17,5.7,15,9.2,8.8,…,9.3,16} = 11.831
Mean = M_T = (323.9)/22 = 14.723
Sum of squares = $SS_{total} = \sum(x_T^2) - (\sum(x_T)^2/N_T)$
$= 7708.17-(323.9)^2/22 = 2939.5$

Step 3: The sum of squares between well means and the grand mean, SS_{wells}, was calculated.
$SS_{wells} = (55)^2/4 + (46.9)^2/4 + (61.8)^2/4 + (37.8)^2/4 + (97.1)^2/4 + (25.3)^2/2 – (323.9)^2/22$
$= 526.6$

In finer detail, the SS_{wells} is the sum of the squares of the difference between the well mean and the total mean (across groups) and equal to the sum across wells of $n_i*(M_i-M_T)^2$ for each well *i*; thus
$SS_{wells} = \sum(n_i*(M_i-M_T)^2)$
$= 4*(13.75-14.72)^2 + 4*(11.73-14.72)^2 + 4*(15.45-14.72)^2 + 4*(9.45-14.72)^2$
$+ 4*(24.28-14.72)^2+2*(12.65-14.72)^2$
$= 526.6$

Luckily, this summary is equivalent to the more easily calculated form
$SS_{wells} = \sum (\sum(x_i)^2/n_i) - (\sum(x_T)^2/N_T)$
$= (55)^2/4 + (46.9)^2/4 + (61.8)^2/4 + (37.8)^2/4 + (97.1)^2/4 + (25.3)^2/2 – (323.9)^2/22$
$= 526.6$

Step 4: The sum of squares of the differences of observations within wells from the well mean, SS_{error}, was calculated.
$SS_{error} = \sum SS_i$ and may also be calculated as $SS_{error} = SS_{total} – SS_{wells.}$
SS_{error} = (12.75 + 81.23 + 101.63 + 41.69 + 2153.11 + 22.45)
= 2412.85
Or
$SS_{error} = SS_{total} – SS_{wells}$ = 2939.5 – 526.6 = 2412.9
Step 5: The degrees of freedom (dF) were calculated between wells (p-1), within wells (N-p), and across wells (N-1). The mean square (MS) was calculated both between wells (MS_{wells}) and within wells (MS_{error}) as the quotient of SS/dF. An F ratio, (MS_{wells}/MS_{error}) was then calculated.

Between wells:

$dF_{wells} = p-1 = 6-1 = 5$

$MS_{wells} = SS_{wells}/dF_{wells} = 526.6 / 5 = 105.3$

Within wells (the error within wells):

$dF_{error} = N-p = 22-6 = 16$

$MS_{error} = SS_{error}/dF_{error} = 2412.9 / 16 = 150.8$

Across wells:

$dF_{total} = N-1 = 22-1 = 21$

Step 6: The ANOVA table was constructed as shown below with the calculated F statistic and the tabulated critical value for F with (p-1) and (N-p) degrees of freedom at a 5 percent significance level. For total arsenic, F critical was determined for 5 and 16 degrees of freedom.

ANOVA TABLE					
Source of Variation	**Sum of Squares**	**Degrees of Freedom**	**Mean Squares**	**F**	**F_{crit}**
Between wells	526.6	5	105.3	0.6984	2.8524
Error (within wells)	2412.9	16	150.8		
Total	2939.5	21			

Notes:
F = F-statistic (ability to detect differences among group means).
N = total sample size.
p = number of wells.

Step 7: The assumption of equal variances among the wells was tested by comparing the calculated F ratio against the tabulated critical value for F with (p-1) and (N-p) degrees of freedom at a 5 percent significance level. If the calculated F ratio is less than the tabulated F critical value, the assumption of equal variances holds true and there is no evidence of significant contamination. If the calculated F ratio exceeds the tabulated F critical value, the null hypothesis of equal variances among the wells is unlikely and possible groundwater contamination is suggested. For total arsenic, the calculated F value of 0.6984 is less than the critical value of 2.8524; so the null hypothesis of equal variances holds true and there is no evidence of significant contamination.

Variance (Possible Difficulties with ANOVA) for Total Arsenic.

Unfortunately, the robust nature of ANOVA to determine whether differences among the means is random or significant, hinges upon equal sample sizes. With unequal sample size, the assumption of relatively equal variance becomes more important. Confidence in ANOVA results for unequal sample sizes is dependent upon a relative variance among the wells, the ratio between the largest variance and the smallest variance, being less than 1.5.

For total arsenic:

Variance = SS / dF
= 12.75 / (4-1) = 4.25 for well 1
Variance Ratio = Vmax/Vmin = 717.7/4.25 = 168.9, which is much more than 1.5; so a nonparametric alternative to the one-way ANOVA, the Kruskal-Wallis test (KW), is performed.

Table 3.5-2 Kruskal-Wallis Test for Total Arsenic.

The Kruskal-Wallis test is a nonparametric alternative to the one-way ANOVA that uses ranks to determine whether differences in the means are statistically significant. KW analysis for total arsenic follows below.

Step 1: Using the concentrations arranged per well across all six wells in the previous ANOVA analysis, a second table is generated tabulating the relative ranks of each sample result. Similar to ANOVA, statistics are determined where n_i is the number of samples for well i, p is the number of wells (6), and N is the total sample size. A dry well during some of the sampling events results in N values of 22 for total arsenic.

Step 2: Relative rank is determined in ascending order; using a rank of 1 for the smallest result. Tied ranks are corrected by using the average raw rank of the tied values. The relative rank for total arsenic is shown in the table below with added columns showing well and sampling quarter information. A third column, Raw Rank, showing rank if ties were not corrected, is added to help demonstrate the treatment of tied ranks. For total arsenic, two sampling results of 12 (Well 1 Quarter 2 and Well 1 Quarter 3) tie and receive raw ranks of 10 and 11, respectively. This raw rank is then converted to rank by dividing the sum of the uncorrected ranks by the number of samples in that tie or (10+11)/2 = 10.5. Similarly, the five occurrences of 15 convert to 14 as the sum of (12,13,14,15,16) divided by 5 or (12+13+14+15+16)/5=14. Similarly, 16 is ranked as 18 or (17+18+19)/3=18.

Well	Quarter	Result	Raw Rank	Rank
1	1	15	12	14
1	2	12	10	10.5
1	3	12	11	10.5
1	4	16	17	18
2	1	17	20	20
2	2	5.7	1	1
2	3	15	13	14
2	4	9.2	7	7
3	1	8.8	6	6
3	2	15	14	14
3	3	23	21	21
3	4	15	15	14

TABLE 3-5
SAMPLE COMPUTATION FOR ANOVA
PHASE II SI, SITE 3, PETERSON AFB, COLORADO

Well	Quarter	Result	Raw Rank	Rank
4	1	8.2	5	5
4	2	15	16	14
4	3	7.5	4	4
4	4	7.1	3	3
5	1	64	22	22
5	2	11	9	9
5	3	6.1	2	2
5	4	16	18	18
6	3	9.3	8	8
6	4	16	19	18

Step 3: A table is constructed for KW across all wells arranging the relative ranks for each well. Continuing along ANOVA lines, relative ranks were then used to generate the well count (n_i), well total, and well mean for each well along with the grand count (N), grand total, and grand mean across wells. Similarly, relative ranks were then used to calculate the sum of squares (SS) for each well and the total sum of squares. Relative ranks for total arsenic are shown in the table below, note that the designation of quarter is immaterial, i.e the placement of the two ranks within the four quarterly sampling cells for PAFB03-MW06 is immaterial, they may be placed within any two of the four cells.

Total Arsenic RANK	S3-MW01	S3-MW02	S3-MW03	S3-MW04	S3-MW05	S3-MW06	Total
Quarter 1	14	20	6	5	22	8	
Quarter 2	10.5	1	14	14	9	18	
Quarter 3	10.5	14	21	4	2		
Quarter 4	18	7	14	3	18		
n	4	4	4	4	4	2	22
SUM(x)	53	42	55	26	51	26	253
SUM(x^2)	740.5	646	869	246	893	388	3782.5
St.Dev.	3.570714	8.266398	6.130525	5.066228	8.995369	7.071068	6.447591
CV	0.269488	0.787276	0.445856	0.77942	0.705519	0.543928	0.56066
MEAN	13.25	10.5	13.75	6.5	12.75	13	11.5
SS	38.25	205	112.75	77	242.75	50	873

x = relative rank

Following along one-way ANOVA lines, results for PAFB03-MW01 total arsenic results converted into relative ranks for KW analysis are presented below.

Count = n = 4

Sum(x) = $\sum x$ = (14+10.5+10.5+18) = 53

Sum(x^2) = $\sum(x^2)$ = (14^2+10.5^2+10.5^2+18^2) = (196+110.25+110.25+324) = 740.5

St. Dev. = Standard Deviation{14,10.5,10.5,18} = 3.57

Mean = (14+10.5+10.5+18)/4 = 13.25

Sum of squares = SS = 740.5-$(53)^2$/4 = 38.25

Step 4: Similarly, the sum of squares between well means and the grand mean, SS_{wells}, was calculated using ranks.

$SS_{wells} = \sum (\sum(x_i)^2/n_i) - (\sum(x_T)^2/N_T)$
$= (53)^2/4 + (42)^2/4 + (55)^2/4 + (26)^2/4 + (51)^2/4 + (26)^2/2 – (253)^2/22$
$= 147.25$

Step 5: The degrees of freedom (dF) was calculated between wells (p-1). The mean of the sampling distribution was calculated (dF (N (N+1)/12). And an H statistic (SS_{wells}/(N(N+1)/12) was then calculated. Calculations are shown below for total arsenic.
$dF_{wells} = p-1 = 6-1 = 5$
Mean Distrubution = dF_{wells} * (N*(N+1)/12) = 5*(22*(22+1)/12) = 5*22*23/12 = 210.8

H = SS_{wells} / (N*(N+1)/12) = 147.25 / (22*(22+1)/12) = 147.25 / (22*23/12) = 3.49
Thus the observed SS_{wells} value of 147.25 belongs to a sampling distribution with a mean of 3.49.

Step 6: The Kruskal-Wallis table was constructed as shown below for total arsenic.

KRUSKAL - WALLIS TABLE					
Source of Variation	**Sum of Squares**	**Degrees of Freedom**	**Mean Distribution**	**H**	**Hcrit**
Between wells	147.25	5	210.8	3.49	11.07

H = H-statistic (ability to detect differences among group means).
N = total sample size.
p = number of wells.

Step 7: The assumption of equal variances among the wells was tested by comparing the calculated H statistic against the H critical with 95% probability and (p-1) degrees of freedom, which may be approximated by the chi-square distribution with p-1 degrees of freedom. For total arsenic, H = 3.49 is compared against H critical of 11.07 (as approximated by the chi-square distribution at 95% probability and p-1 or 5 degrees of freedom). Since the calculated H statistic is less than the H critical value, the assumption of equal variances holds and there is no evidence of significant contamination for total arsenic. If the calculated H statistic had exceeded the H critical value, the null hypothesis of equal variances among the wells would be unlikely and possible groundwater contamination would have been suggested.

TABLE 3-6
SAMPLE COMPUTATION FOR CI
PHASE II SI, SITE 3, PETERSON AFB, COLORADO

Analyte: Arsenic

A confidence interval (CI) designed to contain the specified population parameter (the mean concentration for a well in groundwater monitoring) with a designated level of confidence or probability, is determined for each analyte. The CI was calculated for each well using the four rounds of sampling data. CI calculations for total arsenic for the first well (PAFB03-MW01) are shown below.

Step 1: The mean (M) and standard deviation (St.Dev.) of the total arsenic sampling results tabulated in the ANOVA workup table presented previously are used to develop the confidence interval around the mean. Referring to the ANOVA workup table, results for PAFB03-MW01 total arsenic were determined as follows:

St. Dev. = Standard Deviation{15,12,12,16} = 2.06
Mean = (15+12+12+16)/4 = 13.75

Step 2: The CI is calculated for each well using the mean and standard deviation along with a tabulated 99th percentile t-distribution with n degrees of freedom, where n = number of samples in each well. The 99th percentile of the t-distribution for four observations is 4.541 and the 99th percentile t-distribution for two and three observations is 31.82 and 6.965, respectively. Using the tabulated t-distribution of 4.541, the upper limit and the lower limit of the CI for total arsenic were calculated for the first well as follows:

CI upper limit = $M + t_{(0.99,\ n-1)}\ StDev./n^{1/2}$
CI upper limit = $13.75 + 4.541*2.06/4^{1/2}$
CI upper limit = 18.43

CI lower limit = $M - t_{(0.99,\ n-1)}\ St.Dev./n^{1/2}$
CI lower limit = $13.75 - 4.541*2.06/4^{1/2}$
CI lower limit = 9.069

Step 3: The calculated CI for each well was compared to the regulatory limit for that analyte. If the regulatory limit is contained within the interval or is above the upper limit, the unit remains within compliance. Statistically significant evidence of contamination is concluded only if the lower limit of the CI exceeds the regulatory limit. Since the regulatory limit of 10 is within the total arsenic CI determined for the first well, the unit remains within compliance.

CI determination and evaluation are tabulated for each analyte. The CI table for total arsenic follows below. Since the regulatory standard for groundwater is greater than the CI lower limit (LL) for each well, the unit remains within compliance for total arsenic.

TABLE 3-6
SAMPLE COMPUTATION FOR CI
PHASE II SI, SITE 3, PETERSON AFB, COLORADO
PAGE 2 OF 2

Confidence Interval	t-crit	Lower Limit	Upper Limit	CDPHE GW Standard	LL > Screen?
S3-MW01	4.541	9.069244	18.43076	10	No
S3-MW02	4.541	-0.08942	23.53942	10	No
S3-MW03	4.541	2.234858	28.66514	10	No
S3-MW04	4.541	0.985977	17.91402	10	No
S3-MW05	4.541	-36.5516	85.10163	10	No
S3-MW06	31.82	-93.947	119.247	10	No

Notes:
CDPHE GW = Colorado Department of Public Health and Environment Groundwater

TABLE 3-7
POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
PHASE II SI, SITE 3, PETERSON AIR FORCE BASE, COLORADO

Statutory, Regulatory Basis	Citation	Description
Safe Drinking Water Colorado Primary Drinking Water Regulations	40 CFR 141-143 5 CCR 1003-1	Primary and secondary drinking water standards that apply to specific contaminants that have been determined to have an adverse effect on human health. These standards, expressed as MCLs and MCLGs, are potential ARARs for groundwater and/or surface water cleanup and replacement standards.
Clean Water Act Ambient Water Quality Criteria	Guidance Criteria 33 USC Sections 1313-1314	Federal water quality criteria established for the protection of human health and aquatic organisms are not enforceable; however, Section 121 (d) (A) of CERCLA states that remedial actions must attain FWQC where they are relevant and appropriate under the circumstances of a release or threatened release.
RCRA MCLs	40 CFR Section 264.94	Concentration limits for hazardous constituents in groundwater used for the protection of groundwater.
Colorado Rules and Regulations Pertaining to Hazardous Waste	6 CCR 1007-3	Provides definitions and the general and specific standards necessary for the storage, treatment, and disposal of hazardous waste.
Colorado Basic Standards for Ground Water	5 CCR 1002-41	Statewide standards and a system of classifying groundwater and adopting water quality standards for such classifications to protect existing and potential uses of groundwater.
Health and Safety Protection	29 CFR Part 1910 29 CFR 1910.120 (b) to (j) 29 CFR 1926 Subpart P	29 CFR 1910 provides guidelines for workers engaged in activities requiring protective health and safety measures regulated by OSHA. Requirements provided in 29 CFR 1910.120 apply specifically to the handling of hazardous waste/materials at uncontrolled hazardous waste sites. Note: OSHA regulations are independent applicable regulatory requirements, not ARARs. 29 CFR 1910.120 (b) through (j) provide guidelines for workers involved in hazardous waste operations and emergency response actions on sites regulated under RCRA and CERCLA. 29 CFR 1926 Subpart P provides guidelines for workers engaged in activities related to construction and utilization of trenches and ditches.
Worker Exposure	29 CFR 1910.1000	Chemical-specific worker exposure guidelines established by OSHA.

TABLE 3-7
POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
PHASE II SI, SITE 3, PETERSON AIR FORCE BASE, COLORADO

Statutory, Regulatory Basis	Citation	Description
Solid Waste Disposal Act	40 CFR Parts 257 and 258 6 CCR 1007-2 6 CCR 1007-3 Part 268	RCRA regulations and land disposal restrictions.
Solid Waste Determination Solid Waste Determination (continued)	40 CFR 260 6 CCR 1007-3 40 CFR 260.30-31 6 CCR 1007-3 Section 260.03-31 40 CFR 261.2 6 CCR 1007-3 Section 261.2 40 CFR 261.4 6 CCR 1007-3 Section 261.4	A solid waste is any discarded material that is not excluded by a variance granted under 40 CFR 260.30 and 260.31. Discarded material includes abandoned, recycled, and waste-like materials. These materials may have any or the following qualities: Abandoned material may be: - Disposed - Burned or incinerated - Accumulated, stored, or treated before or in lieu of being abandoned by being disposed, burned, or incinerated Recycled material that is: - Used in a manner constituting disposal - Burned for energy recovery - Reclaimed - Speculatively accumulated Waste-like material is material that is considered inherently wastelike.
Solid Waste Classification	6 CCR 1007-2 Section 1	If a generator of wastes has determined that the wastes do not meet the criteria for hazardous wastes, they are classified as solid wastes. The Colorado solid waste rules contain live solid waste categories: industrial wastes, community wastes, commercial wastes, special wastes, and inert material.

TABLE 3-7
POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
PHASE II SI, SITE 3, PETERSON AIR FORCE BASE, COLORADO

Statutory, Regulatory Basis	Citation	Description
Determination of Hazardous Waste	40 CFR 262.11 6 CCR 1007-3 Part 262.11 40 CFR Part 261 6 CCR 1007-3 Part 261	Wastes generated during remedial activities must be characterized and evaluated according to the following method to determine whether the waste is hazardous: - Determine whether the waste is excluded from regulation under 40 CFR 261.4 - Determine whether the waste is listed under 40 CFR 261 - Determine whether the waste is identified in 40 CFR 261 by testing the waste according to specified test methods or by applying knowledge of the hazardous characteristics of the waste in light of the materials or the process used.
Treatment, Storage, or Disposal of RCRA Hazardous Waste	40 CFR 264 6 CCR 1007-3 Part 264	Standards for owners and operators of hazardous waste treatment, storage, and disposal facilities.
Groundwater Monitoring Groundwater Monitoring (continued)	40 CFR 264 Subpart F 6 CCR 1007-3 Part 264 Subpart F 2 CCR 402 6 CCR 1007-3	Groundwater monitoring will be conducted for the presence of hazardous constituents in the groundwater downgradient from solid waste management units. Monitoring wells should be constructed and installed according to the requirements of 2 CCR 402. Colorado groundwater regulations specify requirements for determining background groundwater quality.
Protection of Wetlands	Executive Order 11990 Specific 42 USC Section 1344 40 CFR Part 230, Subpart H 33 CFR Parts 320-330 40 CFR 6.302(a) 40 CFR 6, Appendix A, Sections 3(a) and 3(a)	Requires consideration of impacts to wetlands to minimize their destruction, loss, or degradation and to preserve/enhance wetland values. Potentially applicable to activities that would impact wetlands.
Endangered Species Act	16 USC 1531-1544 16 USC 1361-1407 16 USC 4201-4245 50 CFR 17, 200, 222, 227, and 402	Provides for protection and conservation of various species of fish, wildlife, and plants.

Notes:
ARAR = applicable or relevant and appropriate requirement
CCR = Code of Colorado Regulations

TABLE 3-7
POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
PHASE II SI, SITE 3, PETERSON AIR FORCE BASE, COLORADO

CERCLA = Comprehensive Environmental Restoration, Compensation and Liability Act
CFR = Code of Federal Regulations
FWQC = Federal Water Quality Criteria
MCL = maximum containment level
MCLG = maximum containment level goal
OSHA = Occupational Safety and Health Administration
RCRA = Resource Conservation and Recovery Act
USC = United States Code

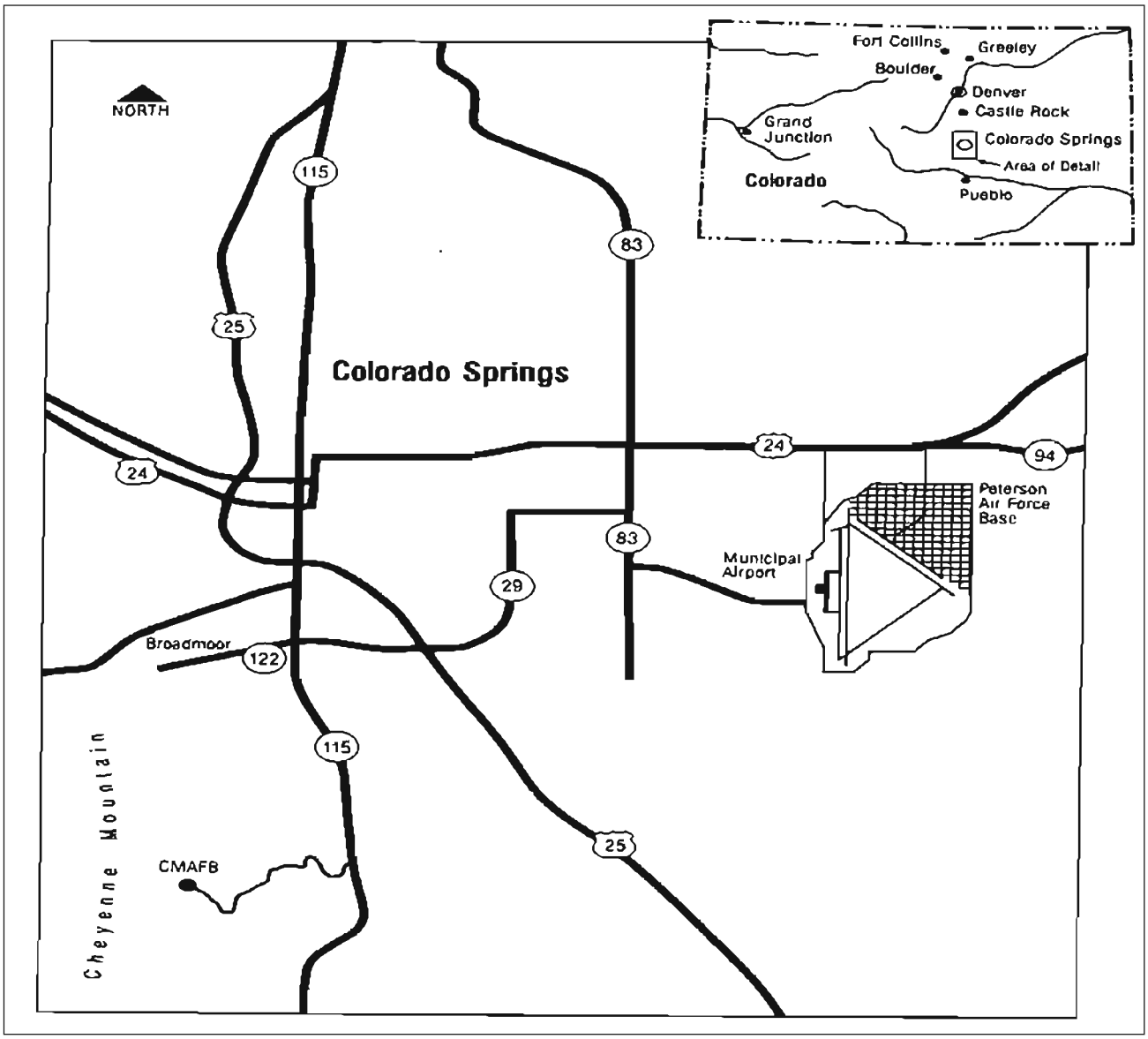
TABLE 4-1
OBJECTIVES AND FINDINGS FOR SITE 3
SITE 3 PETERSON AIR FORCE BASE, COLORADO

Objectives	Findings	Reference
Collect groundwater samples to identify potential groundwater contamination.	A total of 23 groundwater samples were collected from these wells during the performance period between April 2011 and January 2012. All groundwater samples (with the exception of first and second quarter samples from S3-MW06) were analyzed for VOCs, metals, cations, anions and total organic carbon as listed in the 6 CCR 1007-2, Appendix 1. An additional groundwater sample was collected from S3-MW05 in June 2012 and analyzed for 1,2-dichloropropane only.	Section 3.1, SI
Data assessment to provide definitive data to determine the presence and concentration of possible contamination.	Data assessment performed in accordance with site-specific QAPP.	Appendix A, SI
Identify contaminants of potential concern to define the nature and extent of contamination.	The concentrations of the majority of the analytes do not exceed regulatory limits that are used as risk screening criteria with the exception of nitrate as nitrogen (N), 1,2-dichloropropane and 1,2-dichloroethane. Nitrate as N was the only analyte where KW results suggested possible groundwater contamination and where CI evaluation revealed statistically significant evidence of contamination for Site 3.	Section 3.2, Groundwater Data Evaluation, SI
Evaluate the findings of the SI to determine whether any remedial actions or "No Further Action" is applicable for Site 3.	With the exception of nitrate as N, the CI evaluation concluded that all six wells are in compliance for all analytes with respect to regulatory standards. The presence of nitrate as N in a cross-gradient well may suggest an upgradient source or its presence may be the result of soil amendment use at that location. The presence of 1,2-dichloropropane is anomalous considering there is no longer a contaminant source. It is recommended that no further action be implemented at Site 3 and that the site is closed with no restrictions.	Section 3.3, Nature and Extent of Contamination, SI

Notes:

KW = Kruskal-Wallis Test
NFA = No Further Action
QAPP = Quality Assurance Project Plan
SI = Site Inspection
VOC = volatile organic compound

FIGURES



1 0 1 2 MILES

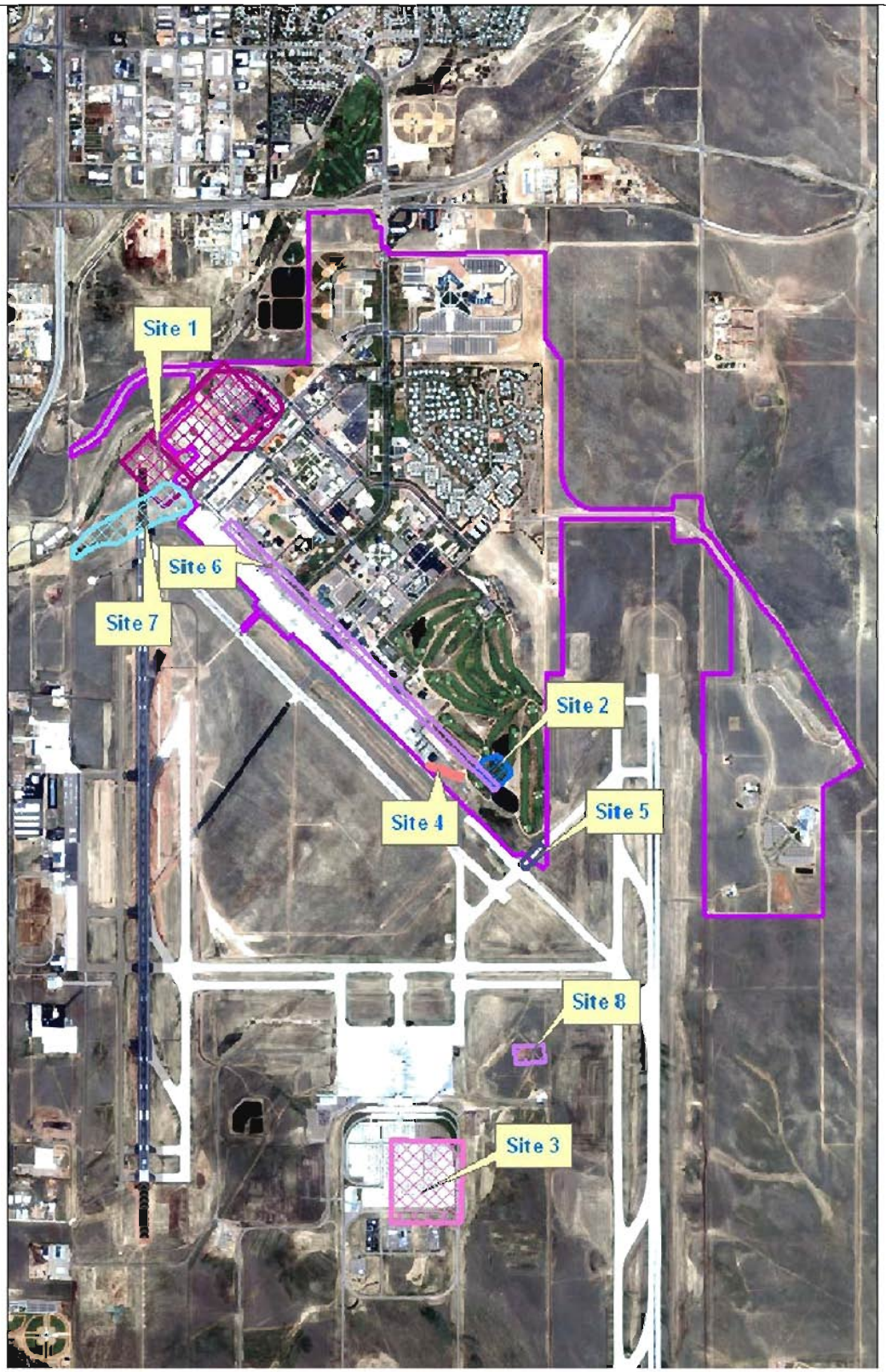
AECOM

FIGURE 1-1
SITE
LOCATION MAP
PETERSON AIR FORCE BASE
COLORADO SPRINGS, COLORADO

JUNE 2012

60159616

L:\GROUP\CAD\PETERSON_AFB\SITE 3\APRIL 2012\LOC_MAP.DWG



1100' 0 1100' 2200 FEET

AECOM

FIGURE 2-1
PROJECT
LOCATION MAP-SITE 3
PETERSON AIR FORCE BASE
COLORADO SPRINGS, COLORADO

JUNE 2012

60159616

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NOTE: AERIAL IMAGE FROM ESRI BING MAPS MAY 2011.
WATER LEVELS COLLECTED JANUARY 2012.

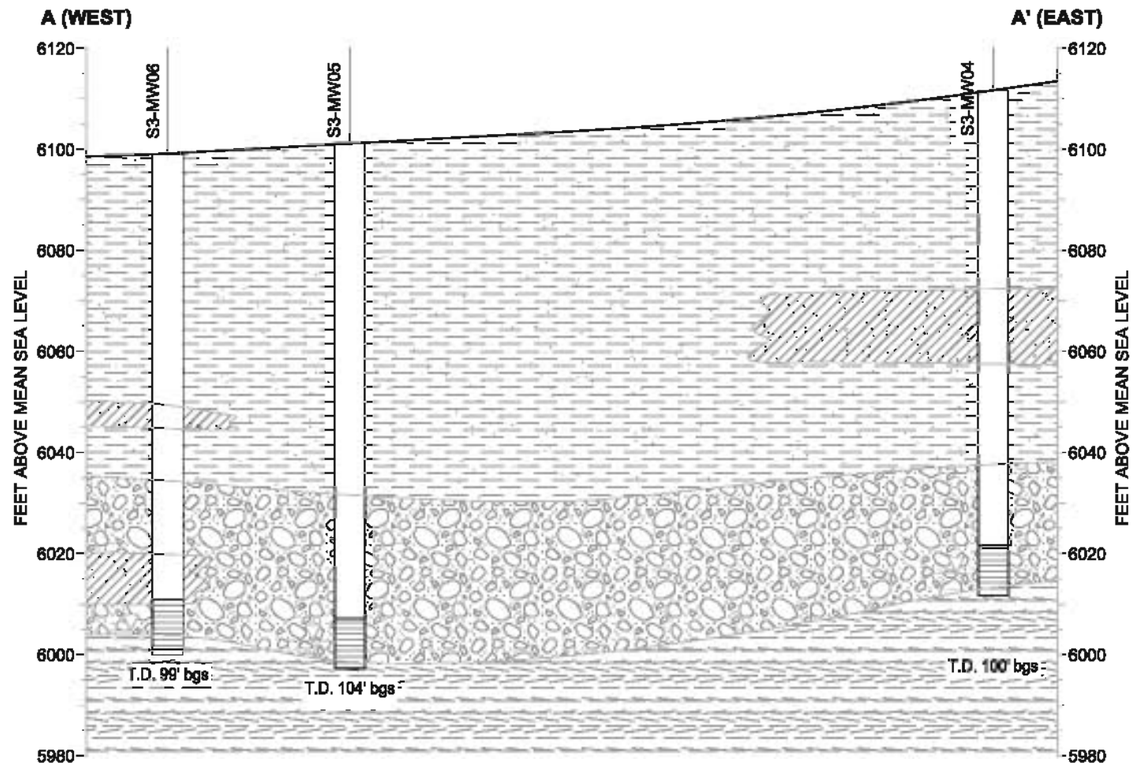
AECOM

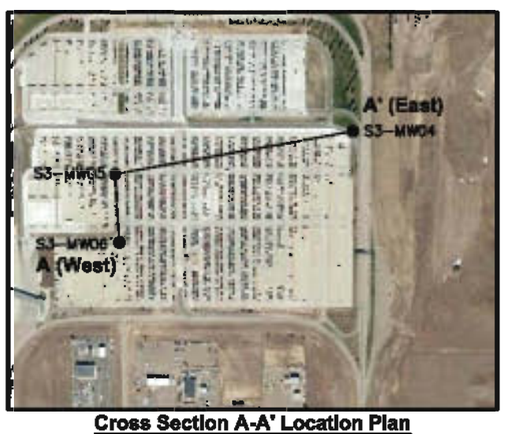
FIGURE 3-1

MONITORING WELL LOCATIONS
AND GROUNDWATER CONTOURS
SITE 3

PETERSON AFB
COLORADO SPRINGS, COLORADO

L:\GROUP\CAD\PETERSON_AFB\SITE 3\APRIL 2012\SITE3_WATER_LEVELS.MXD DATE: 6/20/2012





Cross Section A-A' Location Plan

Scale: 1"=600'

0 150 300 Feet

Vertical Scale Exaggerated 10 times

Legend:

- Gravely Sand
- Bedrock
- Clayey Sand
- Silty Sand
- Screened Interval
- Water Level 1/26/2012
- S3-MW04 Monitoring Well

AECOM

FIGURE 3-2
SITE 3
GEOLOGIC CROSS SECTION
PETERSON AFB
COLORADO SPRINGS, COLORADO

JUNE 2012 60159616

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APPENDIX A
QUALITY ASSURANCE REPORT

(ON CD)

DATA COMPLIANCE CHECK - TECHNICAL REVIEW
AECOM Technical Services
Test America Laboratories Inc, Denver CO, SDGs 280-15211, 280-15294, and 280-15530
AFCEE - Peterson AFB
Phase II Sampling, April 2011 Event
Report date: 6/14/2011
Category 2 and 3 Review
Reviewer: Cathy Larson

DATA VALIDATION SUMMARY:

Analytical quality was evaluated using the criteria specified in the Quality Assurance Project Plan (QAPP) Site Inspection Site 3 Peterson Air Force Base Colorado Springs , Colorado dated June 2008 and the Air Force Center for Environmental Excellence (AFCEE) Technical Services Quality Assurance Program, version 4.0.02, May 2006. Discussions of reviewed QC issues follow.

METHODS:

SW846 - 6020	Metals by Inductively Coupled Plasma – Mass Spectrometry (ICP-MS)
SW846 - 6010B	Metals by Inductively Coupled Plasma (ICP) Atomic Emission Spectrometry
SW846 - 8260B	Volatile Organic Compounds (VOCs) by Gas Chromatography (GC)/Mass Spectrometry (MS)
SM2320B	Alkalinity as Carbonate and Bicarbonate
MCAWW 300	Anions by Ion Chromatography
SW846 9060A	Total Organic Carbon (TOC) by Flame Ionization Detection

SW846 = Test Methods for Evaluating Solid Waste, Physical/Chemical Methods
MCAWW = Methods for Chemical Analysis of Waters and Wastes, Environmental Protection Agency
SM = Standard Methods of Analysis, 18th Edition

SAMPLES:

Field ID	Matrix Code	Location	Lab ID	Sample Type	Date Collected	Time
PAFB03-MW02-N-042811	WG	PAFB03MW02	280-15211-1	N	4/28/11	1100
PAFB03-MW02-FD-042811	WG	PAFB03MW02	280-15211-2	FD	4/28/11	1100
PAFB03-MW03-N-042811	WG	PAFB03MW03	280-15211-3	N	4/28/11	1300
PAFB03-MW04-N-042811	WG	PAFB03MW04	280-15211-4	N	4/28/11	1400
PAFB03-MW05-N-042911	WG	PAFB03MW05	280-115294-1	N	4/29/11	1030
PAFB03-MW05-N-042911	WG	PAFB03MW05	280-115294-1MS	MS	4/29/11	1030
PAFB03-MW05-N-042911	WG	PAFB03MW05	280-115294-1MSD	SD	4/29/11	1030
PAFB03-MW01-N-042911	WG	PAFB03MW01	280-115294-2	N	4/29/11	1220
PAFB-TRIP-TB-050511	WQ	Field QC	280-15530-1TB	TB	5/5/11	0000
PAFB03-MW01-N-050511	WG	PAFB03MW01	280-15530-2	N	5/5/11	1500
PAFB03-MW05-N-050511	WG	PAFB03MW05	280-15530-3	N	5/5/11	1320
PAFB03-MW05-MS-050511	WG	PAFB03MW05	280-15530-3MS	MS	5/5/11	1320
PAFB03-MW05-SD-050511	WG	PAFB03MW05	280-15530-3MSD	SD	5/5/11	1320

FD = Field duplicate
N = Normal investigative sample
MS = Matrix spike
SD = MS Duplicate
TB = Trip Blank
WG = Groundwater
WQ = Aqueous blank samples

Sample Integrity

1. The sample containers were received intact, and properly preserved on 4/29/11, 5/2/11 and 5/6/11 at Test America Laboratories, Inc. of Arvada, Colorado.

2. The temperature acceptance criteria of ≤ 6°C (degrees Celsius) was met with the exception of samples received on 5/2/11 with SDG 280-15294. The cooler temperature was 9.9°C. Analyses for all methods but metals by SW846 6010B and 6020 were cancelled. Affected samples were re-collected and submitted with SDG 280-15530 for VOC, anion, alkalinity and TOC analysis. No data qualifiers were required.

3. Dedicated sample equipment was used and an equipment blank was not required

4. Discrepancies were observed for sample receipt as follows:

SDG 280-15211:

- Sample PAFB**03**-MW2 FD on the chain-of-custody form (COC) had a sample label of PAFB**07**-MW2 FD; the sample ID on the chain-of-custody (COC) form was verified to be correct and was used by the laboratory for reporting.

- A COC form was included for a trip blank but no trip blank was received.

- COCs were re-submitted to add the sample date as part of the field sample ID

- The sample time for PAFB03-MW02-FD-042811 was changed from 1130 to 1100 by the laboratory to match the sample collection time of the parent sample

SDG 280-15294:

- CoCs were re-submitted to add the sample date as part of the field sample ID and to cancel analyses for VOCs, alkalinity, anions and TOC due to the elevated cooler temperature.

SDG 280-15530

- CoCs were re-submitted to add the sample date as part of the field sample ID and to correct the sample and relinquished date.

Method 6020, total and dissolved Metals - (5 investigative, 1 field duplicate, and 2 MS/MSD aqueous samples)

1. The following QC items were evaluated for all samples: hold times, method blanks (MBs), laboratory control sample (LCS) percent recoveries (%Rs), matrix spike/matrix spike duplicate (MS/MSD) %Rs and relative percent difference (RPD), serial dilution percent differences (%D), post digestion spike (PDS) %Rs, and field duplicate RPDs.

   For 10% of the samples, results for the following additional parameters were reviewed for compliance with QAPP criteria: initial and continuing calibration blanks (ICBs and CCBs), initial and continuing calibration verifications (ICVs, CCVs), interference check standards (ICSA and ICSAB), RL check standard %Rs, and comparison of reported results to the raw data. This 10% review was performed for sample PAFB03-MW02-N-042811.

   The following QC parameters met criteria: holding times, LCS %R, MS/MSD RPD, PDS %R, serial dilution %Ds, ICBs, ICVs, CCVs, ICSAB %Rs, the RL check standard %Rs, and comparison of reported results to raw data.

2. Total thallium was detected in the MBs associated with the investigative samples reported in SDG 280-15211 and SDG 280-15294 at a concentration between the MDL and RL (0.0219 and 0.0222 ug/L). Total thallium was detected in associated samples at concentrations <RL, and these results were UB qualified as not detected at the RL.

3. During the 10% review, thallium was observed to be detected in the CCBs associated with total and dissolved samples at concentrations between the MDL and RL (0.0271 and 0.0281 ug/L). Thallium detected in associated samples at concentrations <RL were UB qualified as not detected. Due to the detections in the CCBs, the 10% review was expanded to 100% for thallium. Thallium was also detected in the CCB associated with project samples in SDG 280-15294 (0.0316 ug/L) and results <RL were UB qualified.

4. The PDS and serial dilution analyses were performed on project samples PAFB03-MW04-N-042811 and PAFB03-MW05-N-042911. All metals met control limits and no sample qualification was required.

5. The MS/MSD analyses were performed on project samples PAFB03-MW04-N-042811 and PAFB03-MW05-N-042911 for both the total and dissolved samples. Control limits were met with the exception that all recoveries for total antimony were low being 45/47% and 24/26%, respectively. All total antimony results were M qualified to indicate a matrix effect.

6. Sample location PAFB03-MW02 was used for the field duplicate. Results were as follows:

Analyte	Units	Concentration		RPD
		Parent	Duplicate	
Total				
Antimony	ug/L	0.37	0.39	nc
Cadmium	ug/L	0.58	0.64	nc
Selenium	ug/L	4.1	4.4	7
Thallium	ug/L	0.33	0.34	3
Dissolved				
Antimony	ug/L	0.2	0.2	nc
Cadmium	ug/L	0.17	0.15	nc
Selenium	ug/L	2.4	2	**18**
Thallium	ug/L	0.083	0.053	nc

nc – Not calculated; detected values in either the parent or duplicate below the RL.

The RPD for dissolved selenium in bold exceeded the control criteria of <15% and all dissolved selenium results for samples included in this valiation report were J qualified as estimated. No other qualification was required.

7. The analysis of the ICSA solution, which is used as the interference check standard, shows results for antimony and cadmium at a level greater than 2 times the MDL for both total and dissolved metals analysis. The laboratory indicated that the solution contained the trace impurities and that the results are not due to matrix interference. No data qualifiers were assigned.

Method 6010B total and dissolved - (5 investigative, 1 field duplicate, 2 MS/MSDs for total metals and 1 MS/MSD for dissolved metals aqueous samples)

1. The following QC items were evaluated for all samples: hold times, MBs, LCS %Rs, MS/MSD %Rs and RPDs, serial dilution %Ds, PDS %Rs, and field duplicate RPDs.

   For 10% of the samples, results for the following additional parameters were reviewed for compliance with QAPP criteria: ICBs, CCBs, ICVs, CCVs interference check standards (ICSA and ICSAB), RL check standard %Rs, and comparison of reported results to raw data. This 10% review was performed on sample PAFB03-MW02-N-042811.

   The following QC parameters met criteria: holding time, LCS %R, MS/MSD RPDs, ICBs, CCBs, ICVs, CCVs, ICSAB %Rs, the RL check standard %Rs, and comparison of reported results to raw data.

2. Total and dissolved silver were detected in the method blanks associated with the investigative samples reported in SDG 280-15294 at concentrations between the MDL and RL (1.39 and 1.14 ug/L). Silver was detected in associated samples at concentrations <RL and these results were UB qualified as not detected.

3. The analysis of the ICSA solution, which is used as the interference check standard, shows results for chromium, copper, and vanadium at a level greater than 2 times the MDL for both total and dissolved metals analysis. The laboratory indicated that the solution contained the trace impurities and that the results are not due to matrix interference. No data qualifiers were assigned.

4. The serial dilution and PDS analyses were performed on project samples PAFB03-MW02-N-042811 and PAFB03-MW05-N-042911 for total metals and project sample PAFB03-MW05-N-042911 for dissolved metals. Results met criteria with the following exception.

   Results for total metals failed the serial dilution acceptance criteria of <10%D for sample PAFB03-MW05-N-042911 for several analytes. The follow-up PDS for this sample was in control for all analytes except calcium which had a recovery below the QC criteria of 75-125%R (72%). Total calcium results for PAFB03-MW05-N-042911 were J qualified as estimated. Results for the second PDS for total metals was in control for all analytes and qualification of total calcium results was limited to the spiked sample.

5. The MS/MSD analyses were performed on project samples PAFB03-MW02-N-042811 and PAFB03-MW05-N-042911 for total metals and project sample PAFB03-MW05-N-042911 for dissolved metals.

   %Rs and RPDs were within control limits with the exception of the MSD %Rs for total arsenic, beryllium, calcium, cobalt, nickel, and zinc and the MS/MSD %Rs for total lead (77/74%)for spiked sample PAFB03-MW05-N-042911. No qualification is required for out-of control MSD%Rs if the MS%R and RPD are in control. The total lead result for parent sample PAFB03-MW05-N-042911was M qualified to indicate a matrix effect due to the low MS/MSD %Rs. Results for the second MS/MSD for total metals was in control for all analytes and qualification of lead results was limited to the spiked sample.

6. Sample location PAFB03-MW02 was used for the field duplicate. Results for metals detected in either the parent or duplicate sample were as follows:

Analyte	Units	Concentration		RPD
		Parent	Duplicate	
Total				
Arsenic	ug/L	5.7	17	nc
Barium	ug/L	180	210	15
Beryllium	ug/L	1.4	1.6	nc
Calcium	ug/L	57000	59000	3
Chromium	ug/L	22	26	**17**
Cobalt	ug/L	7.1	8.4	nc
Copper	ug/L	17	20	**16**
Lead	ug/L	22	28	**24**
Magnesium	ug/L	13000	13000	0
Nickel	ug/L	17	21	**21**
Potassium	ug/L	4700	5100	8
Vanadium	ug/L	44	51	15
Zinc	ug/L	87	110	**23**
Sodium	ug/L	46000	46000	0
Dissolved				
Barium	ug/L	82	63	**26**
Calcium	ug/L	55000	55000	0
Chromium	ug/L	9.8	7.6	nc
Cobalt	ug/L	2.8	2.7	nc
Copper	ug/L	7.4	6.1	nc
Lead	ug/L	11	6.9	nc
Magnesium	ug/L	11000	11000	0
Nickel	ug/L	6.9	5.8	nc
Potassium	ug/L	2900	2400	**19**
Vanadium	ug/L	20	15	**29**
Zinc	ug/L	40	33	**19**
Sodium	ug/L	47000	47000	0

nc – Not calculated; detected values in either the parent or duplicate below the reporting limit.

The calculated RPD for metals shown in bold exceeded the control criteria of <15% and the same metals results for samples included in this valiation report were J qualified as estimated. Samples that had been qualified J or M for alternate reasons required no further qualification.

Method 8260B VOCs (5 investigative, 1 field duplicate, 1 MS/MSD, and 1 trip blank aqueous samples)

1. The following QC items were evaluated for all samples: holding times, MBs, surrogate %Rs, LCS %Rs, MS/MSD %Rs and RPDs, trip blanks, field duplicate RPDs, and reporting limits (RLs).

   For 10% of the samples, results for the following additional parameters were reviewed for compliance with QAPP criteria: initial calibration (ICAL), second source calibration verification standard (SSCV), continuing calibration verification standard (CCV), GC/MS tunes, and internal standard area counts and

retention times. This 10% review was performed on sample PAFB03-MW02-N-042811 and included recalculation of the initial and continuing calibration results as well as results for detected analytes.

The following QC parameters met criteria: holding times, surrogate %Rs, MS/MSD %Rs, field duplicate RPDs, RLs, ICAL, CCV, GC/MS tunes, and internal standard area counts and retention times.

2. Samples were unpreserved and a hold time of 7 days from collection to analysis was met.

3. No analytes were detected in the MBs with the exception of methylene chloride at 0.573 ug/L in the blank associated with 280-15530. Methylene chloride was detected in the associated trip blank and project samples at similar concentrations and these results were UB qualified as not detected.

4. The LCS associated with SDGs 280-15211 and 280-15530 did not include results for the following analytes:

   - 2-Hexanone
   - Acrylonitrile
   - Carbon disulfide
   - Methyl iodide
   - Vinyl acetate
   - trans-1,4-Dichloro-2-butene

   These analytes were included in the CCV with acceptable results. Raw data for the LCS indicated that all but acrylonitrile for 280-15211 were detected and that all but acrylonitrile, methyl iodide, and trans-1,4-dichlor-2-butene for 280-15530 were detected. Due to laboratory issues the reports were unable to be revised at this time to include recovery information. All results for these analytes are qualified as estimated, J, with an unknown bias.

5. A MS/MSD was analyzed from site PAFB03-MW05 and results were provided with SDG 280-15530. This MS/MSD was used to for evaluation of all project samples included in this data validation report. All target analyte %Rs and RPDs were within the DoD QSM criteria with one exception. The RPD for bromoform (23%) exceeded the criteria of <20%. Bromoform was not detected in project samples and qualification was not required.

   The MS/MSD did not include results for the following analytes:

   - 2-Hexanone
   - Acrylonitrile
   - Carbon disulfide
   - Methyl iodide
   - Vinyl acetate
   - trans-1,4-Dichloro-2-butene

   Raw data indicated that all but acrylonitrile, methyl iodide, and trans-1,4-dichlor-2-butene were detected in the MS/MSD samples. Due to laboratory issues the reports were unable to be revised at this time to include recovery information. All results for these analytes were J qualified as estimated with an unknown bias since they were also missing in the LCS and further qualifiers were not assigned.

6. Target analytes were not detected above the RL in either the parent sample or field duplicate collected from site PAFB03-MW02. RPDs were not calculated and no sample qualification was required.

7. No trip blank was included with the sample shipment for samples reported in SDG 280-15211. All VOC results for sample PAFB03-MW03-N-042811, included with the sample shipment, were not detected indicating cross-contamination during shipment did not occur. No action was taken due to the missing trip blank.

One trip blank was included with the sample shipment for samples reported in SDG 280-15530. The methylene chloride detection in this trip blank was UB qualified due to MB contamination. No other detections were observed and qualification was not required.

8. The criteria of within <25% D for the SSCV was not met for the analyte trans-1,4-dichloro-2-butene (25.3%) for the calibration that occurred 5/2/11 at 1306 on instrument msv_c. Results for this analyte were qualified estimated due to the LCS and MS/MSD information and further qualifiers were not assigned.

Method 300 – Major Anions (5 aqueous samples, 1 field duplicate and 2 MS/MSDs)

1. The following QC items were evaluated and met criteria: holding times, ICAL, ICV, CCVs, MB, LCS/LCSD %Rs and RPDs, MS/MSD %Rs and RPDs and laboratory duplicate RPDs. For SDG 280-15211, the ICAL, ICV, CCV, LCS and results for sample PAFB03-MW02-N-042811 were re-calculated and verified. No anomalies were observed.

2. A MS/MSD was performed on sample PAFB03-MW02-N-042811 and results were provided with SDG 280-15211.
   An MS/MSD was also performed on sample PAFB03-MW05-N-050511 and results were provided with SDG 280-15530. %Rs and RPDs were within control criteria and no sample qualification was necessary.

3. A field duplicate pair was collected from location PAFB03-MW02-N-042811 and results were provided with SDG 280-15211. Results for anions detected in either the parent or duplicate sample are shown below. Calculated RPDs were less than the control criteria of <15% and data qualifiers were not required.

Analyte	Units	Concentration		RPD
		Parent	Duplicate	
Chloride	mg/L	13	13	0
Nitrate as N	mg/L	3.1	3.2	3
Sulfate	mg/L	32	32	0

4. Sample PAFB03-MW-3-N-042811 was analyzed at a dilution for nitrate as nitrogen due to high sample concentration. The reporting limit was raised accordingly. No sample qualification was necessary.

Method SM2320 Total, Carbonate, and Bicarbonate Alkalinity (5 aqueous samples and 1 field duplicate)

1. The following QC items were evaluated and met criteria: holding times and MB. Per the QAPP, alkalinity data are defined as screening data and required QC is a field duplicate at a frequency of 10%.

2. The analytical method specified in the QAPP was EPA 310.1. The analytical method reported as being used in the data package was SM2320B. No action was required due to this change.

3. A field duplicate pair was collected from location PAFB03-MW02-N-042811 and results were provided with SDG 280-15211. Bicarbonate alkalinity was detected at concentrations above the RL as shown below. The RPDs were calculated and were within the ≤20% RPD QC aqueous QC acceptance criteria. Data qualification is not required.

Analyte	Units	Concentration		RPD
		Parent	Duplicate	
Bicarbonate Alkalinity as CaCO3	mg/L	210	210	0

Method 9060 Total Organic Carbon ((5 aqueous samples, 1 field duplicate, and 1 MS/MSD)

1. The following QC items were evaluated and met criteria: holding times, ICAL, ICV, ICB, CCVs, MB, LCS/LCSD %Rs and RPDs, MS/MSD %Rs and RPDs. For SDG 280-15211, the ICAL, ICV, CCV, LCS and results for sample PAFB03-MW02-N-042811 were re-calculated and verified. No anomalies were observed.

2. TOC was detected in the ICBs associated with project samples in SDG 280-15530 at concentrations <RL of 0.16 and 0.226 mg/L. TOC was detected in project samples at concentrations >RL and qualification was not required.

3. An MS/MSD was performed on sample PAFB03-MW05-N-050511 and results were provided with SDG 280-15530. %Rs and RPDs were within control criteria and no sample qualification was necessary.

4. A laboratory duplicate was not performed on a sample in this SDG for this method. An assessment could not be made. However, since the LCS/LCSD RPD and MS/MSD RPD were within criteria, laboratory precision was met and data usability was not affected.

5. A field duplicate pair was collected from location PAFB03-MW02-N-042811 and results were provided with SDG 280-15211. TOC results are shown below. Calculated RPDs were less than the control criteria of <20% and data qualifiers were not required.

Analyte	Units	Concentration		RPD
		Parent	Duplicate	
TOC	mg/L	0.98	1.0	2

Reviewer: Karen Munns for Cathy Larson Date: 10/14/11

QC Reviewer: Karen Munns Date: 10/14/11

Database Entry Person: [illegible] Date: 10/24/11

Summary of Data Qualifiers

Field Sample ID	280-15211 Laboratory ID	Test Method	Target Analyte	Result	Validation Flags	Reason
PAFB03-MW02-N-042811	280-15211-1	SW6020	Thallium- Diss	0.083	B	Method and analytical blank detections. See Metals (6020) Items 2 & 3
PAFB03-MW02-FD-042811FD	280-15211-2FD	SW6020	Thallium- Diss	0.053	B	
PAFB03-MW03-N-042811	280-15211-3	SW6020	Thallium- Diss	0.025	B	
PAFB03-MW03-N-042811	280-15211-3	SW6020	Thallium	0.11	B	
PAFB03-MW02-N-042811	280-15211-1	SW6020	Antimony	0.37	M	Low MS/MSD %Rs – See Metals (6020) Item 5
PAFB03-MW02-FD-042811FD	280-15211-2FD	SW6020	Antimony	0.39	M	
PAFB03-MW03-N-042811	280-15211-3	SW6020	Antimony	0.54	M	
PAFB03-MW04-N-042811	280-15211-4	SW6020	Antimony	0.31	M	
PAFB03-MW02-N-042811	280-15211-1	SW6010B	Chromium	22	J	Field Duplicate Variability – See Metals (6010B and 6020) Item 6
PAFB03-MW02-N-042811	280-15211-1	SW6010B	Copper	17	J	
PAFB03-MW02-N-042811	280-15211-1	SW6010B	Lead	22	J	
PAFB03-MW02-N-042811	280-15211-1	SW6010B	Nickel	17	J	
PAFB03-MW02-N-042811	280-15211-1	SW6010B	Zinc	87	J	
PAFB03-MW02-FD-042811FD	280-15211-2FD	SW6010B	Chromium	26	J	
PAFB03-MW02-FD-042811FD	280-15211-2FD	SW6010B	Copper	20	J	
PAFB03-MW02-FD-042811FD	280-15211-2FD	SW6010B	Lead	28	J	
PAFB03-MW02-FD-042811FD	280-15211-2FD	SW6010B	Nickel	21	J	
PAFB03-MW02-FD-042811FD	280-15211-2FD	SW6010B	Zinc	110	J	
PAFB03-MW03-N-042811	280-15211-3	SW6010B	Chromium	11	J	
PAFB03-MW03-N-042811	280-15211-3	SW6010B	Copper	4.9	J	
PAFB03-MW03-N-042811	280-15211-3	SW6010B	Lead	3.9	J	
PAFB03-MW03-N-042811	280-15211-3	SW6010B	Nickel	4.3	J	
PAFB03-MW03-N-042811	280-15211-3	SW6010B	Zinc	21	J	
PAFB03-MW04-N-042811	280-15211-4	SW6010B	Chromium	38	J	
PAFB03-MW04-N-042811	280-15211-4	SW6010B	Copper	26	J	
PAFB03-MW04-N-042811	280-15211-4	SW6010B	Lead	24	J	
PAFB03-MW04-N-042811	280-15211-4	SW6010B	Nickel	23	J	
PAFB03-MW04-N-042811	280-15211-4	SW6010B	Zinc	110	J	
PAFB03-MW02-N-042811	280-15211-1	SW6010B	Barium- Diss	82	J	
PAFB03-MW02-N-042811	280-15211-1	SW6010B	Potassium- Diss	2900	J	
PAFB03-MW02-N-042811	280-15211-1	SW6010B	Vanadium- Diss	20	J	
PAFB03-MW02-N-042811	280-15211-1	SW6010B	Zinc- Diss	40	J	
PAFB03-MW02-N-042811	280-15211-1	SW6020	Selenium- Diss	2.4	J	

Summary of Data Qualifiers

Field Sample ID	280-15211 Laboratory ID	Test Method	Target Analyte	Result	Validation Flags	Reason
PAFB03-MW02-FD-042811FD	280-15211-2FD	SW6010B	Barium- Diss	63	J	Field Duplicate Variability – See Metals (6010B and 6020) Item 6
PAFB03-MW02-FD-042811FD	280-15211-2FD	SW6010B	Potassium- Diss	2400	J	
PAFB03-MW02-FD-042811FD	280-15211-2FD	SW6010B	Vanadium- Diss	15	J	
PAFB03-MW02-FD-042811FD	280-15211-2FD	SW6010B	Zinc- Diss	33	J	
PAFB03-MW02-FD-042811FD	280-15211-2FD	SW6020	Selenium- Diss	2	J	
PAFB03-MW03-N-042811	280-15211-3	SW6010B	Barium- Diss	73	J	
PAFB03-MW03-N-042811	280-15211-3	SW6010B	Potassium- Diss	2700	J	
PAFB03-MW03-N-042811	280-15211-3	SW6010B	Vanadium- Diss	1.2	J	
PAFB03-MW03-N-042811	280-15211-3	SW6010B	Zinc- Diss	5.6	J	
PAFB03-MW03-N-042811	280-15211-3	SW6020	Selenium- Diss	5.4	J	
PAFB03-MW04-N-042811	280-15211-4	SW6010B	Barium - Diss	81	J	
PAFB03-MW04-N-042811	280-15211-4	SW6010B	Potassium- Diss	2100	J	
PAFB03-MW04-N-042811	280-15211-4	SW6010B	Vanadium- Diss	1.3	J	
PAFB03-MW04-N-042811	280-15211-4	SW6010B	Zinc- Diss	14	J	
PAFB03-MW04-N-042811	280-15211-4	SW6020	Selenium- Diss	0.7	J	
PAFB03-MW02-N-042811	280-15211-1	SW8260B	2-Hexanone	0	J	Not spiked in LCS or MS/MSD, See VOCs – Items 4 & 5.
PAFB03-MW02-FD-042811FD	280-15211-2FD	SW8260B	2-Hexanone	0	J	
PAFB03-MW03-N-042811	280-15211-3	SW8260B	2-Hexanone	0	J	
PAFB03-MW04-N-042811	280-15211-4	SW8260B	2-Hexanone	0	J	
PAFB03-MW02-N-042811	280-15211-1	SW8260B	Acrylonitrile	0	J	
PAFB03-MW02-FD-042811FD	280-15211-2FD	SW8260B	Acrylonitrile	0	J	
PAFB03-MW03-N-042811	280-15211-3	SW8260B	Acrylonitrile	0	J	
PAFB03-MW04-N-042811	280-15211-4	SW8260B	Acrylonitrile	0	J	
PAFB03-MW02-N-042811	280-15211-1	SW8260B	Carbon Disulfide	0	J	
PAFB03-MW02-FD-042811FD	280-15211-2FD	SW8260B	Carbon Disulfide	0	J	
PAFB03-MW03-N-042811	280-15211-3	SW8260B	Carbon Disulfide	0	J	
PAFB03-MW04-N-042811	280-15211-4	SW8260B	Carbon Disulfide	0	J	
PAFB03-MW02-N-042811	280-15211-1	SW8260B	Iodomethane (Methyl Iodide)	0	J	
PAFB03-MW02-FD-042811FD	280-15211-2FD	SW8260B	Iodomethane (Methyl Iodide)	0	J	
PAFB03-MW03-N-042811	280-15211-3	SW8260B	Iodomethane (Methyl Iodide)	0	J	
PAFB03-MW04-N-042811	280-15211-4	SW8260B	Iodomethane (Methyl Iodide)	0	J	
PAFB03-MW02-N-042811	280-15211-1	SW8260B	Vinyl Acetate	0	J	
PAFB03-MW02-FD-042811FD	280-15211-2FD	SW8260B	Vinyl Acetate	0	J	

Summary of Data Qualifiers

Field Sample ID	280-15211 Laboratory ID	Test Method	Target Analyte	Result	Validation Flags	Reason
PAFB03-MW03-N-042811	280-15211-3	SW8260B	Vinyl Acetate	0	J	Not spiked in LCS or MS/MSD, See VOCs – Items 4 & 5.
PAFB03-MW04-N-042811	280-15211-4	SW8260B	Vinyl Acetate	0	J	
PAFB03-MW02-N-042811	280-15211-1	SW8260B	Trans-1,4-Dichloro-2-Butene	0	J	Not spiked in LCS or MS/MSD, Second Source Failure. See VOCs – Items 4, 5, & 8.
PAFB03-MW02-FD-042811FD	280-15211-2FD	SW8260B	Trans-1,4-Dichloro-2-Butene	0	J	
PAFB03-MW03-N-042811	280-15211-3	SW8260B	Trans-1,4-Dichloro-2-Butene	0	J	
PAFB03-MW04-N-042811	280-15211-4	SW8260B	Trans-1,4-Dichloro-2-Butene	0	J	

Field Sample ID	280-15530 Laboratory ID	Test Method	Target Analyte	Result	Validation Flags	Reason
PAFB-TRIP-TB-050511	280-15530-1	SW8260B	2-Hexanone	0	J	Not spiked in LCS or MS/MSD – See VOCs Items 4 & 5.
PAFB03-MW01-N-050511	280-15530-2	SW8260B	2-Hexanone	0	J	
PAFB03-MW05-N-050511	280-15530-3	SW8260B	2-Hexanone	0	J	
PAFB-TRIP-TB-050511	280-15530-1	SW8260B	Acrylonitrile	0	J	
PAFB03-MW01-N-050511	280-15530-2	SW8260B	Acrylonitrile	0	J	
PAFB03-MW05-N-050511	280-15530-3	SW8260B	Acrylonitrile	0	J	
PAFB-TRIP-TB-050511	280-15530-1	SW8260B	Iodomethane (Methyl Iodide)	0	J	
PAFB03-MW01-N-050511	280-15530-2	SW8260B	Iodomethane (Methyl Iodide)	0	J	
PAFB03-MW05-N-050511	280-15530-3	SW8260B	Iodomethane (Methyl Iodide)	0	J	
PAFB-TRIP-TB-050511	280-15530-1	SW8260B	Vinyl Acetate	0	J	
PAFB03-MW01-N-050511	280-15530-2	SW8260B	Vinyl Acetate	0	J	
PAFB03-MW05-N-050511	280-15530-3	SW8260B	Vinyl Acetate	0	J	
PAFB-TRIP-TB-050511	280-15530-1	SW8260B	Trans-1,4-Dichloro-2-Butene	0	J	Not spiked in LCS or MS/MSD, Second Source Failure. See VOCs – Items 4, 5, & 8.
PAFB03-MW01-N-050511	280-15530-2	SW8260B	Trans-1,4-Dichloro-2-Butene	0	J	
PAFB03-MW05-N-050511	280-15530-3	SW8260B	Trans-1,4-Dichloro-2-Butene	0	J	
PAFB-TRIP-TB-050511	280-15530-1	SW8260B	Dichloromethane	0.43	B	Method blank detections – See VOCs, Item 3
PAFB03-MW01-N-050511	280-15530-2	SW8260B	Dichloromethane	0.34	B	
PAFB03-MW05-N-050511	280-15530-3	SW8260B	Dichloromethane	0.55	B	

Summary of Data Qualifiers

Field Sample ID	280-15294-1 Laboratory ID	Test Method	Target Analyte	Result	Validation Flags	Reason
PAFB03-MW05-N-042911	280-15294-1	SW6010B	Barium - Diss	220	J	Field Duplicate Variability – See Metals (6010B and 6020) Item 6
PAFB03-MW01-N-042911	280-15294-2	SW6010B	Barium- Diss	110	J	
PAFB03-MW01-N-042911	280-15294-2	SW6010B	Chromium	15	J	
PAFB03-MW05-N-042911	280-15294-1	SW6010B	Chromium	190	J	
PAFB03-MW05-N-042911	280-15294-1	SW6010B	Copper	150	J	
PAFB03-MW01-N-042911	280-15294-2	SW6010B	Copper	7.2	J	
PAFB03-MW01-N-042911	280-15294-2	SW6010B	Lead	6.3	J	
PAFB03-MW05-N-042911	280-15294-1	SW6010B	Nickel	150	J	
PAFB03-MW01-N-042911	280-15294-2	SW6010B	Nickel	6.9	J	
PAFB03-MW01-N-042911	280-15294-2	SW6010B	Potassium- Diss	2200	J	
PAFB03-MW05-N-042911	280-15294-1	SW6010B	Potassium- Diss	3200	J	
PAFB03-MW05-N-042911	280-15294-1	SW6010B	Vanadium- Diss	18	J	
PAFB03-MW01-N-042911	280-15294-2	SW6010B	Vanadium- Diss	7	J	
PAFB03-MW05-N-042911	280-15294-1	SW6010B	Zinc- Diss	57	J	
PAFB03-MW05-N-042911	280-15294-1	SW6010B	Zinc	650	J	
PAFB03-MW01-N-042911	280-15294-2	SW6010B	Zinc- Diss	21	J	
PAFB03-MW01-N-042911	280-15294-2	SW6010B	Zinc	29	J	
PAFB03-MW05-N-042911	280-15294-1	SW6020	Antimony	0.25	M	Low MS/MSD %Rs – See Metals (6020) Item 5
PAFB03-MW01-N-042911	280-15294-2	SW6020	Antimony	0.21	M	
PAFB03-MW01-N-042911	280-15294-2	SW6020	Thallium- Diss	0.05	B	Blank detections. See Metals (6020) Items 2 & 3
PAFB03-MW05-N-042911	280-15294-1	SW6020	Thallium- Diss	0.14	B	
PAFB03-MW05-N-042911	280-15294-1	SW6010B	Silver- Diss	1	B	Method blank detections. See Metals (6010B) Item 2
PAFB03-MW01-N-042911	280-15294-2	SW6010B	Silver- Diss	1.1	B	
PAFB03-MW05-N-042911	280-15294-1	SW6010B	Lead	150	M	Low MS/MSD %R – See Metals (6010B) Item 5
PAFB03-MW01-N-042911	280-15294-2	SW6010B	Calcium	72000	J	Serial Dilution and PDS Outliers – Metals (6010B) Item 4
PAFB03-MW05-N-042911	280-15294-1	SW6010B	Calcium	180000	J	

Metals are reported on a "Total" basis unless designated "–Diss" for the dissolved fraction following field filtration.

Client: AECOM Technical Services Inc.

Job Number: 280-15211-1

Client Sample ID: **PAFB03-MW02-N-042811**

Lab Sample ID: 280-15211-1
Client Matrix: Water

Date Sampled: 04/28/2011 1100
Date Received: 04/29/2011 1000

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-65467	Instrument ID:	MSV_C
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	C7046.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	05/04/2011 0317			Final Weight/Volume:	20 mL
Prep Date:	05/04/2011 0317				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50	
1,1,1-Trichloroethane	0.38	F	0.053	1.0	
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50	
1,1,2-Trichloroethane	0.13	U	0.13	1.0	
1,1-Dichloroethane	0.057	U	0.057	1.0	
1,1-Dichloroethylene	0.53	F	0.074	1.0	
1,2,3-Trichloropropane	0.27	U	0.27	1.0	
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0	
1,2-Dibromoethane	0.18	U	0.18	1.0	
1,2-Dichlorobenzene	0.11	U	0.11	1.0	
1,2-Dichloroethane	0.068	U	0.068	0.50	
1,2-Dichloropropane	0.078	U	0.078	1.0	
1,4-Dichlorobenzene	0.12	U	0.12	0.50	
2-Butanone	1.2	U	1.2	10	
2-Hexanone	1.2	U	1.2	5.0	JL
4-Methyl-2-pentanone	1.1	U	1.1	10	
Acetone	1.6	U	1.6	10	
Acrylonitrile	1.2	U	1.2	20	JL
Benzene	0.13	U	0.13	0.40	
Bromochloromethane	0.21	U	0.21	1.0	
Bromodichloromethane	0.21	U	0.21	0.50	
Bromoform	0.22	U	0.22	1.0	
Bromomethane	0.19	U	0.19	3.0	
Carbon disulfide	0.20	U	0.20	2.0	JL
Carbon tetrachloride	0.11	U	0.11	1.0	
Chlorobenzene	0.076	U	0.076	0.50	
Chloroethane	0.13	U	0.13	1.0	
Chloroform	0.052	U	0.052	0.30	
Chloromethane	0.083	U	0.083	1.0	
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0	
cis-1,3-Dichloropropene	0.078	U	0.078	0.50	
Dibromochloromethane	0.046	U	0.046	0.50	
Dibromomethane	0.17	U	0.17	1.0	
Ethylbenzene	0.099	U	0.099	1.0	
Methyl iodide	0.097	U	0.097	1.0	JL
Methylene Chloride	0.21	U	0.21	2.0	
m-Xylene & p-Xylene	0.10	U	0.10	2.0	
o-Xylene	0.087	U	0.087	1.0	
Styrene	0.066	U	0.066	1.0	
Tetrachloroethene	0.14	U	0.14	1.0	
Toluene	0.068	U	0.068	1.0	
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0	
trans-1,3-Dichloropropene	0.065	U	0.065	1.0	
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0	JL
Trichloroethene	0.10	U	0.10	1.0	
Trichlorofluoromethane	0.36	F	0.067	1.0	

10/24/11

Analytical Data

Client: AECOM Technical Services Inc.

Job Number: 280-15211-1

Client Sample ID: PAFB03-MW02-N-042811

Lab Sample ID: 280-15211-1

Client Matrix: Water

Date Sampled: 04/28/2011 1100

Date Received: 04/29/2011 1000

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-65467	Instrument ID:	MSV_C
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	C7046.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	05/04/2011 0317			Final Weight/Volume:	20 mL
Prep Date:	05/04/2011 0317				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Vinyl acetate	0.74	U	0.74	3.0	JV
Vinyl chloride	0.078	U	0.078	1.0	
Xylenes, Total	0.11	U	0.11	2.0	

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	96		81 - 120
Dibromofluoromethane (Surr)	97		85 - 115
4-Bromofluorobenzene (Surr)	89		76 - 119
1,2-Dichloroethane-d4 (Surr)	93		72 - 119

10/14/11

Client: AECOM Technical Services Inc.

Job Number: 280-15211-1

Client Sample ID: PAFB03-MW02-FD-042811

Lab Sample ID: 280-15211-2

Client Matrix: Water

Date Sampled: 04/28/2011 1100

Date Received: 04/29/2011 1000

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-65467	Instrument ID:	MSV_C
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	C7047.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	05/04/2011 0337			Final Weight/Volume:	20 mL
Prep Date:	05/04/2011 0337				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.32	F	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.13	U	0.13	1.0
1,1-Dichloroethane	0.057	U	0.057	1.0
1,1-Dichloroethylene	0.52	F	0.074	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	0.078	U	0.078	1.0
1,4-Dichlorobenzene	0.12	U	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0 JL
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20 JL
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0 JL
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.052	U	0.052	0.30
Chloromethane	0.083	U	0.083	1.0
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.046	U	0.046	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0 JL
Methylene Chloride	0.21	U	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	0.14	U	0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0 JL
Trichloroethene	0.10	U	0.10	1.0
Trichlorofluoromethane	0.34	F M	0.067	1.0

10/14/11

Client: AECOM Technical Services Inc.

Job Number: 280-15211-1

Client Sample ID: **PAFB03-MW02-FD-042811**

Lab Sample ID: 280-15211-2

Client Matrix: Water

Date Sampled: 04/28/2011 1100

Date Received: 04/29/2011 1000

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-65467	Instrument ID:	MSV_C
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	C7047.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	05/04/2011 0337			Final Weight/Volume:	20 mL
Prep Date:	05/04/2011 0337				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Vinyl acetate	0.74	U	0.74	3.0	JL
Vinyl chloride	0.078	U	0.078	1.0	
Xylenes, Total	0.11	U	0.11	2.0	

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	95		81 - 120
Dibromofluoromethane (Surr)	96		85 - 115
4-Bromofluorobenzene (Surr)	88		76 - 119
1,2-Dichloroethane-d4 (Surr)	92		72 - 119

10/14/11

Client: AECOM Technical Services Inc.

Job Number: 280-15211-1

Client Sample ID: **PAFB03-MW03-N-042811**

Lab Sample ID: 280-15211-3
Client Matrix: Water

Date Sampled: 04/28/2011 1300
Date Received: 04/29/2011 1000

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-65467	Instrument ID:	MSV_C
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	C7048.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	05/04/2011 0357			Final Weight/Volume:	20 mL
Prep Date:	05/04/2011 0357				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50	
1,1,1-Trichloroethane	0.053	U	0.053	1.0	
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50	
1,1,2-Trichloroethane	0.13	U	0.13	1.0	
1,1-Dichloroethane	0.057	U	0.057	1.0	
1,1-Dichloroethylene	0.074	U	0.074	1.0	
1,2,3-Trichloropropane	0.27	U	0.27	1.0	
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0	
1,2-Dibromoethane	0.18	U	0.18	1.0	
1,2-Dichlorobenzene	0.11	U	0.11	1.0	
1,2-Dichloroethane	0.068	U	0.068	0.50	
1,2-Dichloropropane	0.078	U	0.078	1.0	
1,4-Dichlorobenzene	0.12	U	0.12	0.50	
2-Butanone	1.2	U	1.2	10	
2-Hexanone	1.2	U	1.2	5.0	JY
4-Methyl-2-pentanone	1.1	U	1.1	10	
Acetone	1.6	U	1.6	10	
Acrylonitrile	1.2	U	1.2	20	JY
Benzene	0.13	U	0.13	0.40	
Bromochloromethane	0.21	U	0.21	1.0	
Bromodichloromethane	0.21	U	0.21	0.50	
Bromoform	0.22	U	0.22	1.0	
Bromomethane	0.19	U	0.19	3.0	
Carbon disulfide	0.20	U	0.20	2.0	JY
Carbon tetrachloride	0.11	U	0.11	1.0	
Chlorobenzene	0.076	U	0.076	0.50	
Chloroethane	0.13	U	0.13	1.0	
Chloroform	0.052	U	0.052	0.30	
Chloromethane	0.083	U	0.083	1.0	
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0	
cis-1,3-Dichloropropene	0.078	U	0.078	0.50	
Dibromochloromethane	0.046	U	0.046	0.50	
Dibromomethane	0.17	U	0.17	1.0	
Ethylbenzene	0.099	U	0.099	1.0	
Methyl iodide	0.097	U	0.097	1.0	JY
Methylene Chloride	0.21	U	0.21	2.0	
m-Xylene & p-Xylene	0.10	U	0.10	2.0	
o-Xylene	0.087	U	0.087	1.0	
Styrene	0.066	U	0.066	1.0	
Tetrachloroethene	0.14	U	0.14	1.0	
Toluene	0.068	U	0.068	1.0	
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0	
trans-1,3-Dichloropropene	0.065	U	0.065	1.0	
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0	JY
Trichloroethene	0.10	U	0.10	1.0	
Trichlorofluoromethane	0.067	U	0.067	1.0	

10/14/11 KMM

Client: AECOM Technical Services Inc.

Job Number: 280-15211-1

Client Sample ID: **PAFB03-MW03-N-042811**

Lab Sample ID: 280-15211-3

Client Matrix: Water

Date Sampled: 04/28/2011 1300

Date Received: 04/29/2011 1000

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-65467	Instrument ID:	MSV_C
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	C7048.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	05/04/2011 0357			Final Weight/Volume:	20 mL
Prep Date:	05/04/2011 0357				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Vinyl acetate	0.74	U	0.74	3.0	JL
Vinyl chloride	0.078	U	0.078	1.0	
Xylenes, Total	0.11	U	0.11	2.0	

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	96		81 - 120
Dibromofluoromethane (Surr)	97		85 - 115
4-Bromofluorobenzene (Surr)	90		76 - 119
1,2-Dichloroethane-d4 (Surr)	93		72 - 119

10/14/11
KMP

Client: AECOM Technical Services Inc.

Job Number: 280-15211-1

Client Sample ID: **PAFB03-MW04-N-042811**

Lab Sample ID: 280-15211-4
Client Matrix: Water

Date Sampled: 04/28/2011 1400
Date Received: 04/29/2011 1000

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-65467	Instrument ID:	MSV_C
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	C7049.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	05/04/2011 0416			Final Weight/Volume:	20 mL
Prep Date:	05/04/2011 0416				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50	
1,1,1-Trichloroethane	0.15	F M	0.053	1.0	
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50	
1,1,2-Trichloroethane	0.13	U	0.13	1.0	
1,1-Dichloroethane	0.057	U	0.057	1.0	
1,1-Dichloroethylene	0.074	U	0.074	1.0	
1,2,3-Trichloropropane	0.27	U	0.27	1.0	
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0	
1,2-Dibromoethane	0.18	U	0.18	1.0	
1,2-Dichlorobenzene	0.11	U	0.11	1.0	
1,2-Dichloroethane	0.068	U	0.068	0.50	
1,2-Dichloropropane	0.078	U	0.078	1.0	
1,4-Dichlorobenzene	0.12	U	0.12	0.50	
2-Butanone	1.2	U	1.2	10	
2-Hexanone	1.2	U	1.2	5.0	JL
4-Methyl-2-pentanone	1.1	U	1.1	10	
Acetone	1.6	U	1.6	10	
Acrylonitrile	1.2	U	1.2	20	JL
Benzene	0.13	U	0.13	0.40	
Bromochloromethane	0.21	U	0.21	1.0	
Bromodichloromethane	0.21	U	0.21	0.50	
Bromoform	0.22	U	0.22	1.0	
Bromomethane	0.19	U	0.19	3.0	
Carbon disulfide	0.20	U	0.20	2.0	JL
Carbon tetrachloride	0.11	U	0.11	1.0	
Chlorobenzene	0.076	U	0.076	0.50	
Chloroethane	0.13	U	0.13	1.0	
Chloroform	0.052	U	0.052	0.30	10/14/11
Chloromethane	0.083	U	0.083	1.0	
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0	
cis-1,3-Dichloropropene	0.078	U	0.078	0.50	KMP
Dibromochloromethane	0.046	U	0.046	0.50	
Dibromomethane	0.17	U	0.17	1.0	
Ethylbenzene	0.099	U	0.099	1.0	
Methyl iodide	0.097	U	0.097	1.0	JL
Methylene Chloride	0.21	U	0.21	2.0	
m-Xylene & p-Xylene	0.10	U	0.10	2.0	
o-Xylene	0.087	U	0.087	1.0	
Styrene	0.066	U	0.066	1.0	
Tetrachloroethene	0.31	F	0.14	1.0	
Toluene	0.068	U	0.068	1.0	
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0	
trans-1,3-Dichloropropene	0.065	U	0.065	1.0	
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0	JL
Trichloroethene	0.10	U	0.10	1.0	
Trichlorofluoromethane	0.067	U	0.067	1.0	

Client: AECOM Technical Services Inc.

Job Number: 280-15211-1

Client Sample ID: **PAFB03-MW04-N-042811**

Lab Sample ID: 280-15211-4

Client Matrix: Water

Date Sampled: 04/28/2011 1400

Date Received: 04/29/2011 1000

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-65467	Instrument ID:	MSV_C
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	C7049.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	05/04/2011 0416			Final Weight/Volume:	20 mL
Prep Date:	05/04/2011 0416				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

J4

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	97		81 - 120
Dibromofluoromethane (Surr)	96		85 - 115
4-Bromofluorobenzene (Surr)	88		76 - 119
1,2-Dichloroethane-d4 (Surr)	92		72 - 119

10/14/11

Client: AECOM Technical Services Inc.

Job Number: 280-15211-1

Client Sample ID: **PAFB03-MW02-N-042811**

Lab Sample ID: 280-15211-1
Client Matrix: Water

Date Sampled: 04/28/2011 1100
Date Received: 04/29/2011 1000

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-66908	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-65187	Lab File ID:	25A6051111.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/11/2011 1926			Final Weight/Volume:	50 mL
Prep Date:	05/11/2011 0900				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Arsenic	5.7	F	4.4	30	
Barium	180		0.58	50	
Beryllium	1.4	F	0.47	4.0	
Calcium	57000		34	1100	
Chromium	22	Q	0.66	10	J
Cobalt	7.1	F	1.2	60	
Copper	17	Q	1.4	10	J
Lead	22	F	2.6	25	J
Magnesium	13000		11	1000	
Nickel	17	F	1.3	20	J
Potassium	4700		240	1000	
Silver	0.93	U	0.93	10	
Vanadium	44	Q	1.1	10	
Zinc	87		4.5	20	J

Analysis Method:	6010B	Analysis Batch:	280-67104	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-65187	Lab File ID:	25A1051211.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/12/2011 1614			Final Weight/Volume:	50 mL
Prep Date:	05/11/2011 0900				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Sodium	46000		92	1000

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-67147	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-65178	Lab File ID:	26a051211.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/12/2011 1606			Final Weight/Volume:	50 mL
Prep Date:	05/11/2011 1500				

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KMM

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Arsenic	4.4	U	4.4	30	
Barium	82		0.58	50	J
Beryllium	0.47	U	0.47	4.0	
Calcium	55000		34	1100	
Chromium	9.8	F Q	0.66	10	
Cobalt	2.8	F	1.2	60	
Copper	7.4	F Q	1.4	10	
Lead	11	F	2.6	25	
Magnesium	11000		11	1000	
Nickel	6.9	F	1.3	20	
Potassium	2900		240	1000	J

Client: AECOM Technical Services Inc.

Job Number: 280-15211-1

Client Sample ID: PAFB03-MW02-N-042811

Lab Sample ID: 280-15211-1
Client Matrix: Water

Date Sampled: 04/28/2011 1100
Date Received: 04/29/2011 1000

6010B Metals (ICP)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Silver	0.93	U	0.93	10
Vanadium	20	Q	1.1	10 J
Zinc	40		4.5	20 J

Analysis Method:	6010B	Analysis Batch:	280-67448	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-65178	Lab File ID:	26a051311.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/13/2011 1527			Final Weight/Volume:	50 mL
Prep Date:	05/11/2011 1500				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Sodium	47000		92	1000

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-67157	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-65188	Lab File ID:	086SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/12/2011 2155			Final Weight/Volume:	50 mL
Prep Date:	05/02/2011 1513				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.37	F Q	0.070	1.0 M
Cadmium	0.58	F Q	0.040	2.0
Selenium	4.1		0.70	2.0
Thallium	0.33		0.020	0.20

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-67157	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-65189	Lab File ID:	099SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/12/2011 2231			Final Weight/Volume:	50 mL
Prep Date:	05/12/2011 0800				

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KMM

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.20	F Q	0.070	1.0
Cadmium	0.17	F Q	0.040	2.0
Selenium	2.4		0.70	2.0 J
Thallium	0.083	F	0.020	0.20 UB

Client: AECOM Technical Services Inc.

Job Number: 280-15211-1

Client Sample ID: **PAFB03-MW02-FD-042811**

Lab Sample ID: 280-15211-2

Client Matrix: Water

Date Sampled: 04/28/2011 1100

Date Received: 04/29/2011 1000

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-66908	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-65187	Lab File ID:	25A6051111.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/11/2011 1937			Final Weight/Volume:	50 mL
Prep Date:	05/11/2011 0900				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Arsenic	17	F	4.4	30	
Barium	210		0.58	50	
Beryllium	1.6	F	0.47	4.0	
Calcium	59000		34	1100	
Chromium	26	Q	0.66	10	J
Cobalt	8.4	F	1.2	60	
Copper	20	Q	1.4	10	J
Lead	28		2.6	25	J
Magnesium	13000		11	1000	
Nickel	21		1.3	20	J
Potassium	5100		240	1000	
Silver	0.93	U	0.93	10	
Vanadium	51	Q	1.1	10	
Zinc	110		4.5	20	J

Analysis Method:	6010B	Analysis Batch:	280-67104	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-65187	Lab File ID:	25A1051211.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/12/2011 1625			Final Weight/Volume:	50 mL
Prep Date:	05/11/2011 0900				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Sodium	46000		92	1000

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-67147	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-65178	Lab File ID:	26a051211.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/12/2011 1609			Final Weight/Volume:	50 mL
Prep Date:	05/11/2011 1500				

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Analyte	Result (ug/L)	Qualifier	MDL	RL	
Arsenic	4.4	U	4.4	30	
Barium	63		0.58	50	J
Beryllium	0.47	U	0.47	4.0	
Calcium	55000		34	1100	
Chromium	7.6	F Q	0.66	10	
Cobalt	2.7	F	1.2	60	
Copper	6.1	F Q	1.4	10	
Lead	6.9	F	2.6	25	
Magnesium	11000		11	1000	
Nickel	5.8	F	1.3	20	
Potassium	2400		240	1000	J

Client: AECOM Technical Services Inc.

Job Number: 280-15211-1

Client Sample ID: **PAFB03-MW02-FD-042811**

Lab Sample ID: 280-15211-2
Client Matrix: Water

Date Sampled: 04/28/2011 1100
Date Received: 04/29/2011 1000

6010B Metals (ICP)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Silver	0.93	U	0.93	10	
Vanadium	15	Q	1.1	10	J
Zinc	33		4.5	20	J

Analysis Method:	6010B	Analysis Batch:	280-67448	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-65178	Lab File ID:	26a051311.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/13/2011 1529			Final Weight/Volume:	50 mL
Prep Date:	05/11/2011 1500				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Sodium	47000		92	1000

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-67157	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-65188	Lab File ID:	087SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/12/2011 2158			Final Weight/Volume:	50 mL
Prep Date:	05/02/2011 1513				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Antimony	0.39	F Q	0.070	1.0	M
Cadmium	0.64	F Q	0.040	2.0	
Selenium	4.4		0.70	2.0	
Thallium	0.34		0.020	0.20	

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-67157	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-65189	Lab File ID:	100SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/12/2011 2233			Final Weight/Volume:	50 mL
Prep Date:	05/12/2011 0800				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Antimony	0.20	F Q	0.070	1.0	
Cadmium	0.15	F Q	0.040	2.0	
Selenium	2.0		0.70	2.0	J
Thallium	0.053	F	0.020	0.20	UB

10/14/11

Client: AECOM Technical Services Inc.

Job Number: 280-15211-1

Client Sample ID: **PAFB03-MW03-N-042811**

Lab Sample ID: 280-15211-3
Client Matrix: Water

Date Sampled: 04/28/2011 1300
Date Received: 04/29/2011 1000

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-66908	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-65187	Lab File ID:	25A6051111.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/11/2011 1939			Final Weight/Volume:	50 mL
Prep Date:	05/11/2011 0900				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Arsenic	8.8	F	4.4	30	
Barium	130		0.58	50	
Beryllium	0.47	U	0.47	4.0	
Calcium	100000		34	1100	
Chromium	11	Q	0.66	10	J
Cobalt	3.4	F	1.2	60	
Copper	4.9	F Q	1.4	10	J
Lead	3.9	F	2.6	25	J
Magnesium	20000		11	1000	
Nickel	4.3	F	1.3	20	J
Potassium	4100		240	1000	
Silver	0.93	U	0.93	10	
Vanadium	11	Q	1.1	10	
Zinc	21		4.5	20	J

Analysis Method:	6010B	Analysis Batch:	280-67104	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-65187	Lab File ID:	25A1051211.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/12/2011 1627			Final Weight/Volume:	50 mL
Prep Date:	05/11/2011 0900				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Sodium	71000		92	1000

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-67147	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-65178	Lab File ID:	26a051211.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/12/2011 1611			Final Weight/Volume:	50 mL
Prep Date:	05/11/2011 1500				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Arsenic	4.4	U	4.4	30	
Barium	73		0.58	50	J
Beryllium	0.47	U	0.47	4.0	
Calcium	95000		34	1100	
Chromium	0.66	U Q	0.66	10	
Cobalt	1.2	U	1.2	60	
Copper	1.4	U Q	1.4	10	
Lead	2.6	U	2.6	25	
Magnesium	20000		11	1000	
Nickel	1.3	U	1.3	20	
Potassium	2700		240	1000	J

10/14/11
KHP

Client: AECOM Technical Services Inc.

Job Number: 280-15211-1

Client Sample ID: **PAFB03-MW03-N-042811**

Lab Sample ID: 280-15211-3
Client Matrix: Water

Date Sampled: 04/28/2011 1300
Date Received: 04/29/2011 1000

6010B Metals (ICP)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Silver	0.93	U	0.93	10	
Vanadium	1.2	F Q	1.1	10	J
Zinc	5.6	F	4.5	20	J

Analysis Method:	6010B	Analysis Batch:	280-67448	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-65178	Lab File ID:	26a051311.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/13/2011 1532			Final Weight/Volume:	50 mL
Prep Date:	05/11/2011 1500				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Sodium	73000		92	1000

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-67157	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-65188	Lab File ID:	088SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/12/2011 2200			Final Weight/Volume:	50 mL
Prep Date:	05/02/2011 1513				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Antimony	0.54	F Q	0.070	1.0	M
Cadmium	0.20	F Q	0.040	2.0	
Selenium	6.0		0.70	2.0	
Thallium	0.11	F	0.020	0.20	UB

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-67157	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-65189	Lab File ID:	101SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/12/2011 2236			Final Weight/Volume:	50 mL
Prep Date:	05/12/2011 0800				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Antimony	0.52	F Q	0.070	1.0	
Cadmium	0.040	U Q	0.040	2.0	
Selenium	5.4		0.70	2.0	J
Thallium	0.025	F	0.020	0.20	UB

10/14/11

Client: AECOM Technical Services Inc. Job Number: 280-15211-1

Client Sample ID: **PAFB03-MW04-N-042811**

Lab Sample ID: 280-15211-4 Date Sampled: 04/28/2011 1400
Client Matrix: Water Date Received: 04/29/2011 1000

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-66908	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-65187	Lab File ID:	25A6051111.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/11/2011 1942			Final Weight/Volume:	50 mL
Prep Date:	05/11/2011 0900				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Arsenic	8.2	F	4.4	30	
Barium	310		0.58	50	
Beryllium	1.4	F	0.47	4.0	
Calcium	92000		34	1100	
Chromium	38	Q	0.66	10	J
Cobalt	8.6	F	1.2	60	
Copper	26	Q	1.4	10	J
Lead	24	F	2.6	25	J
Magnesium	21000		11	1000	
Nickel	23		1.3	20	J
Potassium	7100		240	1000	
Silver	0.93	U	0.93	10	
Vanadium	63	Q	1.1	10	
Zinc	110		4.5	20	J

Analysis Method:	6010B	Analysis Batch:	280-67104	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-65187	Lab File ID:	25A1051211.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/12/2011 1630			Final Weight/Volume:	50 mL
Prep Date:	05/11/2011 0900				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Sodium	32000		92	1000

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-67147	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-65178	Lab File ID:	26a051211.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/12/2011 1614			Final Weight/Volume:	50 mL
Prep Date:	05/11/2011 1500				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Arsenic	4.4	U	4.4	30	
Barium	81		0.58	50	J
Beryllium	0.47	U	0.47	4.0	
Calcium	84000		34	1100	
Chromium	0.66	U Q	0.66	10	
Cobalt	1.2	U	1.2	60	
Copper	1.4	U Q	1.4	10	
Lead	2.6	U	2.6	25	
Magnesium	13000		11	1000	
Nickel	2.6	F	1.3	20	
Potassium	2100		240	1000	J

10/14/11

Client: AECOM Technical Services Inc.

Job Number: 280-15211-1

Client Sample ID: PAFB03-MW04-N-042811

Lab Sample ID: 280-15211-4
Client Matrix: Water

Date Sampled: 04/28/2011 1400
Date Received: 04/29/2011 1000

6010B Metals (ICP)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Silver	0.93	U	0.93	10	
Vanadium	1.3	F Q	1.1	10	J
Zinc	14	F	4.5	20	J

Analysis Method:	6010B	Analysis Batch:	280-67850	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-65178	Lab File ID:	26a051711.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/17/2011 1511			Final Weight/Volume:	50 mL
Prep Date:	05/11/2011 1500				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Sodium	33000		92	1000

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-67157	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-65188	Lab File ID:	089AREF.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/12/2011 2203			Final Weight/Volume:	50 mL
Prep Date:	05/02/2011 1513				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Antimony	0.31	F Q m	0.070	1.0	M
Cadmium	0.34	F Q	0.040	2.0	
Selenium	2.7		0.70	2.0	
Thallium	0.30		0.020	0.20	

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-67157	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-65189	Lab File ID:	102AREF.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/12/2011 2239			Final Weight/Volume:	50 mL
Prep Date:	05/12/2011 0800				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Antimony	0.37	F Q	0.070	1.0	
Cadmium	0.040	F Q	0.040	2.0	
Selenium	0.70	F	0.70	2.0	J
Thallium	0.020	U	0.020	0.20	

10/14/11
KMH

Client: AECOM Technical Services Inc.

Job Number: 280-15211-1

General Chemistry

Client Sample ID: **PAFB03-MW02-N-042811**

Lab Sample ID: 280-15211-1

Client Matrix: Water

Date Sampled: 04/28/2011 1100

Date Received: 04/29/2011 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	13		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-65043	Analysis Date: 04/29/2011 1404						
Nitrate as N	3.1		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-65044	Analysis Date: 04/29/2011 1404						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-65044	Analysis Date: 04/29/2011 1404						
Sulfate	32		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-65043	Analysis Date: 04/29/2011 1404						
Total Organic Carbon - Average	0.98	F	mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-67046	Analysis Date: 05/11/2011 2258						
Bicarbonate Alkalinity as CaCO3	210		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-66847	Analysis Date: 05/11/2011 1222						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-66847	Analysis Date: 05/11/2011 1222						

10/14/11

Client: AECOM Technical Services Inc.

Job Number: 280-15211-1

General Chemistry

Client Sample ID: PAFB03-MW02-FD-042811

Lab Sample ID: 280-15211-2

Client Matrix: Water

Date Sampled: 04/28/2011 1100

Date Received: 04/29/2011 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	13		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-65043	Analysis Date: 04/29/2011 1507						
Nitrate as N	3.2		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-65044	Analysis Date: 04/29/2011 1507						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-65044	Analysis Date: 04/29/2011 1507						
Sulfate	32		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-65043	Analysis Date: 04/29/2011 1507						
Total Organic Carbon - Average	1.0		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-67046	Analysis Date: 05/11/2011 2313						
Bicarbonate Alkalinity as CaCO3	210		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-66847	Analysis Date: 05/11/2011 1230						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-66847	Analysis Date: 05/11/2011 1230						

10/14/11
KMM

Client: AECOM Technical Services Inc.

Job Number: 280-15211-1

General Chemistry

Client Sample ID: **PAFB03-MW03-N-042811**

Lab Sample ID: 280-15211-3

Client Matrix: Water

Date Sampled: 04/28/2011 1300

Date Received: 04/29/2011 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	13		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-65043	Analysis Date: 04/29/2011 1523						
Nitrate as N	14		mg/L	0.21	2.5	5.0	300.0
Analysis Batch: 280-65044	Analysis Date: 04/29/2011 2126						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-65044	Analysis Date: 04/29/2011 1523						
Sulfate	15		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-65043	Analysis Date: 04/29/2011 1523						
Total Organic Carbon - Average	1.8		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-67046	Analysis Date: 05/11/2011 2357						
Bicarbonate Alkalinity as CaCO3	400		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-66847	Analysis Date: 05/11/2011 1257						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-66847	Analysis Date: 05/11/2011 1257						

10/14/11

General Chemistry

Client Sample ID: PAFB03-MW04-N-042811

Lab Sample ID: 280-15211-4 Date Sampled: 04/28/2011 1400

Client Matrix: Water Date Received: 04/29/2011 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	21		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-65043	Analysis Date: 04/29/2011 1538						
Nitrate as N	4.0		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-65044	Analysis Date: 04/29/2011 1538						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-65044	Analysis Date: 04/29/2011 1538						
Sulfate	26		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-65043	Analysis Date: 04/29/2011 1538						
Total Organic Carbon - Average	1.0		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-67046	Analysis Date: 05/12/2011 0012						
Bicarbonate Alkalinity as CaCO3	270		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-66847	Analysis Date: 05/11/2011 1305						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-66847	Analysis Date: 05/11/2011 1305						

10/14/11

Client: AECOM Technical Services Inc.

Job Number: 280-15530-1

Client Sample ID: **PAFB-TRIP-TB-050511**

Lab Sample ID: 280-15530-1TB

Client Matrix: Water

Date Sampled: 05/05/2011 0000

Date Received: 05/06/2011 0757

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-66955	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z5527.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	05/11/2011 1901			Final Weight/Volume:	20 mL
Prep Date:	05/11/2011 1901				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50	
1,1,1-Trichloroethane	0.053	U	0.053	1.0	
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50	
1,1,2-Trichloroethane	0.13	U	0.13	1.0	
1,1-Dichloroethane	0.057	U	0.057	1.0	
1,1-Dichloroethylene	0.074	U	0.074	1.0	
1,2,3-Trichloropropane	0.27	U	0.27	1.0	
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0	
1,2-Dibromoethane	0.18	U	0.18	1.0	
1,2-Dichlorobenzene	0.11	U	0.11	1.0	
1,2-Dichloroethane	0.068	U	0.068	0.50	
1,2-Dichloropropane	0.078	U	0.078	1.0	
1,4-Dichlorobenzene	0.12	U	0.12	0.50	
2-Butanone	1.2	U	1.2	10	
2-Hexanone	1.2	U	1.2	5.0	JL
4-Methyl-2-pentanone	1.1	U	1.1	10	
Acetone	1.6	U	1.6	10	
Acrylonitrile	1.2	U	1.2	20	JL
Benzene	0.13	U	0.13	0.40	
Bromochloromethane	0.21	U	0.21	1.0	
Bromodichloromethane	0.21	U	0.21	0.50	
Bromoform	0.22	U	0.22	1.0	
Bromomethane	0.19	U	0.19	3.0	
Carbon disulfide	0.20	U	0.20	2.0	JL
Carbon tetrachloride	0.11	U	0.11	1.0	
Chlorobenzene	0.076	U	0.076	0.50	
Chloroethane	0.13	U	0.13	1.0	
Chloroform	0.052	U	0.052	0.30	
Chloromethane	0.083	U	0.083	1.0	
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0	
cis-1,3-Dichloropropene	0.078	U	0.078	0.50	
Dibromochloromethane	0.046	U	0.046	0.50	
Dibromomethane	0.17	U	0.17	1.0	
Ethylbenzene	0.099	U	0.099	1.0	
Methyl Iodide	0.097	U	0.097	1.0	JL
Methylene Chloride	0.43	F	0.21	2.0	UB
m-Xylene & p-Xylene	0.10	U	0.10	2.0	
o-Xylene	0.087	U	0.087	1.0	
Styrene	0.066	U	0.066	1.0	
Tetrachloroethene	0.14	U	0.14	1.0	
Toluene	0.068	U	0.068	1.0	
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0	
trans-1,3-Dichloropropene	0.065	U	0.065	1.0	
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0	JL
Trichloroethene	0.10	U	0.10	1.0	
Trichlorofluoromethane	0.067	U	0.067	1.0	

10/14/11

Client: AECOM Technical Services Inc.

Job Number: 280-15530-1

Client Sample ID: **PAFB-TRIP-TB-050511**

Lab Sample ID: 280-15530-1TB

Client Matrix: Water

Date Sampled: 05/05/2011 0000

Date Received: 05/06/2011 0757

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-66955	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z5527.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	05/11/2011 1901			Final Weight/Volume:	20 mL
Prep Date:	05/11/2011 1901				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Vinyl acetate	0.74	U	0.74	3.0	JL
Vinyl chloride	0.078	U	0.078	1.0	
Xylenes, Total	0.11	U	0.11	2.0	

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	99		81 - 120
Dibromofluoromethane (Surr)	95		85 - 115
4-Bromofluorobenzene (Surr)	108		76 - 119
1,2-Dichloroethane-d4 (Surr)	85		72 - 119

10/14/11 KPL

Client: AECOM Technical Services Inc.

Job Number: 280-15530-1

Client Sample ID: **PAFB03-MW01-N-050511**

Lab Sample ID: 280-15530-2
Client Matrix: Water

Date Sampled: 05/05/2011 1506
Date Received: 05/06/2011 0757

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-66955	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z5528.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	05/11/2011 1922			Final Weight/Volume:	20 mL
Prep Date:	05/11/2011 1922				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50	
1,1,1-Trichloroethane	0.053	U	0.053	1.0	
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50	
1,1,2-Trichloroethane	0.13	U	0.13	1.0	
1,1-Dichloroethane	0.057	U	0.057	1.0	
1,1-Dichloroethylene	0.074	U	0.074	1.0	
1,2,3-Trichloropropane	0.27	U	0.27	1.0	
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0	
1,2-Dibromoethane	0.18	U	0.18	1.0	
1,2-Dichlorobenzene	0.11	U	0.11	1.0	
1,2-Dichloroethane	0.068	U	0.068	0.50	
1,2-Dichloropropane	0.078	U	0.078	1.0	
1,4-Dichlorobenzene	0.12	U	0.12	0.50	
2-Butanone	1.2	U	1.2	10	
2-Hexanone	1.2	U	1.2	5.0	JY
4-Methyl-2-pentanone	1.1	U	1.1	10	
Acetone	1.6	U	1.6	10	
Acrylonitrile	1.2	U	1.2	20	JY
Benzene	0.13	U	0.13	0.40	
Bromochloromethane	0.21	U	0.21	1.0	
Bromodichloromethane	0.21	U	0.21	0.50	
Bromoform	0.22	U	0.22	1.0	
Bromomethane	0.19	U	0.19	3.0	
Carbon disulfide	0.20	U	0.20	2.0	JY
Carbon tetrachloride	0.11	U	0.11	1.0	
Chlorobenzene	0.076	U	0.076	0.50	
Chloroethane	0.13	U	0.13	1.0	
Chloroform	0.052	U	0.052	0.30	
Chloromethane	0.083	U	0.083	1.0	
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0	
cis-1,3-Dichloropropene	0.078	U	0.078	0.50	
Dibromochloromethane	0.046	U	0.046	0.50	
Dibromomethane	0.17	U	0.17	1.0	
Ethylbenzene	0.099	U	0.099	1.0	
Methyl iodide	0.097	U	0.097	1.0	JY
Methylene Chloride	0.34	F	0.21	2.0	UB
m-Xylene & p-Xylene	0.10	U	0.10	2.0	
o-Xylene	0.087	U	0.087	1.0	
Styrene	0.066	U	0.066	1.0	
Tetrachloroethene	0.14	U	0.14	1.0	
Toluene	0.068	U	0.068	1.0	
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0	
trans-1,3-Dichloropropene	0.065	U	0.065	1.0	
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0	JY
Trichloroethene	0.10	U	0.10	1.0	
Trichlorofluoromethane	0.067	U	0.067	1.0	

10/14/11

Client: AECOM Technical Services Inc.

Job Number: 280-15530-1

Client Sample ID: **PAFB03-MW01-N-050511**

Lab Sample ID: 280-15530-2
Client Matrix: Water

Date Sampled: 05/05/2011 1506
Date Received: 05/06/2011 0757

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-66955	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z5528.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	05/11/2011 1922			Final Weight/Volume:	20 mL
Prep Date:	05/11/2011 1922				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	82		81 - 120
Dibromofluoromethane (Surr)	99		85 - 115
4-Bromofluorobenzene (Surr)	96		76 - 119
1,2-Dichloroethane-d4 (Surr)	91		72 - 119

10/14/11

Client: AECOM Technical Services Inc.

Job Number: 280-15530-1

Client Sample ID: **PAFB03-MW05-N-050511**

Lab Sample ID: 280-15530-3
Client Matrix: Water

Date Sampled: 05/05/2011 1320
Date Received: 05/06/2011 0757

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-66955	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z5524.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	05/11/2011 1801			Final Weight/Volume:	20 mL
Prep Date:	05/11/2011 1801				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50	
1,1,1-Trichloroethane	0.15	F	0.053	1.0	
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50	
1,1,2-Trichloroethane	0.13	U	0.13	1.0	
1,1-Dichloroethane	1.2		0.057	1.0	
1,1-Dichloroethylene	0.074	U	0.074	1.0	
1,2,3-Trichloropropane	0.27	U	0.27	1.0	
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0	
1,2-Dibromoethane	0.18	U	0.18	1.0	
1,2-Dichlorobenzene	0.11	U	0.11	1.0	
1,2-Dichloroethane	0.068	U	0.068	0.50	
1,2-Dichloropropane	0.77	F	0.078	1.0	
1,4-Dichlorobenzene	0.12	U	0.12	0.50	
2-Butanone	1.2	U	1.2	10	
2-Hexanone	1.2	U	1.2	5.0	JL
4-Methyl-2-pentanone	1.1	U	1.1	10	
Acetone	1.6	U	1.6	10	
Acrylonitrile	1.2	U	1.2	20	JL
Benzene	0.13	U	0.13	0.40	
Bromochloromethane	0.21	U	0.21	1.0	
Bromodichloromethane	0.21	U	0.21	0.50	
Bromoform	0.22	U m	0.22	1.0	
Bromomethane	0.19	U	0.19	3.0	
Carbon disulfide	0.20	U	0.20	2.0	JL
Carbon tetrachloride	0.11	U	0.11	1.0	
Chlorobenzene	0.076	U	0.076	0.50	
Chloroethane	0.13	U	0.13	1.0	
Chloroform	0.29	F	0.052	0.30	
Chloromethane	0.083	U	0.083	1.0	
cis-1,2-Dichloroethylene	0.57	F	0.098	1.0	
cis-1,3-Dichloropropene	0.078	U	0.078	0.50	
Dibromochloromethane	0.046	U	0.046	0.50	
Dibromomethane	0.17	U	0.17	1.0	
Ethylbenzene	0.099	U	0.099	1.0	
Methyl iodide	0.097	U	0.097	1.0	JL
Methylene Chloride	0.55	F	0.21	2.0	LB
m-Xylene & p-Xylene	0.10	U	0.10	2.0	
o-Xylene	0.087	U	0.087	1.0	10/14/11
Styrene	0.066	U	0.066	1.0	
Tetrachloroethene	1.2		0.14	1.0	
Toluene	0.068	U	0.068	1.0	KMM
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0	
trans-1,3-Dichloropropene	0.065	U	0.065	1.0	
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0	JL
Trichloroethene	0.49	F	0.10	1.0	
Trichlorofluoromethane	0.067	U	0.067	1.0	

Client: AECOM Technical Services Inc.

Job Number: 280-15530-1

Client Sample ID: **PAFB03-MW05-N-050511**

Lab Sample ID: 280-15530-3

Client Matrix: Water

Date Sampled: 05/05/2011 1320

Date Received: 05/06/2011 0757

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-66955	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z5524.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	05/11/2011 1801			Final Weight/Volume:	20 mL
Prep Date:	05/11/2011 1801				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	83		81 - 120
Dibromofluoromethane (Surr)	93		85 - 115
4-Bromofluorobenzene (Surr)	115		76 - 119
1,2-Dichloroethane-d4 (Surr)	86		72 - 119

10/14/11
KMM

General Chemistry

Client Sample ID: **PAFB03-MW01-N-050511**

Lab Sample ID: 280-15530-2 Date Sampled: 05/05/2011 1506

Client Matrix: Water Date Received: 05/06/2011 0757

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	24		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-66437	Analysis Date: 05/06/2011 1308						
Nitrate as N	3.7		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-66438	Analysis Date: 05/06/2011 1308						
Nitrite as N	0.049	F	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-66438	Analysis Date: 05/06/2011 1308						
Sulfate	27		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-66437	Analysis Date: 05/06/2011 1308						
Total Organic Carbon - Average	3.8		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-68373	Analysis Date: 05/20/2011 1259						
Bicarbonate Alkalinity as CaCO3	210		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-67373	Analysis Date: 05/14/2011 1313						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-67373	Analysis Date: 05/14/2011 1313						

10/14/11

Client: AECOM Technical Services Inc.

Job Number: 280-15530-1

General Chemistry

Client Sample ID: **PAFB03-MW05-N-050511**

Lab Sample ID: 280-15530-3

Client Matrix: Water

Date Sampled: 05/05/2011 1320

Date Received: 05/06/2011 0757

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	28		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-66437	Analysis Date: 05/06/2011 1325						
Nitrate as N	6.7		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-66438	Analysis Date: 05/06/2011 1325						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-66438	Analysis Date: 05/06/2011 1325						
Sulfate	27		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-66437	Analysis Date: 05/06/2011 1325						
Total Organic Carbon - Average	1.5		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-68373	Analysis Date: 05/20/2011 1317						
Bicarbonate Alkalinity as CaCO3	310		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-67373	Analysis Date: 05/14/2011 1322						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-67373	Analysis Date: 05/14/2011 1322						

10/14/11

Client: AECOM Technical Services Inc.

Job Number: 280-15294-1

Client Sample ID: **PAFB03-MW06-N-042911**

Lab Sample ID: 280-15294-1
Client Matrix: Water

Date Sampled: 04/29/2011 1030
Date Received: 05/02/2011 0945

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-67412	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-66157	Lab File ID:	25A4051311.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/14/2011 0130			Final Weight/Volume:	50 mL
Prep Date:	05/13/2011 0830				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Arsenic	64	m	4.4	30	
Barium	1300		0.58	50	
Beryllium	9.4	m	0.47	4.0	
Calcium	180000	m J	34	1100	J
Chromium	190	Q	0.66	10	J
Cobalt	71	m	1.2	60	
Copper	150	Q	1.4	10	J
Lead	150	m	2.6	25	M
Magnesium	53000		11	1000	
Nickel	150	m	1.3	20	J
Potassium	19000		240	1000	
Silver	0.93	U	0.93	10	
Sodium	33000		92	1000	
Vanadium	270		1.1	10	
Zinc	650	m	4.5	20	J

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-67601	Instrument ID:	MT_025
Prep Method:	3005A	Prep Batch:	280-67112	Lab File ID:	25A3051611.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/16/2011 1548			Final Weight/Volume:	50 mL
Prep Date:	05/13/2011 1500				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Barium	220		0.58	50	J
Beryllium	1.1	F	0.47	4.0	
Calcium	110000		34	1100	
Chromium	11	Q	0.66	10	
Cobalt	8.8	F	1.2	60	
Copper	12	Q	1.4	10	
Lead	16	F	2.6	25	
Magnesium	19000		11	1000	
Nickel	16	F	1.3	20	
Potassium	3200		240	1000	J
Silver	1.0	F	0.93	10	UB
Vanadium	18	Q	1.1	10	J
Zinc	57		4.5	20	J

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KPL

Analysis Method:	6010B	Analysis Batch:	280-67818	Instrument ID:	MT_025
Prep Method:	3005A	Prep Batch:	280-67112	Lab File ID:	25A1051711.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/17/2011 1523			Final Weight/Volume:	50 mL
Prep Date:	05/13/2011 1500				

Client: AECOM Technical Services Inc.

Job Number: 280-15294-1

Client Sample ID: **PAFB03-MW05-N-042911**

Lab Sample ID: 280-15294-1
Client Matrix: Water

Date Sampled: 04/29/2011 1030
Date Received: 05/02/2011 0945

6010B Metals (ICP)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Sodium	36000		92	1000

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-67157	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-66163	Lab File ID:	132AREF.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/13/2011 0002			Final Weight/Volume:	50 mL
Prep Date:	05/12/2011 1500				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Antimony	0.25	F Q m	0.070	1.0	M
Cadmium	0.70	F Q	0.040	2.0	
Selenium	6.4		0.70	2.0	
Thallium	0.55		0.020	0.20	

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-67458	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-67109	Lab File ID:	168AREF.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/14/2011 0200			Final Weight/Volume:	50 mL
Prep Date:	05/13/2011 1500				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Antimony	0.27	F Q	0.070	1.0	
Cadmium	0.26	F Q	0.040	2.0	
Selenium	1.3	F	0.70	2.0	J
Thallium	0.14	F Q	0.020	0.20	uB

10/14/11

Client: AECOM Technical Services Inc. Job Number: 280-15294-1

Client Sample ID: **PAFB03-MW01-N-042911**

Lab Sample ID: 280-15294-2 Date Sampled: 04/29/2011 1220
Client Matrix: Water Date Received: 05/02/2011 0945

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-67412	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-66157	Lab File ID:	25A4051311.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/14/2011 0140			Final Weight/Volume:	50 mL
Prep Date:	05/13/2011 0830				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Barium	140		0.58	50
Beryllium	0.47	U	0.47	4.0
Calcium	72000	J	34	1100
Chromium	15	Q	0.66	10
Cobalt	2.5	F	1.2	60 J
Copper	7.2	F Q	1.4	10 J
Lead	6.3	F	2.6	25 J
Magnesium	13000		11	1000
Nickel	6.9	F	1.3	20 J
Potassium	3800		240	1000
Silver	0.93	U	0.93	10
Sodium	24000		92	1000
Vanadium	22		1.1	10
Zinc	29		4.5	20 J

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-67601	Instrument ID:	MT_025
Prep Method:	3005A	Prep Batch:	280-67112	Lab File ID:	25A3051611.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/16/2011 1559			Final Weight/Volume:	50 mL
Prep Date:	05/13/2011 1500				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Barium	110		0.58	50 J
Beryllium	0.47	U	0.47	4.0
Calcium	75000		34	1100
Chromium	6.8	F Q	0.66	10
Cobalt	1.8	F	1.2	60
Copper	4.5	F Q	1.4	10
Lead	4.8	F	2.6	25
Magnesium	13000		11	1000
Nickel	5.1	F	1.3	20
Potassium	2200		240	1000 J
Silver	1.1	F	0.93	10 UB
Vanadium	7.0	F Q	1.1	10 J
Zinc	21		4.5	20 J

10/14/11
KMM

Analysis Method:	6010B	Analysis Batch:	280-67818	Instrument ID:	MT_025
Prep Method:	3005A	Prep Batch:	280-67112	Lab File ID:	25A1051711.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/17/2011 1534			Final Weight/Volume:	50 mL
Prep Date:	05/13/2011 1500				

Client: AECOM Technical Services Inc.

Job Number: 280-15294-1

Client Sample ID: PAFB03-MW01-N-042911

Lab Sample ID: 280-15294-2
Client Matrix: Water

Date Sampled: 04/29/2011 1220
Date Received: 05/02/2011 0945

6010B Metals (ICP)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Sodium	27000		92	1000

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-67157	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-66163	Lab File ID:	137SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/13/2011 0015			Final Weight/Volume:	50 mL
Prep Date:	05/12/2011 1500				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Antimony	0.21	F Q	0.070	1.0	M
Cadmium	0.46	F Q	0.040	2.0	
Selenium	4.8		0.70	2.0	
Thallium	0.45		0.020	0.20	

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-67458	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-67109	Lab File ID:	173SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	05/14/2011 0214			Final Weight/Volume:	50 mL
Prep Date:	05/13/2011 1500				

Analyte	Result (ug/L)	Qualifier	MDL	RL	
Antimony	0.16	F Q	0.070	1.0	
Cadmium	0.078	F Q	0.040	2.0	
Selenium	1.1	F	0.70	2.0	J
Thallium	0.051	F Q	0.020	0.20	UB

10/14/11
KPL

DATA COMPLIANCE CHECK - TECHNICAL REVIEW
AECOM Technical Services
Test America Laboratories Inc, Denver CO, SDGs 280-22645-1 and 280-22704-1
AFCEE - Peterson AFB 3rd Quarter Sampling 2011
Report date: 2/24/2012
Category 2 Review
Reviewer: Karen M. Munns

DATA VALIDATION SUMMARY:

Analytical quality was evaluated using the criteria specified in the Quality Assurance Project Plan (QAPP) Site Inspection Site 3 Peterson Air Force Base Colorado Springs, Colorado dated June 2008 and the Air Force Center for Environmental Excellence (AFCEE) Technical Services Quality Assurance Program, version 4.0.02, May 2006. Discussions of reviewed QC issues per method follow.

METHODS:

SW846 - 6020	Metals by Inductively Coupled Plasma – Mass Spectrometry (ICP-MS)
SW846 - 6010B	Metals by Inductively Coupled Plasma (ICP) Atomic Emission Spectrometry
SW846 - 8260B	Volatile Organic Compounds (VOCs) by Gas Chromatography (GC)/Mass Spectrometry (MS)
SM2320B	Alkalinity as Carbonate and Bicarbonate
MCAWW 300	Anions by Ion Chromatography
SW846 9060A	Total Organic Carbon (TOC) by Flame Ionization Detection

SW846 = Test Methods for Evaluating Solid Waste, Physical/Chemical Methods
MCAWW = Methods for Chemical Analysis of Waters and Wastes, Environmental Protection Agency
SM = Standard Methods of Analysis, 18th Edition

SAMPLES, LABORATORY ID, ALIQUOT, and MATRIX: See Table 1 at end of document.

DATA COMPLIANCE SUMMARY:

Based on the data compliance review, data for the above samples are:

_____Acceptable for use
_____X_____Acceptable as qualified
_____Some data unacceptable for use
_____All data unacceptable for use

Sample Integrity

1. The sample containers were received intact, within the temperature acceptance criteria of ≤ 6˚C (degrees Celsius), and properly preserved on 11/10/2011 (280-22645) and 11/11/11 (280-22704) at Test America Laboratories, Inc. in Arvada Colorado.

2. Dedicated sample equipment was used and an equipment blank was not required.

3. The chain of custody forms (COCs) showed the incorrect site (PAFB07 rather than PAFB03) in one of the COC matrix spike (MS) and matrix spike duplicate (MSD) ID fields in error. The laboratory was directed to disregard this error, and a hand-corrected COC was scanned and sent to the lab for their records.

Method 6020, total and dissolved

1. The following QC items were evaluated: hold times, MBs, LCS %Rs, initial and continuing calibration blanks (ICBs and CCBs), initial and continuing calibration verifications (ICVs, CCVs), RL check standard %Rs, matrix spike/matrix spike duplicate (MS/MSD) %Rs and relative percent difference (RPD), serial dilution percent differences (%Ds), post digestion spike (PDS) %Rs, and comparison of reported results to the raw data. All dissolved metals results were verified to be less than or equal to the total metals results for each sample.

2. The analysis of the ICSA interference check standard solution by Method 6020 shows concentrations for antimony, cadmium and thallium at levels greater than 2 times the MDL for both total and dissolved metals analyses (cadmium at ½ the RL). The laboratory narrative indicated that the solution contained trace impurities and that the results are not due to matrix interference. Field sample concentrations were not equivalent to the interferent (aluminum, iron, calcium, and magnesium) concentrations in the ICSA standard, so the ICSA results do not apply to the field samples. No data qualifiers were assigned.

3. Thallium was detected in some initial and continuing calibration blanks (ICBs and CCBs). Concentrations ranged from 0.022 to 0.0348µg/L. Both dissolved and total results were analyzed with CCBs with trace thallium detections. Sample detections less than the RL of 0.2µg/L (5x the highest blank = 0.18µg/L) were UB qualified, as not detected at the RL. See Table 3 at the end of this document for a summary of the applied qualifiers.

4. Sample location PAFB03-MW05 was collected as the field duplicate for Method 6020 total and dissolved metals and results are summarized in Table 2 at the end of this document. When results were greater than the RL, an RPD was calculated. If one or both detected results are less than the RL, the acceptance criteria is set at ±RL. The calculated RPD for metals shown in bold exceeded the control criteria of ≤20% and all associated detected results for samples included in this validation report were J qualified as estimated. Samples that had been qualified J or M for alternate reasons required no further qualification. Metals were qualified based on the sample fraction, total metals were qualified based on the total FD results, and the dissolved metals were qualified based on the dissolved metals FD results.

5. The serial dilution and PDS analyses were performed on both the total and dissolved metals samples from PAFB03-MW05-N-110911 (280-22645-6). Serial dilution %Ds (where applicable) and PDS %Rs were in control. Qualification was not required.

6. The total and dissolved metals MS/MSD was performed on sample PAFB03-MW05-N-110911 (280-22645-6). All total and dissolved metals %Rs and RPDs were within control limits with the exception of total antimony; dissolved antimony met criteria. Total antimony was recovered at 52% and 53% in the MS and MSD (respectively), outside the 80 - 120% recovery criteria. (The PDS met criteria). The method citation used for the Method 6020 sample digestion (SW-846 3020A) does not include antimony in the list of

acceptable metals. All total antimony sample results were M qualified due to the observed matrix effects, the bias is potentially low.

Method 6010B total and dissolved

1. The following QC items were evaluated : hold times, MBs, LCS %Rs, initial and continuing calibration blanks (ICBs and CCBs), ICVs, CCVs, RL check standard %Rs, MS/MSD %Rs and RPDs, serial dilution percent differences (%Ds), PDS %Rs, and comparison of reported results to the raw data. All dissolved metals results were verified to be less than or equal to the total metals results for each sample. Both SDG samples were analyzed in a single batch.

2. The metals samples were analyzed in two sets, with barium and silver being analyzed separately. Silver was detected in the method blank associated with the dissolved investigative samples at a concentration equal to the MDL, 0.93µg/L. Silver was detected in three of the associated dissolved samples at a similar concentration less than the RL. Silver results less than the RL (dissolved only) were U B qualified as not detected at the RL. See Table 3 at the end of this document for summarized sample qualifiers.

3. Sodium was detected at trace concentrations in some of the associated instrument blanks (CCBs). All associated sample concentrations were greater than the RL, qualifiers were not required.

4. The analysis of the ICSA interference check standard solution by Method 6010 shows concentrations for several target metals greater than 2 times the MDL for both total and dissolved metals analyses (vanadium approaching ½ the RL). The laboratory narrative indicated that the solution contained trace impurities and that the results are not due to matrix interference. Field sample concentrations were not equivalent to the interferent (aluminum, iron, calcium, and magnesium) concentrations in the ICSA standard, so the ICSA results do not apply to the field samples. No data qualifiers were assigned.

5. Sample location PAFB03-MW05 was used for the field duplicate for total and dissolved metals and sample PAFB07-MW01 for total and dissolved lead, results are summarized in Table 2 at the end of this document. When results were greater than the RL, an RPD was calculated. If one or both detected results are less than the RL, the acceptance criteria was set at ±RL. The calculated RPD for metals shown in bold exceeded the control criteria of ≤20% and all associated detected results for samples (total metals associated with total metals FD results, etc.) included in this validation report were J qualified as estimated. All samples collected from site PAFB07 were J qualified as a result of the PAFB07-MW01 FD results, and site PAFB03 samples were qualified due to the PAFB03-MW05 FD results. Samples that had been qualified J or M for other reasons required no further qualification.

6. The serial dilution and PDS analyses were performed on both the total and dissolved metals samples from PAFB03-MW05-N-110911 (280-22645-6). Serial dilution %Ds (where applicable) and PDS %Rs were in control. Qualification was not required.

7. The total and dissolved metals MS/MSD was performed on sample PAFB03-MW05-N-110911 (280-22645-6) and results were provided with SDG 280-22645. All total and dissolved metals %Rs and RPDs were within control limits and qualification was not required.

Method 8260B VOCs

1. The following QC items were evaluated and met criteria: initial calibration (ICAL), second source calibration verification standard (SSCV), continuing calibration verification standard (CCV), GC/MS tunes, and internal standard area counts and retention times, holding times, surrogate %Rs, LCS %Rs, MS/MSD %Rs, and reporting limits (RLs) versus sample dilution as appropriate.

2. Samples were unpreserved and the analyses were performed within the hold time of 7 days from collection to analysis.

3. All VOC samples were analyzed undiluted, reporting limits met QAPP criteria.

4. VOCs were not detected in the associated method blanks (MBs) with the exception of acetone at 1.68µg/L in the analytical batch 280-96466 (11/15/11); the method blank associated with VOC analyses performed on SDG 280-22645-1. Acetone was not detected in the associated samples, qualifiers were not applied.

5. A trip blank was included with each sample shipment. Chloroform was detected in both trip blanks PAFB-TRIP-TB-110911 and PAFB-TRIP-TB-111011 at a concentration of 0.17µg/L, less than the 2.0µg/L RL. Chloroform was either not detected or detected at a concentration greater than the RL in the associated samples and qualification for chloroform was not required. No other TB detections were observed.

6. A field duplicate sample pair was collected from PAFB03-MW05-N-110911(280-22645-6 and 280-22645-7). The results are provided in Table 2 at the end of this document. All VOC detected results agreed within the QAPP-specified ≤20%RPD. No qualifiers were applied as a result of the FD samples.

7. A MS/MSD was analyzed from site PAFB03-MW05-N-110911 and results were provided with SDG 280-22645. This MS/MSD was used for evaluation of all project samples included in this data validation report. All target analyte %Rs and RPDs were within the DoD QSM criteria with the exceptions summarized below. RPD outliers only affect detected sample results. Additional qualifiers were not applied to any associated results less than the RL which were already qualified as estimated. See the summary of applied qualifiers in Table 3 at the end of this document.

MS/SD Parent Field ID (Lab ID)	Outlier Target	Outlier Result	Criteria (%)	Action
PAFB03-MW05-N-110911 (280-22645-6)	2-Butanone	RPD = 25%	20	Detected sample results M qualified.
	4-Methyl-2-pentanone	RPD = 28%	20	
	Chloroethane	RPD = 21%	20	
	Vinyl Chloride	RPD = 23%	20	
	Chloromethane	MS = 54%R	56 - 131	All results M or UM qualified.
	Trichlorofluoromethane	MS = 55%R RPD = 24%	57 - 129 20	

Method 300 – Major Anions

1. The following QC items were evaluated and met criteria: holding times, ICAL, ICB, CCBs, ICV, CCVs, MBs, LCS/LCSD %Rs and RPDs, MS/MSD %Rs and RPDs and laboratory duplicate RPDs.

2. An MS/MSD was performed on sample PAFB03-MW05-N-110911 (280-22645-6) and results were provided with SDG 280-22645. MS and MSD %Rs and RPDs were within QAPP-specified 85 - 115% recovery control criteria. A non-project MS/MSD was also performed with SDG 280-22704. Non-project MS/MSDs were considered but were not utilized to qualify project samples since matrix similarity to project samples could not be guaranteed. Sample qualification was not necessary.

3. A field duplicate pair was collected from PAFB03-MW05-N-110911(280-22645-6 and 280-22645-7). The results are provided in Table 2 at the end of this document. Calculated RPDs were less than the control criteria of 20% and data qualifiers were not required.

4. Sample PAFB03-MW03-N-110911 (280-22645-4) was analyzed at a dilution for nitrate as nitrogen in order to analyze the concentration within the calibrated range. The reporting limit was raised accordingly. No sample qualification was necessary.

Method SM2320 Total, Carbonate, and Bicarbonate Alkalinity

1. The following QC items were performed, evaluated, and met criteria: holding times. Per the QAPP, alkalinity data are defined as screening quality data and required QC is collecting a field duplicate at a 10% frequency. LCS, and MS/MSD analyses are not performed with the samples.

2. Bicarbonate alkalinity was detected in the method blank associated with SDG 280-22645-1 at 1.1mg/L, equal to the method detection limit (MDL). Alkalinity was either not detected or detected at a concentration greater than the RL in the associated samples and qualification was not required.

3. The analytical method specified in the QAPP was EPA 310.1. The analytical method reported as being used in the data package was SM2320B. No action was required due to this change.

4. A field duplicate pair was collected from location PAFB03-MW05-N-110911(280-22645-6 and 280-22645-7). The results are provided in Table 2 at the end of this document. Bicarbonate alkalinity was detected in both samples greater than the RL, and the calculated RPD met the ≤20% RPD QC acceptance criteria. Data qualification is not required.

Method 9060 Total Organic Carbon

1. The following QC items were evaluated and met criteria: holding times, MBs, ICAL, ICB, ICVs, CCBs, CCVs, MBs, LCS/LCSD %Rs and RPDs, .

2. TOC MS/MSDs were performed per SDG on samples PAFB03-MW05-N-110911 (280-22645-6) and PAFB03-MW06-N-111011 (280-22704-1). %Rs and RPDs were within control criteria and sample qualification was not necessary.

3. A laboratory duplicate was not performed in either SDG for this method, and an assessment could not be made. However, since the LCS/LCSD RPD and MS/MSD RPD were within criteria, laboratory precision was met and data usability was not affected.

4. A field duplicate pair was collected from location PAFB03-MW05-N-110911(280-22645-6 and 280-22645-7). The results are provided in Table 2 at the end of this document. The calculated RPD was within the control criteria of 20%. No qualifiers were applied.

Reviewer: Karen M Munns Date: 2/28/12

QC Reviewer: [illegible] Date: 2-28-12

Database Entry Person: [illegible] Date: 3/1/2012

TABLE 1
SAMPLES COLLECTED
Peterson Air Force Base, November 2011
TestAmerica Laboratories Inc., Denver, CO

Field ID	Location	280-22704 Lab ID	Sample Type	Date & Time Collected		Analytical Method
PAFB03-MW06-N-111011	PAFB03-MW06	280-22704-1	N	10-Nov-2011	0930	A2320
PAFB03-MW06-N-111011	PAFB03-MW06	280-22704-1	N	10-Nov-2011	0930	E300
PAFB03-MW06-N-111011	PAFB03-MW06	280-22704-1	N	10-Nov-2011	0930	E300
PAFB03-MW06-N-111011	PAFB03-MW06	280-22704-1	N	10-Nov-2011	0930	SW6010B
PAFB03-MW06-N-111011	PAFB03-MW06	280-22704-1	N	10-Nov-2011	0930	SW6020
PAFB03-MW06-N-111011	PAFB03-MW06	280-22704-1	N	10-Nov-2011	0930	SW8260B
PAFB03-MW06-N-111011	PAFB03-MW06	280-22704-1	N	10-Nov-2011	0930	SW9060
PAFB07-MW03-N-111011	PAFB07-MW03	280-22704-2	N	10-Nov-2011	0905	SW6010B
PAFB07-MW01-N-111011	PAFB07-MW01	280-22704-3	N	10-Nov-2011	0820	SW6010B
PAFB07-MW01-FD-111011FD	PAFB07-MW01	280-22704-4FD	FD	10-Nov-2011	0820	SW6010B
PAFB-TRIP-TB-111011	FIELDQC	280-22704-5	TB	10-Nov-2011	0730	SW8260B

Field ID	Location	280-22645 Lab ID	Sample Type	Date & Time Collected		Analytical Method
PAFB-TRIP-TB-110911	FIELDQC	280-22645-1	TB	09-Nov-2011	0900	SW8260B
PAFB03-MW01-N-110911	PAFB03-MW01	280-22645-2	N	09-Nov-2011	1500	A2320
PAFB03-MW01-N-110911	PAFB03-MW01	280-22645-2	N	09-Nov-2011	1500	E300
PAFB03-MW01-N-110911	PAFB03-MW01	280-22645-2	N	09-Nov-2011	1500	E300
PAFB03-MW01-N-110911	PAFB03-MW01	280-22645-2	N	09-Nov-2011	1500	SW6010B
PAFB03-MW01-N-110911	PAFB03-MW01	280-22645-2	N	09-Nov-2011	1500	SW6020
PAFB03-MW01-N-110911	PAFB03-MW01	280-22645-2	N	09-Nov-2011	1500	SW8260B
PAFB03-MW01-N-110911	PAFB03-MW01	280-22645-2	N	09-Nov-2011	1500	SW9060
PAFB03-MW02-N-110911	PAFB03-MW02	280-22645-3	N	09-Nov-2011	1215	A2320
PAFB03-MW02-N-110911	PAFB03-MW02	280-22645-3	N	09-Nov-2011	1215	E300
PAFB03-MW02-N-110911	PAFB03-MW02	280-22645-3	N	09-Nov-2011	1215	E300
PAFB03-MW02-N-110911	PAFB03-MW02	280-22645-3	N	09-Nov-2011	1215	SW6010B
PAFB03-MW02-N-110911	PAFB03-MW02	280-22645-3	N	09-Nov-2011	1215	SW6020
PAFB03-MW02-N-110911	PAFB03-MW02	280-22645-3	N	09-Nov-2011	1215	SW8260B
PAFB03-MW02-N-110911	PAFB03-MW02	280-22645-3	N	09-Nov-2011	1215	SW9060
PAFB03-MW03-N-110911	PAFB03-MW03	280-22645-4	N	09-Nov-2011	1319	A2320
PAFB03-MW03-N-110911	PAFB03-MW03	280-22645-4	N	09-Nov-2011	1319	E300
PAFB03-MW03-N-110911	PAFB03-MW03	280-22645-4	N	09-Nov-2011	1319	E300
PAFB03-MW03-N-110911	PAFB03-MW03	280-22645-4	N	09-Nov-2011	1319	SW6010B
PAFB03-MW03-N-110911	PAFB03-MW03	280-22645-4	N	09-Nov-2011	1319	SW6020
PAFB03-MW03-N-110911	PAFB03-MW03	280-22645-4	N	09-Nov-2011	1319	SW8260B
PAFB03-MW03-N-110911	PAFB03-MW03	280-22645-4	N	09-Nov-2011	1319	SW9060
PAFB03-MW04-N-110911	PAFB03-MW04	280-22645-5	N	09-Nov-2011	1405	A2320
PAFB03-MW04-N-110911	PAFB03-MW04	280-22645-5	N	09-Nov-2011	1405	E300
PAFB03-MW04-N-110911	PAFB03-MW04	280-22645-5	N	09-Nov-2011	1405	E300
PAFB03-MW04-N-110911	PAFB03-MW04	280-22645-5	N	09-Nov-2011	1405	SW6010B
PAFB03-MW04-N-110911	PAFB03-MW04	280-22645-5	N	09-Nov-2011	1405	SW6020
PAFB03-MW04-N-110911	PAFB03-MW04	280-22645-5	N	09-Nov-2011	1405	SW8260B
PAFB03-MW04-N-110911	PAFB03-MW04	280-22645-5	N	09-Nov-2011	1405	SW9060

TABLE 1
SAMPLES COLLECTED
Peterson Air Force Base, November 2011
TestAmerica Laboratories Inc., Denver, CO

Field ID	Location	280-22645 Lab ID	Sample Type	Date & Time Collected		Analytical Method
PAFB03-MW05-N-110911	PAFB03-MW05	280-22645-6	N	09-Nov-2011	1051	A2320
PAFB03-MW05-N-110911	PAFB03-MW05	280-22645-6	N	09-Nov-2011	1051	E300
PAFB03-MW05-N-110911	PAFB03-MW05	280-22645-6	N	09-Nov-2011	1051	E300
PAFB03-MW05-N-110911	PAFB03-MW05	280-22645-6	N	09-Nov-2011	1051	SW6010B
PAFB03-MW05-N-110911	PAFB03-MW05	280-22645-6	N	09-Nov-2011	1051	SW6020
PAFB03-MW05-N-110911	PAFB03-MW05	280-22645-6	N	09-Nov-2011	1051	SW8260B
PAFB03-MW05-N-110911	PAFB03-MW05	280-22645-6	N	09-Nov-2011	1051	SW9060
PAFB03-MW05-N-110911MS	PAFB03-MW05	280-22645-6MS	MS	09-Nov-2011	1051	E300
PAFB03-MW05-N-110911MS	PAFB03-MW05	280-22645-6MS	MS	09-Nov-2011	1051	E300
PAFB03-MW05-N-110911MS	PAFB03-MW05	280-22645-6MS	MS	09-Nov-2011	1051	SW6010B
PAFB03-MW05-N-110911MS	PAFB03-MW05	280-22645-6MS	MS	09-Nov-2011	1051	SW6020
PAFB03-MW05-N-110911MS	PAFB03-MW05	280-22645-6MS	MS	09-Nov-2011	1051	SW8260B
PAFB03-MW05-N-110911MS	PAFB03-MW05	280-22645-6MS	MS	09-Nov-2011	1051	SW9060
PAFB03-MW05-N-110911SD	PAFB03-MW05	280-22645-6SD	SD	09-Nov-2011	1051	E300
PAFB03-MW05-N-110911SD	PAFB03-MW05	280-22645-6SD	SD	09-Nov-2011	1051	E300
PAFB03-MW05-N-110911SD	PAFB03-MW05	280-22645-6SD	SD	09-Nov-2011	1051	SW6010B
PAFB03-MW05-N-110911SD	PAFB03-MW05	280-22645-6SD	SD	09-Nov-2011	1051	SW6020
PAFB03-MW05-N-110911SD	PAFB03-MW05	280-22645-6SD	SD	09-Nov-2011	1051	SW8260B
PAFB03-MW05-N-110911SD	PAFB03-MW05	280-22645-6SD	SD	09-Nov-2011	1051	SW9060
PAFB03-MW05-FD-110911FD	PAFB03-MW05	280-22645-7FD	FD	09-Nov-2011	1100	A2320
PAFB03-MW05-FD-110911FD	PAFB03-MW05	280-22645-7FD	FD	09-Nov-2011	1100	E300
PAFB03-MW05-FD-110911FD	PAFB03-MW05	280-22645-7FD	FD	09-Nov-2011	1100	E300
PAFB03-MW05-FD-110911FD	PAFB03-MW05	280-22645-7FD	FD	09-Nov-2011	1100	SW6010B
PAFB03-MW05-FD-110911FD	PAFB03-MW05	280-22645-7FD	FD	09-Nov-2011	1100	SW6020
PAFB03-MW05-FD-110911FD	PAFB03-MW05	280-22645-7FD	FD	09-Nov-2011	1100	SW8260B
PAFB03-MW05-FD-110911FD	PAFB03-MW05	280-22645-7FD	FD	09-Nov-2011	1100	SW9060

FD = Field duplicate
N = Normal investigative sample
MS = Matrix spike
SD = MS Duplicate
TB = Trip Blank

TABLE 2
Field Duplicate Pair Results
Peterson Air Force Base, November 2011

Parent Field ID (Lab ID)	FD Field ID (Lab ID)	Method	Target Analyte	Parent Result	FD Result	RPD	RL
PAFB03-MW05-N-110911 280-22645-6	PAFB03-MW05-FD-110911 280-22645-7	SW9060	Total Organic Carbon	1.6	1.8	12	1
		SW8260B	1,1,1-Trichloroethane	0.13	0.14	< ±RL	1
		SW8260B	1,1,2-Trichloroethane	0.26	0.26	< ±RL	1
		SW8260B	1,1-Dichloroethane	3.9	3.9	0	1
		SW8260B	1,2-Dichloroethane	0.43	0.42	< ±RL	0.5
		SW8260B	1,2-Dichloropropane	2.3	2.3	0	1
		SW8260B	1,4-Dichlorobenzene	0.12	0.14	< ±RL	0.5
		SW8260B	Chloroform	0.32	0.35	9	0.3
		SW8260B	cis-1,2-Dichloroethylene	1.4	1.4	0	1
		SW8260B	Dichloromethane	1	1.2	< ±RL	2
		SW8260B	Tetrachloroethene	1.6	1.5	7	1
		SW8260B	Trichloroethene (Tce)	0.68	0.65	< ±RL	1
		SW6010B	Arsenic	6.1	5.7	< ±RL	30
		SW6010B	**Barium**	210	290	**32**	50
		SW6010B	Barium (Diss)	120	130	8	50
		SW6010B	Beryllium	0.73	1.3	< ±RL	4
		SW6010B	Calcium	140000	150000	7	1100
		SW6010B	Calcium (Diss)	130000	130000	0.0	1100
		SW6010B	**Chromium**	18	31	**53**	10
		SW6010B	Cobalt	5.6	10	< ±RL	60
		SW6010B	**Copper**	11	19	**53**	10
		SW6010B	Lead	12	22	< ±RL	25
		SW6010B	Magnesium	23000	25000	8	1000
		SW6010B	Magnesium (Diss)	20000	20000	0	1000
		SW6010B	Nickel	11	19	< ±RL	20
		SW6010B	Nickel (Diss)	1.9	1.6	< ±RL	20
		SW6010B	**Potassium**	4800	5900	**21**	1000
		SW6010B	Potassium (Diss)	2600	2500	4	1000
		SW6010B	Sodium	45000	45000	0	1000
		SW6010B	Sodium (Diss)	44000	44000	0	1000
		SW6010B	**Vanadium**	30	48	**46**	10
		SW6010B	Vanadium (Diss)	0	1.2	< ±RL	10
		SW6010B	**Zinc**	57	96	**51**	20
		SW6010B	Zinc (Diss)	12	0	< ±RL	20
		SW6020	Antimony	0.24	0.3	< ±RL	1
		SW6020	Antimony (Diss)	0.082	0.093	< ±RL	1
		SW6020	Cadmium	0.23	0.38	< ±RL	2
		SW6020	Cadmium (Diss)	0.062	0.055	< ±RL	2
		SW6020	**Selenium**	3	4.6	**42**	2
		SW6020	Selenium (Diss)	1.6	1.5	< ±RL	2
		SW6020	**Thallium**	0.2	0.33	**49**	0.2
		E300	Chloride	41	41	0	3
		E300	Nitrate As Nitrogen	7.1	7	1	0.5
		E300	Sulfate (As SO4)	25	25	0	5
		A2320	Alkalinity, Bicarbonate	460	450	2	
PAFB07-MW01-N-111011 280-22704-3	PAFB07-MW01-FD-111011 280-22704-4	SW6010B	**Lead**	16	34	**72**	25
		SW6010B	Lead (Diss)	U	U	-	25

TABLE 3
Qualified Sample Results
Peterson Air Force Base, November 2011

Field Sample ID	Laboratory ID	Test Method	Target Analyte	Result	Applied Flags	Units	Reason
PAFB03-MW01-N-110911	280-22645-2	SW6010B	Barium	310	J	µg/L	High FD Variability, >20% RPD
PAFB03-MW02-N-110911	280-22645-3	SW6010B	Barium	93	J	µg/L	
PAFB03-MW03-N-110911	280-22645-4	SW6010B	Barium	550	J	µg/L	
PAFB03-MW04-N-110911	280-22645-5	SW6010B	Barium	320	J	µg/L	
PAFB03-MW05-N-110911	280-22645-6	SW6010B	Barium	210	J	µg/L	
PAFB03-MW05-FD-110911FD	280-22645-7	SW6010B	Barium	290	J	µg/L	
PAFB03-MW06-N-111011	280-22704-1	SW6010B	Barium	280	J	µg/L	
PAFB03-MW01-N-110911	280-22645-2	SW6010B	Chromium	60	J	µg/L	
PAFB03-MW02-N-110911	280-22645-3	SW6010B	Chromium	7.4	J	µg/L	
PAFB03-MW03-N-110911	280-22645-4	SW6010B	Chromium	59	J	µg/L	
PAFB03-MW04-N-110911	280-22645-5	SW6010B	Chromium	37	J	µg/L	
PAFB03-MW05-N-110911	280-22645-6	SW6010B	Chromium	18	J	µg/L	
PAFB03-MW05-FD-110911FD	280-22645-7	SW6010B	Chromium	31	J	µg/L	
PAFB03-MW06-N-111011	280-22704-1	SW6010B	Chromium	58	J	µg/L	
PAFB03-MW06-N-111011	280-22704-1	SW6010B	Cobalt	11	J	µg/L	
PAFB03-MW01-N-110911	280-22645-2	SW6010B	Copper	29	J	µg/L	
PAFB03-MW02-N-110911	280-22645-3	SW6010B	Copper	6	J	µg/L	
PAFB03-MW03-N-110911	280-22645-4	SW6010B	Copper	53	J	µg/L	
PAFB03-MW04-N-110911	280-22645-5	SW6010B	Copper	27	J	µg/L	
PAFB03-MW05-N-110911	280-22645-6	SW6010B	Copper	11	J	µg/L	
PAFB03-MW05-FD-110911FD	280-22645-7	SW6010B	Copper	19	J	µg/L	
PAFB03-MW06-N-111011	280-22704-1	SW6010B	Copper	35	J	µg/L	
PAFB07-MW03-N-111011	280-22704-2	SW6010B	Lead	34	J	µg/L	
PAFB07-MW01-N-111011	280-22704-3	SW6010B	Lead	16	J	µg/L	
PAFB07-MW01-FD-111011FD	280-22704-4	SW6010B	Lead	34	J	µg/L	
PAFB03-MW01-N-110911	280-22645-2	SW6010B	Potassium	6900	J	µg/L	
PAFB03-MW02-N-110911	280-22645-3	SW6010B	Potassium	3000	J	µg/L	
PAFB03-MW03-N-110911	280-22645-4	SW6010B	Potassium	9200	J	µg/L	
PAFB03-MW04-N-110911	280-22645-5	SW6010B	Potassium	6400	J	µg/L	
PAFB03-MW05-N-110911	280-22645-6	SW6010B	Potassium	4800	J	µg/L	
PAFB03-MW05-FD-110911FD	280-22645-7	SW6010B	Potassium	5900	J	µg/L	
PAFB03-MW06-N-111011	280-22704-1	SW6010B	Potassium	8300	J	µg/L	
PAFB03-MW01-N-110911	280-22645-2	SW6010B	Vanadium	81	J	µg/L	
PAFB03-MW02-N-110911	280-22645-3	SW6010B	Vanadium	15	J	µg/L	
PAFB03-MW03-N-110911	280-22645-4	SW6010B	Vanadium	98	J	µg/L	
PAFB03-MW04-N-110911	280-22645-5	SW6010B	Vanadium	61	J	µg/L	
PAFB03-MW05-N-110911	280-22645-6	SW6010B	Vanadium	30	J	µg/L	
PAFB03-MW05-FD-110911FD	280-22645-7	SW6010B	Vanadium	48	J	µg/L	
PAFB03-MW06-N-111011	280-22704-1	SW6010B	Vanadium	67	J	µg/L	
PAFB03-MW01-N-110911	280-22645-2	SW6010B	Zinc	130	J	µg/L	
PAFB03-MW02-N-110911	280-22645-3	SW6010B	Zinc	37	J	µg/L	

TABLE 3
Qualified Sample Results
Peterson Air Force Base, November 2011

Field Sample ID	Laboratory ID	Test Method	Target Analyte	Result	Applied Flags	Units	Reason
PAFB03-MW03-N-110911	280-22645-4	SW6010B	Zinc	210	J	µg/L	High FD Variability, >20% RPD
PAFB03-MW04-N-110911	280-22645-5	SW6010B	Zinc	120	J	µg/L	
PAFB03-MW05-N-110911	280-22645-6	SW6010B	Zinc	57	J	µg/L	
PAFB03-MW05-FD-110911FD	280-22645-7	SW6010B	Zinc	96	J	µg/L	
PAFB03-MW06-N-111011	280-22704-1	SW6010B	Zinc	130	J	µg/L	
PAFB03-MW01-N-110911	280-22645-2	SW6020	Selenium	4	J	µg/L	
PAFB03-MW02-N-110911	280-22645-3	SW6020	Selenium	3.2	J	µg/L	
PAFB03-MW03-N-110911	280-22645-4	SW6020	Selenium	13	J	µg/L	
PAFB03-MW04-N-110911	280-22645-5	SW6020	Selenium	4.1	J	µg/L	
PAFB03-MW05-N-110911	280-22645-6	SW6020	Selenium	3	J	µg/L	
PAFB03-MW05-FD-110911FD	280-22645-7	SW6020	Selenium	4.6	J	µg/L	
PAFB03-MW06-N-111011	280-22704-1	SW6020	Selenium	7.9	J	µg/L	
PAFB03-MW01-N-110911	280-22645-2	SW6020	Thallium	0.36	J	µg/L	
PAFB03-MW03-N-110911	280-22645-4	SW6020	Thallium	0.88	J	µg/L	
PAFB03-MW04-N-110911	280-22645-5	SW6020	Thallium	0.38	J	µg/L	
PAFB03-MW05-N-110911	280-22645-6	SW6020	Thallium	0.2	J	µg/L	
PAFB03-MW05-FD-110911FD	280-22645-7	SW6020	Thallium	0.33	J	µg/L	
PAFB03-MW06-N-111011	280-22704-1	SW6020	Thallium	0.37	J	µg/L	
PAFB03-MW01-N-110911	280-22645-2	SW6010B	Silver (Diss)	1.2	UB	µg/L	Blank Detects
PAFB03-MW02-N-110911	280-22645-3	SW6010B	Silver (Diss)	1.2	UB	µg/L	
PAFB03-MW03-N-110911	280-22645-4	SW6010B	Silver (Diss)	0.94	UB	µg/L	
PAFB03-MW02-N-110911	280-22645-3	SW6020	Thallium	0.12	UB	µg/L	
PAFB03-MW01-N-110911	280-22645-2	SW6020	Thallium (Diss)	0.061	UB	µg/L	
PAFB03-MW02-N-110911	280-22645-3	SW6020	Thallium (Diss)	0.023	UB	µg/L	
PAFB03-MW03-N-110911	280-22645-4	SW6020	Thallium (Diss)	0.035	UB	µg/L	
PAFB03-MW05-N-110911	280-22645-6	SW6020	Thallium (Diss)	0.024	UB	µg/L	
PAFB03-MW05-FD-110911FD	280-22645-7	SW6020	Thallium (Diss)	0.03	UB	µg/L	
PAFB03-MW06-N-111011	280-22704-1	SW6020	Thallium (Diss)	0.027	UB	µg/L	
PAFB03-MW01-N-110911	280-22645-2	SW6020	Antimony	0.25	M	µg/L	Low MS/MSD %Rs
PAFB03-MW02-N-110911	280-22645-3	SW6020	Antimony	0.49	M	µg/L	
PAFB03-MW03-N-110911	280-22645-4	SW6020	Antimony	0.35	M	µg/L	
PAFB03-MW04-N-110911	280-22645-5	SW6020	Antimony	0.27	M	µg/L	
PAFB03-MW05-N-110911	280-22645-6	SW6020	Antimony	0.24	M	µg/L	
PAFB03-MW05-FD-110911FD	280-22645-7	SW6020	Antimony	0.3	M	µg/L	
PAFB03-MW06-N-111011	280-22704-1	SW6020	Antimony	0.63	M	µg/L	
PAFB03-MW01-N-110911	280-22645-2	SW8260B	Chloromethane	0	UM	µg/L	
PAFB03-MW02-N-110911	280-22645-3	SW8260B	Chloromethane	0	UM	µg/L	
PAFB03-MW03-N-110911	280-22645-4	SW8260B	Chloromethane	0	UM	µg/L	
PAFB03-MW04-N-110911	280-22645-5	SW8260B	Chloromethane	0	UM	µg/L	
PAFB03-MW05-N-110911	280-22645-6	SW8260B	Chloromethane	0	UM	µg/L	

TABLE 3
Qualified Sample Results
Peterson Air Force Base, November 2011

Field Sample ID	Laboratory ID	Test Method	Target Analyte	Result	Applied Flags	Units	Reason
PAFB03-MW05-FD-110911FD	280-22645-7	SW8260B	Chloromethane	0	UM	µg/L	Low MS/MSD %Rs
PAFB03-MW06-N-111011	280-22704-1	SW8260B	Chloromethane	0.12	M	µg/L	
PAFB03-MW01-N-110911	280-22645-2	SW8260B	Trichlorofluoromethane	0	UM	µg/L	
PAFB03-MW02-N-110911	280-22645-3	SW8260B	Trichlorofluoromethane	0.26	M	µg/L	
PAFB03-MW03-N-110911	280-22645-4	SW8260B	Trichlorofluoromethane	0	UM	µg/L	
PAFB03-MW04-N-110911	280-22645-5	SW8260B	Trichlorofluoromethane	0	UM	µg/L	
PAFB03-MW05-N-110911	280-22645-6	SW8260B	Trichlorofluoromethane	0	UM	µg/L	
PAFB03-MW05-FD-110911FD	280-22645-7	SW8260B	Trichlorofluoromethane	0	UM	µg/L	
PAFB03-MW06-N-111011	280-22704-1	SW8260B	Trichlorofluoromethane	0	UM	µg/L	

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB-TRIP-TB-110911**

Lab Sample ID: 280-22645-1TB

Client Matrix: Water

Date Sampled: 11/09/2011 0900

Date Received: 11/10/2011 0900

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-96466	Instrument ID:	MSV_H
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	H7826.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	11/15/2011 1537			Final Weight/Volume:	20 mL
Prep Date:	11/15/2011 1537				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.053	U	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.13	U	0.13	1.0
1,1-Dichloroethane	0.057	U	0.057	1.0
1,1-Dichloroethylene	0.075	U	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	0.078	U	0.078	1.0
1,4-Dichlorobenzene	0.12	U	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.17	F	0.052	0.30
Chloromethane	0.083	U	0.083	1.0
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	0.21	U	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	0.14	U	0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.10	U	0.10	1.0
Trichlorofluoromethane	0.067	U	0.067	1.0

2/24/12

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB-TRIP-TB-110911**

Lab Sample ID: 280-22645-1TB

Client Matrix: Water

Date Sampled: 11/09/2011 0900

Date Received: 11/10/2011 0900

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-96466	Instrument ID:	MSV_H
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	H7826.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	11/15/2011 1537			Final Weight/Volume:	20 mL
Prep Date:	11/15/2011 1537				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	109		81 - 120
Dibromofluoromethane (Surr)	102		85 - 115
4-Bromofluorobenzene (Surr)	104		76 - 119
1,2-Dichloroethane-d4 (Surr)	96		72 - 119

2/24/12
KMP

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW01-N-110911**

Lab Sample ID: 280-22645-2
Client Matrix: Water

Date Sampled: 11/09/2011 1500
Date Received: 11/10/2011 0900

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-96466	Instrument ID:	MSV_H
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	H7827.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	11/15/2011 1600			Final Weight/Volume:	20 mL
Prep Date:	11/15/2011 1600				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.053	U	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.13	U	0.13	1.0
1,1-Dichloroethane	0.057	U	0.057	1.0
1,1-Dichloroethylene	0.075	U	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	0.078	U	0.078	1.0
1,4-Dichlorobenzene	0.12	U	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.052	U	0.052	0.30
Chloromethane	0.083 UM	U	0.083	1.0
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	0.21	U	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	0.14	U	0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.10	U	0.10	1.0
Trichlorofluoromethane	0.067 UM	U	0.067	1.0

2/24/12
KHL

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW01-N-110911**

Lab Sample ID: 280-22645-2
Client Matrix: Water

Date Sampled: 11/09/2011 1500
Date Received: 11/10/2011 0900

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-96466	Instrument ID:	MSV_H
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	H7827.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	11/15/2011 1600			Final Weight/Volume:	20 mL
Prep Date:	11/15/2011 1600				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	106		81 - 120
Dibromofluoromethane (Surr)	103		85 - 115
4-Bromofluorobenzene (Surr)	101		76 - 119
1,2-Dichloroethane-d4 (Surr)	98		72 - 119

2/24/12
KPP

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW02-N-110911**

Lab Sample ID: 280-22645-3
Client Matrix: Water

Date Sampled: 11/09/2011 1215
Date Received: 11/10/2011 0900

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-96466	Instrument ID:	MSV_H
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	H7829.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	11/15/2011 1647			Final Weight/Volume:	20 mL
Prep Date:	11/15/2011 1647				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.29	F	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.13	U	0.13	1.0
1,1-Dichloroethane	0.057	U	0.057	1.0
1,1-Dichloroethylene	0.51	F	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	0.078	U	0.078	1.0
1,4-Dichlorobenzene	0.12	U	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.052	U	0.052	0.30
Chloromethane	0.083 UM	U	0.083	1.0
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	0.21	U	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	0.14	U	0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.10	U	0.10	1.0
Trichlorofluoromethane	0.26 M	F	0.067	1.0

2/24/12

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW02-N-110911**

Lab Sample ID: 280-22645-3
Client Matrix: Water

Date Sampled: 11/09/2011 1215
Date Received: 11/10/2011 0900

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-96466	Instrument ID:	MSV_H
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	H7829.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	11/15/2011 1647			Final Weight/Volume:	20 mL
Prep Date:	11/15/2011 1647				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	111		81 - 120
Dibromofluoromethane (Surr)	103		85 - 115
4-Bromofluorobenzene (Surr)	104		76 - 119
1,2-Dichloroethane-d4 (Surr)	98		72 - 119

2/24/12

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: PAFB03-MW03-N-110911

Lab Sample ID: 280-22645-4
Client Matrix: Water

Date Sampled: 11/09/2011 1319
Date Received: 11/10/2011 0900

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-96466	Instrument ID:	MSV_H
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	H7830.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	11/15/2011 1711			Final Weight/Volume:	20 mL
Prep Date:	11/15/2011 1711				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.053	U	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.13	U	0.13	1.0
1,1-Dichloroethane	0.057	U	0.057	1.0
1,1-Dichloroethylene	0.075	U	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	0.078	U	0.078	1.0
1,4-Dichlorobenzene	0.12	U	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.052	U	0.052	0.30
Chloromethane	0.083 UM	U	0.083	1.0
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	0.21	U	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	0.14	U	0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.10	U	0.10	1.0
Trichlorofluoromethane	0.067 UM	U	0.067	1.0

2/24/12
KHL

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW03-N-110911**

Lab Sample ID: 280-22645-4
Client Matrix: Water

Date Sampled: 11/09/2011 1319
Date Received: 11/10/2011 0900

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-96466	Instrument ID:	MSV_H
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	H7830.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	11/15/2011 1711			Final Weight/Volume:	20 mL
Prep Date:	11/15/2011 1711				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	99		81 - 120
Dibromofluoromethane (Surr)	93		85 - 115
4-Bromofluorobenzene (Surr)	94		76 - 119
1,2-Dichloroethane-d4 (Surr)	88		72 - 119

2/24/12
KLP

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW04-N-110911**

Lab Sample ID: 280-22645-5
Client Matrix: Water

Date Sampled: 11/09/2011 1405
Date Received: 11/10/2011 0900

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-96466	Instrument ID:	MSV_H
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	H7831.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	11/15/2011 1734			Final Weight/Volume:	20 mL
Prep Date:	11/15/2011 1734				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.075	F	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.13	U	0.13	1.0
1,1-Dichloroethane	0.057	U	0.057	1.0
1,1-Dichloroethylene	0.075	U	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	0.078	U	0.078	1.0
1,4-Dichlorobenzene	0.12	U	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.052	U	0.052	0.30
Chloromethane	0.083 UM	U	0.083	1.0
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	0.21	U	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	0.20	F	0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.10	U	0.10	1.0
Trichlorofluoromethane	0.067 UM	U	0.067	1.0

2/24/12

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW04-N-110911**

Lab Sample ID: 280-22645-5
Client Matrix: Water

Date Sampled: 11/09/2011 1405
Date Received: 11/10/2011 0900

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-96466	Instrument ID:	MSV_H
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	H7831.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	11/15/2011 1734			Final Weight/Volume:	20 mL
Prep Date:	11/15/2011 1734				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	97		81 - 120
Dibromofluoromethane (Surr)	94		85 - 115
4-Bromofluorobenzene (Surr)	93		76 - 119
1,2-Dichloroethane-d4 (Surr)	89		72 - 119

2/24/12
KPP

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW05-N-110911**

Lab Sample ID: 280-22645-6
Client Matrix: Water

Date Sampled: 11/09/2011 1051
Date Received: 11/10/2011 0900

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-96466	Instrument ID:	MSV_H
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	H7832.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	11/15/2011 1757			Final Weight/Volume:	20 mL
Prep Date:	11/15/2011 1757				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.13	F	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.26	F	0.13	1.0
1,1-Dichloroethane	3.9		0.057	1.0
1,1-Dichloroethylene	0.075	U	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.43	F	0.068	0.50
1,2-Dichloropropane	2.3		0.078	1.0
1,4-Dichlorobenzene	0.12	F	0.12	0.50
2-Butanone	1.2	U m	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U m	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U m	0.13	1.0
Chloroform	0.32		0.052	0.30
Chloromethane	0.083 UM	U m	0.083	1.0
cis-1,2-Dichloroethylene	1.4		0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	1.0	F	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	1.6		0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.68	F	0.10	1.0
Trichlorofluoromethane	0.067 UM	U m	0.067	1.0

2/24/12
KPL

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW05-N-110911**

Lab Sample ID: 280-22645-6
Client Matrix: Water

Date Sampled: 11/09/2011 1051
Date Received: 11/10/2011 0900

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-96466	Instrument ID:	MSV_H
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	H7832.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	11/15/2011 1757			Final Weight/Volume:	20 mL
Prep Date:	11/15/2011 1757				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U m	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	102		81 - 120
Dibromofluoromethane (Surr)	94		85 - 115
4-Bromofluorobenzene (Surr)	93		76 - 119
1,2-Dichloroethane-d4 (Surr)	88		72 - 119

2/24/12
KMP

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW05-FD-110911**

Lab Sample ID: 280-22645-7
Client Matrix: Water

Date Sampled: 11/09/2011 1100
Date Received: 11/10/2011 0900

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-96466	Instrument ID:	MSV_H
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	H7835.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	11/15/2011 1907			Final Weight/Volume:	20 mL
Prep Date:	11/15/2011 1907				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.14	F	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.26	F	0.13	1.0
1,1-Dichloroethane	3.9		0.057	1.0
1,1-Dichloroethylene	0.075	U	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.42	F	0.068	0.50
1,2-Dichloropropane	2.3		0.078	1.0
1,4-Dichlorobenzene	0.14	F	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.35		0.052	0.30
Chloromethane	0.083 UM	U	0.083	1.0
cis-1,2-Dichloroethylene	1.4		0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	1.2	F	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	1.5		0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.65	F	0.10	1.0
Trichlorofluoromethane	0.067 UM	U	0.067	1.0

2/24/12
KMP

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW05-FD-110911**

Lab Sample ID: 280-22645-7
Client Matrix: Water

Date Sampled: 11/09/2011 1100
Date Received: 11/10/2011 0900

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-96466	Instrument ID:	MSV_H
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	H7835.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	11/15/2011 1907			Final Weight/Volume:	20 mL
Prep Date:	11/15/2011 1907				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	101		81 - 120
Dibromofluoromethane (Surr)	95		85 - 115
4-Bromofluorobenzene (Surr)	96		76 - 119
1,2-Dichloroethane-d4 (Surr)	89		72 - 119

2/24/12
KPL

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW01-N-110911**

Lab Sample ID: 280-22645-2
Client Matrix: Water

Date Sampled: 11/09/2011 1500
Date Received: 11/10/2011 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-96871	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-96050	Lab File ID:	25A3111711.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 1819			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	12	F	4.4	30
Barium	310 J		0.58	50
Beryllium	1.6	F	0.47	4.0
Calcium	84000		35	1100
Chromium	60 J	Q	0.66	10
Cobalt	13	F	1.2	60
Copper	29 J	Q	1.4	10
Lead	32	Q	2.6	25
Magnesium	22000		11	1000
Nickel	30		1.3	20
Potassium	6900 J		240	1000
Silver	0.93	U	0.93	10
Sodium	22000		92	1000
Vanadium	81 J	Q	1.1	10
Zinc	130 J		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-96894	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-96033	Lab File ID:	26b111711.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 2043			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Beryllium	0.47	U	0.47	4.0
Calcium	65000		35	1100
Chromium	0.66	U Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	10000		11	1000
Nickel	1.3	U	1.3	20
Potassium	1700		240	1000
Sodium	22000		92	1000
Vanadium	1.3	F Q	1.1	10
Zinc	4.5	U	4.5	20

2/24/12
KHH

Analysis Method:	6010B	Analysis Batch:	280-97120	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-96033	Lab File ID:	26a111811.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/18/2011 1446			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW01-N-110911**

Lab Sample ID: 280-22645-2
Client Matrix: Water

Date Sampled: 11/09/2011 1500
Date Received: 11/10/2011 0900

6010B Metals (ICP)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Barium	61		0.58	50
Silver	1.2 UB	F	0.93	10

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-97152	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-96755	Lab File ID:	184SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/19/2011 0115			Final Weight/Volume:	50 mL
Prep Date:	11/18/2011 0600				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.25 M	F Q	0.070	1.0
Cadmium	0.31	F Q	0.040	2.0
Selenium	4.0 J		0.70	2.0
Thallium	0.36 J	Q	0.020	0.20

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-96910	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-96034	Lab File ID:	020SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 1748			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.092	F Q	0.070	1.0
Cadmium	0.040	U Q	0.040	2.0
Selenium	1.3	F	0.70	2.0
Thallium	0.061 UB	F	0.020	0.20

2/24/12
KMM

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW02-N-110911**

Lab Sample ID: 280-22645-3
Client Matrix: Water

Date Sampled: 11/09/2011 1215
Date Received: 11/10/2011 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-96871	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-96050	Lab File ID:	25A3111711.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 1822			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Barium	93 J		0.58	50
Beryllium	0.47	F	0.47	4.0
Calcium	55000		35	1100
Chromium	7.4 J	F Q	0.66	10
Cobalt	2.6	F	1.2	60
Copper	6.0 J	F Q	1.4	10
Lead	7.6	F Q	2.6	25
Magnesium	9900		11	1000
Nickel	6.9	F	1.3	20
Potassium	3000 J		240	1000
Silver	0.93	U	0.93	10
Sodium	48000		92	1000
Vanadium	15 J	Q	1.1	10
Zinc	37 J		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-96894	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-96033	Lab File ID:	26b111711.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 2046			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Beryllium	0.47	U	0.47	4.0
Calcium	52000		35	1100
Chromium	1.5 J KMP	F Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	9100		11	1000
Nickel	6.3	F	1.3	20
Potassium	2100		240	1000
Sodium	49000		92	1000
Vanadium	1.5	F Q	1.1	10
Zinc	4.5	U	4.5	20

2/24/12 KMP

Analysis Method:	6010B	Analysis Batch:	280-97120	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-96033	Lab File ID:	26a111811.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/18/2011 1448			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW02-N-110911**

Lab Sample ID: 280-22645-3
Client Matrix: Water

Date Sampled: 11/09/2011 1215
Date Received: 11/10/2011 0900

6010B Metals (ICP)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Barium	18 J KMP	F	0.58	50
Silver	1.2 UB	F	0.93	10

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-97152	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-96755	Lab File ID:	185SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/19/2011 0118			Final Weight/Volume:	50 mL
Prep Date:	11/18/2011 0600				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.49 M	F Q	0.070	1.0
Cadmium	0.23	F Q	0.040	2.0
Selenium	3.2 J		0.70	2.0
Thallium	0.12 UB	F Q	0.020	0.20

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-96910	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-96034	Lab File ID:	021SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 1750			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.28	F Q	0.070	1.0
Cadmium	0.040	U Q	0.040	2.0
Selenium	2.0		0.70	2.0
Thallium	0.023 UB	F	0.020	0.20

2/24/12
KMP

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW03-N-110911**

Lab Sample ID: 280-22645-4
Client Matrix: Water

Date Sampled: 11/09/2011 1319
Date Received: 11/10/2011 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-96871	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-96050	Lab File ID:	25A3111711.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 1824			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	23	F	4.4	30
Barium	550 J		0.58	50
Beryllium	2.6	F	0.47	4.0
Calcium	200000		35	1100
Chromium	59 J	Q	0.66	10
Cobalt	27	F	1.2	60
Copper	53 J	Q	1.4	10
Lead	43	Q	2.6	25
Magnesium	37000		11	1000
Nickel	110		1.3	20
Potassium	9200 J		240	1000
Silver	0.93	U	0.93	10
Sodium	74000		92	1000
Vanadium	98 J	Q	1.1	10
Zinc	210 J		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-96894	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-96033	Lab File ID:	26b111711.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 2048			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

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Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Beryllium	0.47	U	0.47	4.0
Calcium	150000		35	1100
Chromium	0.66	U Q	0.66	10
Cobalt	1.9	F	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	24000		11	1000
Nickel	9.5	F	1.3	20
Potassium	3100		240	1000
Sodium	76000		92	1000
Vanadium	1.7	F Q	1.1	10
Zinc	4.5	U	4.5	20

Analysis Method:	6010B	Analysis Batch:	280-97120	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-96033	Lab File ID:	26a111811.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/18/2011 1451			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW03-N-110911**

Lab Sample ID: 280-22645-4
Client Matrix: Water

Date Sampled: 11/09/2011 1319
Date Received: 11/10/2011 0900

6010B Metals (ICP)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Barium	96		0.58	50
Silver	0.94 UB	F	0.93	10

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-97152	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-96755	Lab File ID:	186SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/19/2011 0120			Final Weight/Volume:	50 mL
Prep Date:	11/18/2011 0600				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.35 M	F Q	0.070	1.0
Cadmium	1.0	F Q	0.040	2.0
Selenium	13 J		0.70	2.0
Thallium	0.88 J	Q	0.020	0.20

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-96910	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-96034	Lab File ID:	022SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 1753			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.33	F Q	0.070	1.0
Cadmium	0.040	U Q	0.040	2.0
Selenium	6.0		0.70	2.0
Thallium	0.035 UB	F	0.020	0.20

2/24/12
KMK

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW04-N-110911**

Lab Sample ID: 280-22645-5
Client Matrix: Water

Date Sampled: 11/09/2011 1405
Date Received: 11/10/2011 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-96871	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-96050	Lab File ID:	25A3111711.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 1827			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	7.5	F	4.4	30
Barium	320 J		0.58	50
Beryllium	1.6	F	0.47	4.0
Calcium	88000		35	1100
Chromium	37 J	Q	0.66	10
Cobalt	10	F	1.2	60
Copper	27 J	Q	1.4	10
Lead	30	Q	2.6	25
Magnesium	21000		11	1000
Nickel	24		1.3	20
Potassium	6400 J		240	1000
Silver	0.93	U	0.93	10
Sodium	34000		92	1000
Vanadium	61 J	Q	1.1	10
Zinc	120 J		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-96894	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-96033	Lab File ID:	26b111711.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 2051			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

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KMK

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Beryllium	0.47	U	0.47	4.0
Calcium	75000		35	1100
Chromium	0.66	U Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	12000		11	1000
Nickel	1.5	F	1.3	20
Potassium	2200		240	1000
Sodium	35000		92	1000
Vanadium	1.1	U Q	1.1	10
Zinc	4.5	U	4.5	20

Analysis Method:	6010B	Analysis Batch:	280-97120	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-96033	Lab File ID:	26a111811.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/18/2011 1453			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW04-N-110911**

Lab Sample ID: 280-22645-5

Client Matrix: Water

Date Sampled: 11/09/2011 1405

Date Received: 11/10/2011 0900

6010B Metals (ICP)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Barium	91		0.58	50
Silver	0.93	U	0.93	10

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-97152	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-96755	Lab File ID:	187SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/19/2011 0123			Final Weight/Volume:	50 mL
Prep Date:	11/18/2011 0600				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.27 M	F Q	0.070	1.0
Cadmium	0.42	F Q	0.040	2.0
Selenium	4.1 H		0.70	2.0
Thallium	0.38 H	Q	0.020	0.20

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-96910	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-96034	Lab File ID:	023SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 1756			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.15	F Q	0.070	1.0
Cadmium	0.040	U Q	0.040	2.0
Selenium	0.70	U	0.70	2.0
Thallium	0.020	U	0.020	0.20

2/24/12
KMM

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW05-N-110911**

Lab Sample ID: 280-22645-6
Client Matrix: Water

Date Sampled: 11/09/2011 1051
Date Received: 11/10/2011 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-96871	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-96050	Lab File ID:	25A3111711.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 1839			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	6.1	F	4.4	30
Barium	210 J		0.58	50
Beryllium	0.73	F	0.47	4.0
Calcium	140000		35	1100
Chromium	18 J	Q	0.66	10
Cobalt	5.6	F	1.2	60
Copper	11 J	Q	1.4	10
Lead	12	F Q	2.6	25
Magnesium	23000		11	1000
Nickel	11	F	1.3	20
Potassium	4800 J		240	1000
Silver	0.93	U	0.93	10
Sodium	45000		92	1000
Vanadium	30 J	Q	1.1	10
Zinc	57 J		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-96894	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-96033	Lab File ID:	26b111711.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 2103			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

2/24/12

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Beryllium	0.47	U	0.47	4.0
Calcium	130000		35	1100
Chromium	0.66	U Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	20000		11	1000
Nickel	1.9	F	1.3	20
Potassium	2600		240	1000
Sodium	44000		92	1000
Vanadium	1.1	U Q	1.1	10
Zinc	12	F	4.5	20

Analysis Method:	6010B	Analysis Batch:	280-97120	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-96033	Lab File ID:	26a111811.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/18/2011 1505			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW05-N-110911**

Lab Sample ID: 280-22645-6
Client Matrix: Water

Date Sampled: 11/09/2011 1051
Date Received: 11/10/2011 0900

6010B Metals (ICP)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Barium	120		0.58	50
Silver	0.93	U	0.93	10

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-97152	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-96755	Lab File ID:	188AREF.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/19/2011 0126			Final Weight/Volume:	50 mL
Prep Date:	11/18/2011 0600				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.24 M	F Q m	0.070	1.0
Cadmium	0.23	F Q	0.040	2.0
Selenium	3.0 J		0.70	2.0
Thallium	0.20 J	Q	0.020	0.20

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-96910	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-96034	Lab File ID:	024AREF.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 1759			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

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KMM

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.082	F Q	0.070	1.0
Cadmium	0.062	F Q	0.040	2.0
Selenium	1.6	F	0.70	2.0
Thallium	0.024 UB	F	0.020	0.20

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW05-FD-110911**

Lab Sample ID: 280-22645-7
Client Matrix: Water

Date Sampled: 11/09/2011 1100
Date Received: 11/10/2011 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-96871	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-96050	Lab File ID:	25A3111711.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 1851			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	5.7	F	4.4	30
Barium	290 J		0.58	50
Beryllium	1.3	F	0.47	4.0
Calcium	150000		35	1100
Chromium	31 J	Q	0.66	10
Cobalt	10	F	1.2	60
Copper	19 J	Q	1.4	10
Lead	22	F Q	2.6	25
Magnesium	25000		11	1000
Nickel	19	F	1.3	20
Potassium	5900 J		240	1000
Silver	0.93	U	0.93	10
Sodium	45000		92	1000
Vanadium	48 J	Q	1.1	10
Zinc	96 J		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-96894	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-96033	Lab File ID:	26b111711.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 2114			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

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KHP

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Beryllium	0.47	U	0.47	4.0
Calcium	130000		35	1100
Chromium	0.66	U Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	20000		11	1000
Nickel	1.6	F	1.3	20
Potassium	2500		240	1000
Sodium	44000		92	1000
Vanadium	1.2	F Q	1.1	10
Zinc	4.5	U	4.5	20

Analysis Method:	6010B	Analysis Batch:	280-97120	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-96033	Lab File ID:	26a111811.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/18/2011 1516			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

Client Sample ID: **PAFB03-MW05-FD-110911**

Lab Sample ID: 280-22645-7
Client Matrix: Water

Date Sampled: 11/09/2011 1100
Date Received: 11/10/2011 0900

6010B Metals (ICP)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Barium	130		0.58	50
Silver	0.93	U	0.93	10

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-97152	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-96755	Lab File ID:	195SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/19/2011 0146			Final Weight/Volume:	50 mL
Prep Date:	11/18/2011 0600				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.30 M	F Q	0.070	1.0
Cadmium	0.38	F Q	0.040	2.0
Selenium	4.6 J		0.70	2.0
Thallium	0.33 J	Q	0.020	0.20

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-96910	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-96034	Lab File ID:	031SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 1819			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.093	F Q	0.070	1.0
Cadmium	0.055	F Q	0.040	2.0
Selenium	1.5	F	0.70	2.0
Thallium	0.030 UB	F	0.020	0.20

2/24/12
KLL

General Chemistry

Client Sample ID: **PAFB03-MW01-N-110911**

Lab Sample ID: 280-22645-2 Date Sampled: 11/09/2011 1500
Client Matrix: Water Date Received: 11/10/2011 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	20		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-96019	Analysis Date: 11/10/2011 1419						
Nitrate as N	4.4		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-96020	Analysis Date: 11/10/2011 1419						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-96020	Analysis Date: 11/10/2011 1419						
Sulfate	23		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-96019	Analysis Date: 11/10/2011 1419						
Total Organic Carbon - Average	0.94	F	mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-97623	Analysis Date: 11/22/2011 2200						
Bicarbonate Alkalinity as CaCO3	210		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-97086	Analysis Date: 11/19/2011 1214						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-97086	Analysis Date: 11/19/2011 1214						

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KAJ

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

General Chemistry

Client Sample ID: **PAFB03-MW02-N-110911**

Lab Sample ID: 280-22645-3

Client Matrix: Water

Date Sampled: 11/09/2011 1215

Date Received: 11/10/2011 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	13		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-96019	Analysis Date: 11/10/2011 1436						
Nitrate as N	3.2		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-96020	Analysis Date: 11/10/2011 1436						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-96020	Analysis Date: 11/10/2011 1436						
Sulfate	32		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-96019	Analysis Date: 11/10/2011 1436						
Total Organic Carbon - Average	3.3		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-97623	Analysis Date: 11/22/2011 2217						
Bicarbonate Alkalinity as CaCO3	220		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-97086	Analysis Date: 11/19/2011 1230						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-97086	Analysis Date: 11/19/2011 1230						

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KAP

General Chemistry

Client Sample ID: **PAFB03-MW03-N-110911**

Lab Sample ID: 280-22645-4 Date Sampled: 11/09/2011 1319
Client Matrix: Water Date Received: 11/10/2011 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	13		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-96019	Analysis Date: 11/10/2011 1452						
Nitrate as N	14		mg/L	0.21	2.5	5.0	300.0
Analysis Batch: 280-96020	Analysis Date: 11/10/2011 2102						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-96020	Analysis Date: 11/10/2011 1452						
Sulfate	16		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-96019	Analysis Date: 11/10/2011 1452						
Total Organic Carbon - Average	2.6		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-97623	Analysis Date: 11/22/2011 2236						
Bicarbonate Alkalinity as CaCO3	570		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-97086	Analysis Date: 11/19/2011 1241						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-97086	Analysis Date: 11/19/2011 1241						

2/24/12
KMP

General Chemistry

Client Sample ID: **PAFB03-MW04-N-110911**

Lab Sample ID: 280-22645-5 Date Sampled: 11/09/2011 1405
Client Matrix: Water Date Received: 11/10/2011 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	9.2		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-96019	Analysis Date: 11/10/2011 1509						
Nitrate as N	0.63		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-96020	Analysis Date: 11/10/2011 1509						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-96020	Analysis Date: 11/10/2011 1509						
Sulfate	17		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-96019	Analysis Date: 11/10/2011 1509						
Total Organic Carbon - Average	1.3		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-97623	Analysis Date: 11/22/2011 2252						
Bicarbonate Alkalinity as CaCO3	300		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-97086	Analysis Date: 11/19/2011 1249						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-97086	Analysis Date: 11/19/2011 1249						

2/24/12

Client: AECOM Technical Services Inc.

Job Number: 280-22645-1

General Chemistry

Client Sample ID: **PAFB03-MW05-N-110911**

Lab Sample ID: 280-22645-6

Client Matrix: Water

Date Sampled: 11/09/2011 1051

Date Received: 11/10/2011 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	41		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-96019	Analysis Date: 11/10/2011 1312						
Nitrate as N	7.1		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-96020	Analysis Date: 11/10/2011 1312						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-96020	Analysis Date: 11/10/2011 1312						
Sulfate	25		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-96019	Analysis Date: 11/10/2011 1312						
Total Organic Carbon - Average	1.6		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-97623	Analysis Date: 11/22/2011 2028						
Bicarbonate Alkalinity as CaCO3	460		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-97086	Analysis Date: 11/19/2011 1258						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-97086	Analysis Date: 11/19/2011 1258						

2/24/12

General Chemistry

Client Sample ID: **PAFB03-MW05-FD-110911**

Lab Sample ID: 280-22645-7 Date Sampled: 11/09/2011 1100
Client Matrix: Water Date Received: 11/10/2011 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	41		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-96019	Analysis Date: 11/10/2011 1600						
Nitrate as N	7.0		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-96020	Analysis Date: 11/10/2011 1600						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-96020	Analysis Date: 11/10/2011 1600						
Sulfate	25		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-96019	Analysis Date: 11/10/2011 1600						
Total Organic Carbon - Average	1.8		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-97623	Analysis Date: 11/22/2011 2307						
Bicarbonate Alkalinity as CaCO3	450		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-97086	Analysis Date: 11/19/2011 1326						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-97086	Analysis Date: 11/19/2011 1326						

2/24/12
KAP

Client: AECOM Technical Services Inc.

Job Number: 280-22704-1

Client Sample ID: **PAFB03-MW06-N-111011**

Lab Sample ID: 280-22704-1
Client Matrix: Water

Date Sampled: 11/10/2011 0930
Date Received: 11/11/2011 1000

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-96655	Instrument ID:	MSV_H
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	H7891.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	11/16/2011 1650			Final Weight/Volume:	20 mL
Prep Date:	11/16/2011 1650				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.053	U	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.13	U	0.13	1.0
1,1-Dichloroethane	0.47	F	0.057	1.0
1,1-Dichloroethylene	0.075	U	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	0.078	U	0.078	1.0
1,4-Dichlorobenzene	0.12	U	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	9.6	F	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.052	U	0.052	0.30
Chloromethane	0.12 M	F	0.083	1.0
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	0.21	U	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	0.14	U	0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.10	U	0.10	1.0
Trichlorofluoromethane	0.067 UM	U	0.067	1.0

2/21/12

Client: AECOM Technical Services Inc.

Job Number: 280-22704-1

Client Sample ID: **PAFB03-MW06-N-111011**

Lab Sample ID: 280-22704-1
Client Matrix: Water

Date Sampled: 11/10/2011 0930
Date Received: 11/11/2011 1000

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-96655	Instrument ID:	MSV_H
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	H7891.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	11/16/2011 1650			Final Weight/Volume:	20 mL
Prep Date:	11/16/2011 1650				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	111		81 - 120
Dibromofluoromethane (Surr)	102		85 - 115
4-Bromofluorobenzene (Surr)	103		76 - 119
1,2-Dichloroethane-d4 (Surr)	94		72 - 119

2/21/12
KMP

Client: AECOM Technical Services Inc.

Job Number: 280-22704-1

Client Sample ID: PAFB-TRIP-TB-111011

Lab Sample ID: 280-22704-5TB

Client Matrix: Water

Date Sampled: 11/10/2011 0730

Date Received: 11/11/2011 1000

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-96655	Instrument ID:	MSV_H
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	H7892.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	11/16/2011 1713			Final Weight/Volume:	20 mL
Prep Date:	11/16/2011 1713				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.053	U	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.13	U	0.13	1.0
1,1-Dichloroethane	0.057	U	0.057	1.0
1,1-Dichloroethylene	0.075	U	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	0.078	U	0.078	1.0
1,4-Dichlorobenzene	0.12	U	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.17	F	0.052	0.30
Chloromethane	0.083	U	0.083	1.0
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	0.21	U	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	0.14	U	0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.10	U	0.10	1.0
Trichlorofluoromethane	0.067	U	0.067	1.0

2/21/12
KMH

Client: AECOM Technical Services Inc.

Job Number: 280-22704-1

Client Sample ID: **PAFB-TRIP-TB-111011**

Lab Sample ID: 280-22704-5TB

Client Matrix: Water

Date Sampled: 11/10/2011 0730

Date Received: 11/11/2011 1000

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-96655	Instrument ID:	MSV_H
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	H7892.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	11/16/2011 1713			Final Weight/Volume:	20 mL
Prep Date:	11/16/2011 1713				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	97		81 - 120
Dibromofluoromethane (Surr)	92		85 - 115
4-Bromofluorobenzene (Surr)	92		76 - 119
1,2-Dichloroethane-d4 (Surr)	84		72 - 119

2/21/12
KLL

Client: AECOM Technical Services Inc.

Job Number: 280-22704-1

Client Sample ID: **PAFB03-MW06-N-111011**

Lab Sample ID: 280-22704-1
Client Matrix: Water

Date Sampled: 11/10/2011 0930
Date Received: 11/11/2011 1000

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-96871	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-96050	Lab File ID:	25A3111711.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 1854			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	9.3	F	4.4	30
Barium	280 J		0.58	50
Beryllium	1.1	F	0.47	4.0
Calcium	140000		35	1100
Chromium	58 J	Q	0.66	10
Cobalt	11	F	1.2	60
Copper	35 J	Q	1.4	10
Lead	20	F Q	2.6	25
Magnesium	31000		11	1000
Nickel	33		1.3	20
Potassium	8300 J		240	1000
Silver	0.93	U	0.93	10
Sodium	110000		92	1000
Vanadium	67 J	Q	1.1	10
Zinc	130 J		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-96894	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-96033	Lab File ID:	26b111711.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 2117			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Beryllium	0.47	U	0.47	4.0
Calcium	120000		35	1100
Chromium	0.66	U Q	0.66	10
Cobalt	1.2	F	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	20000		11	1000
Nickel	4.1	F	1.3	20
Potassium	4300		240	1000
Sodium	110000		92	1000
Vanadium	1.1	U Q	1.1	10
Zinc	4.5	U	4.5	20

Analysis Method:	6010B	Analysis Batch:	280-97120	Instrument ID:	MT_026
Prep Method:	3005A	Prep Batch:	280-96033	Lab File ID:	26a111811.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/18/2011 1519			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Client: AECOM Technical Services Inc.

Job Number: 280-22704-1

Client Sample ID: **PAFB03-MW06-N-111011**

Lab Sample ID: 280-22704-1
Client Matrix: Water

Date Sampled: 11/10/2011 0930
Date Received: 11/11/2011 1000

6010B Metals (ICP)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Barium	41	F	0.58	50
Silver	0.93	U	0.93	10

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-97152	Instrument ID:	MT_024
Prep Method:	3020A	Prep Batch:	280-96755	Lab File ID:	196SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/19/2011 0149			Final Weight/Volume:	50 mL
Prep Date:	11/18/2011 0600				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.63 M	F Q	0.070	1.0
Cadmium	0.97	F Q	0.040	2.0
Selenium	7.9 J		0.70	2.0
Thallium	0.37 J	Q	0.020	0.20

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-96910	Instrument ID:	MT_024
Prep Method:	3005A	Prep Batch:	280-96034	Lab File ID:	032SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	11/17/2011 1822			Final Weight/Volume:	50 mL
Prep Date:	11/17/2011 0615				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.76	F Q	0.070	1.0
Cadmium	0.18	F Q	0.040	2.0
Selenium	4.5		0.70	2.0
Thallium	0.027 UB	F	0.020	0.20

2/21/12

General Chemistry

Client Sample ID: **PAFB03-MW06-N-111011**

Lab Sample ID: 280-22704-1 Date Sampled: 11/10/2011 0930
Client Matrix: Water Date Received: 11/11/2011 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	27		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-96270	Analysis Date: 11/11/2011 1709						
Nitrate as N	3.7		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-96269	Analysis Date: 11/11/2011 1709						
Nitrite as N	0.76		mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-96269	Analysis Date: 11/11/2011 1709						
Sulfate	180		mg/L	1.2	25	5.0	300.0
Analysis Batch: 280-96270	Analysis Date: 11/12/2011 0044						
Total Organic Carbon - Average	2.6		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-97623	Analysis Date: 11/23/2011 0519						
Bicarbonate Alkalinity as CaCO3	400		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-97305	Analysis Date: 11/21/2011 1523						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-97305	Analysis Date: 11/21/2011 1523						

2/21/12

DATA COMPLIANCE CHECK - TECHNICAL REVIEW
AECOM Technical Services
Test America Laboratories Inc, Denver CO, SDG 280-25094-1
AFCEE - Peterson Air Force Base, January 2012
Fourth Collection Quarter, Report date: 3/15/2012
Category 2 Review
Reviewer: Karen M. Munns

DATA VALIDATION SUMMARY:

Analytical quality was evaluated using the criteria specified in the Quality Assurance Project Plan (QAPP) Site Inspection Site 3 Peterson Air Force Base Colorado Springs, Colorado dated June 2008 and the Air Force Center for Environmental Excellence (AFCEE) Technical Services Quality Assurance Program, version 4.0.02, May 2006. Discussions of reviewed QC issues per performed methods below follow.

METHODS:

SW846 - 6020	Metals by Inductively Coupled Plasma – Mass Spectrometry (ICP-MS)
SW846 - 6010B	Metals by Inductively Coupled Plasma (ICP) Atomic Emission Spectrometry
SW846 - 8260B	Volatile Organic Compounds (VOCs) by Gas Chromatography (GC)/Mass Spectrometry (MS)
SM2320B	Alkalinity as Total, Carbonate and Bicarbonate
MCAWW 300.0	Anions by Ion Chromatography
SW846 9060A	Total Organic Carbon (TOC) by Flame Ionization Detection

SW846 = Test Methods for Evaluating Solid Waste, Physical/Chemical Methods
MCAWW = Methods for Chemical Analysis of Waters and Wastes, Environmental Protection Agency
SM = Standard Methods of Analysis

SAMPLES, LABORATORY ID, ALIQUOT, and MATRIX: See Table 1 at end of document.

DATA COMPLIANCE SUMMARY:

Based on the data compliance review, data for the above samples are:

_____Acceptable for use
_____X_____Acceptable as qualified
_____Some data unacceptable for use
_____All data unacceptable for use

Sample Integrity

1. Samples were collected over 2-days, 1/26/2012 and 1/27/2012. The sample containers were received intact, within the temperature acceptance criteria of $\leq 6^{\circ}C$ (degrees Celsius), and properly preserved by both Federal Express and hand-delivery on 1/27/2012 at Test America Laboratories, Inc. in Arvada Colorado.

2. Dedicated sampling equipment was used and an equipment blank was not required.

3. The chain of custody forms (COCs) showed the incorrect site (PAFB07 rather than PAFB03) in one of the COC matrix spike (MS) and matrix spike duplicate (MSD) ID fields. The laboratory was directed to disregard this error, and a hand-corrected COC was scanned and sent to the lab for their records.

Method 6020, Total and Dissolved Metals by ICP-MS

1. The following QC items were evaluated: hold times, MBs, LCS %Rs, initial and continuing calibration verifications (ICVs, CCVs), RL check standard %Rs, and comparison of reported results to the raw data. All dissolved metals results were verified to be less than the total metals results within +/- 2x DL.

2. All samples were reported from a minimum of two analytical sets. Raw data associated with samples analyzed for one target were examined for other target (not reported metals) analyte concentrations in order to evaluate consistency and potential blanks effects.

3. The analyses of the ICSA interference check standard solution by Method 6020 show observed concentrations for cadmium (0.4µg/L) greater than 2 times the MDL (2x 0.04µg/L) associated with both total and dissolved metals analyses. The laboratory narrative indicated that the solution contained trace impurities and that the results are not due to matrix interference. Field sample concentrations were not equivalent to the interferents (aluminum, iron, molybdenum, and magnesium) concentrations in the ICSA standard, so the ICSA results do not apply to the field samples. No data qualifiers were assigned.

4. The dissolved metals method blank by method 6020 was analyzed in three different batches and the four target 6020 metals were not detected. The total metals method blank by method 6020 was analyzed in three different batches. Only thallium was detected at a concentration (0.0360µg/L) greater than the detection limit (DL) of 0.033µg/L. In combination with the observed instrument blank detections, all total thallium sample results with detections less than the RL of 0.2µg/L were UB qualified, as not detected at the RL

5. Selenium was not detected in the initial and continuing calibration blanks (ICBs and CCBs) associated with the samples.

   Thallium was detected in the instrument blanks (ICBs and CCBs) associated with both total and dissolved metals samples. Instrument blank thallium concentrations ranged from 0.046µg/L to 0.060µg/L. All sample detections less than the RL of 0.2µg/L were UB qualified, as not detected at the RL.

   Antimony was detected in some instrument blanks (ICBs and CCBs) associated with both total and dissolved metals samples. The dissolved fraction samples were associated with both an ICB (0.330µg/L) and CCB (0.366µg/L) with observed antimony detections. All dissolved antimony detections less than the RL were UB qualified with one exception. Based on professional judgment (and observation of numerous analyses) the dissolved antimony concentration (0.94µg/L) in lab sample -7 (PAFB03-MW06-N012612) was J qualified as estimated because it was less than the RL of 1.0µg/L, but not B qualified. The total and dissolved antimony raw data results for numerous analyses of lab sample -7 indicate that the detected concentrations are not contamination artifacts. Antimony was detected in the ICB associated with the total metals samples, however was not detected in the method blank or bracketing CCBs (analyzed 3 hours later). The total antimony samples were not qualified as a result of instrument blank detections. See Table 3 at the end of this document for a summary of the applied qualifiers.

Cadmium was detected in some instrument blanks (CCBs) associated with both total and dissolved metals samples. Sample associations to the blank detections were evaluated. The CCB detection for cadmium (0.069µg/L) was associated with two dissolved samples: PAFB03-MW04-N-012612 (lab ID -4) and PAFB03-MW05-FD-012612 (lab ID -6). Both sample cadmium results were UB qualified as not detected at the RL. Total metals samples lab IDs -4 through -7 were associated with a CCB detection for cadmium (0.057µg/L). Results less than 5x the blank detection (or less than 0.3µg/L) were UB qualified as not detected. See Table 3 at the end of this document for a summary of the applied data qualifiers.

6. A field duplicate sample pair was collected from PAFB03-MW05 (280-25094-5 and 280-25094-6) for total and dissolved metals. The detected results are provided in Table 2 at the end of this document. When results were greater than the RL, an RPD was calculated. If one or both detected results are less than the RL, the acceptance was evaluated qualitatively. The field duplicate pair results met criteria.

7. The serial dilution and PDS analyses were performed on the total metals samples from PAFB03-MW02-N-012612 (280-25094-2) for cadmium, and PAFB03-MW03-N-012612 (280-25094-3) for antimony, selenium, and thallium. The serial dilution was performed on the dissolved fraction samples PAFB03-MW04-N-012612 (280-25094-4) for cadmium, and PAFB03-MW03-N-012612 (280-25094-3) for antimony, selenium, and thallium. Metals concentrations were not greater than 50x the DL, and the serial dilution results did not apply. PDS %Rs for total and dissolved metals were within the 75 - 125% criteria, and qualification was not required.

8. The total and dissolved metals MS/MSD were performed on samples PAFB03-MW03-N-012612 (280-25094-3) and PAFB03-MW04-N-012612 (280-25094-4). All total and dissolved metals %Rs and RPDs were within control limits with the exception of total antimony (dissolved antimony met criteria). Total antimony was recovered at 75% and 72% in the MS and MSD (respectively) performed on lab ID -3, and at 61% and 63% in the MS and MSD (respectively) performed on lab ID -4; both MS/MSD pairs recovered less than the 80 - 120% criteria. (The PDS met criteria indicating a matrix effect during sample digestion). The method citation used for the Method 6020 sample digestion (SW-846 3020A) does not include antimony in the list of acceptable metals. All total antimony sample results were M qualified due to the observed matrix effects, the bias is potentially low.

Method 6010B total and dissolved

1. The following QC items were evaluated and verified to meet criteria: hold times, LCS %Rs, ICVs, CCVs, RL check standard %Rs, MS/MSD %Rs and RPDs, and comparison of reported results to the raw data. All dissolved metals results were verified to be less than or equal to the total metals results for each sample.

2. Target metals were not detected in the MB associated with the dissolved metals, and no metals detections were observed in the total metals MB with the following exceptions: calcium (53.4µg/L), nickel (2.27µg/L), sodium (193 µg/L), and zinc (7.90 µg/L). All total metals MB detected concentrations were less than the associated RL. Associated 'total' metals samples had observed detections much greater than the RL for calcium, sodium, and zinc. Nickel was UB qualified as not detected in the total metals samples with less than RL detections. See Table 3 at the end of this document for a summary of applied data qualifiers.

3. Total and dissolved metals were analyzed in a single analytical set. Arsenic was detected (5.65µg/L) at a concentration less than the RL (30µg/L) in the initial calibration blank (ICB) analyzed 2/2/12 at 0937. However, because associated sample analyses were performed over four hours later from 1325 to 1529, and arsenic was not detected in any associated continuing calibration blanks (CCBs) or method blanks, samples were not qualified due to the ICB arsenic result.

4. The analysis of the ICSA interference check standard solution by Method 6010B shows concentrations for chromium and copper at levels greater than 2 times the MDL for both total and dissolved metals analyses.

The laboratory narrative indicates that the solution contained trace impurities and that the results are not due to matrix interference. In addition, field sample concentrations were not equivalent to the interferent (aluminum, iron, calcium, and magnesium) concentrations in the ICSA standard. No data qualifiers were assigned.

5. Sample location duplicate sample pair was collected from PAFB03-MW05 (280-25094-5 and 280-25094-6) for total and dissolved metals, and from PAFB07-MW03 (280-25094-9 and 280-25094-10) for total and dissolved lead. The detected results are provided in Table 2 at the end of this document. When results were greater than the RL, an RPD was calculated. If one or both detected results are less than the RL, the acceptance was evaluated qualitatively. The field duplicate pair results met criteria.

6. The serial dilution (DL) and PDS analyses were performed on both the total and dissolved metals samples from PAFB03-MW03-N-012612 (280-25094-3). The serial dilution percent difference (%D) evaluation criteria of ≤10% applies to undiluted sample concentrations greater than 50x the MDL. The PDS was performed to evaluate matrix effect to all other target metals concentrations.

   Professional judgment determines that in some cases the 50x MDL concentration multiplier for DL evaluation may not be appropriate when the MDL to RL multiplier is greater than 50x. For example: the undiluted barium observed concentration (160µg/L) was > 50x the MDL of 0.058µg/L. However, because barium's RL is 50µg/L (or 250µg/L RL at 5x) the expected 5x concentration would be less than the RL, and by definition an estimated concentration. Therefore, in this case, the DL evaluation applies when the undiluted concentration is greater than 5x the diluted RL, and the determined barium %D of 15% does not apply. Applicable serial dilution %Ds and all other metals PDS %Rs were in control. Qualification was not required.

7. The total and dissolved metals MS/MSDs were performed on samples PAFB03-MW03-N-012612 (280-25094-3) and PAFB03-MW04-N-012612 (280-25094-4). All total and dissolved metals %Rs and RPDs were within control limits and qualification was not required.

Method 8260B VOCs

1. The following QC items were evaluated and met criteria: initial calibration (ICAL), second source calibration verification standard (SSCV), continuing calibration verification standard (CCV), GC/MS tunes, and internal standard area counts and retention times, holding times, surrogate %Rs, and LCS %Rs.

2. Samples were unpreserved and the analyses were performed within the hold time of 7 days from collection to analysis.

3. All VOC samples were analyzed undiluted, reporting limits met QAPP criteria.

4. VOCs were not detected in the associated MB with the exception of methylene chloride at a concentration of 0.435µg/L, less than the RL of 2.0µg/L. All samples were analyzed in a single analytical batch. Methylene chloride was detected at similar concentration in the associated samples and detections less than the RL were UB qualified, as not detected at the RL

5. A trip blank was not associated with either sample collection date. Because no samples required dilution for VOCs analysis, sample concentration can be expected to have a minimal effect if any from potential cross-contamination. Because any detections as a result from cross-contamination would be expected to be at concentrations less than the RL which are already J qualified as estimated, additional qualifiers are not applied to the data. Any effect to data usability due to the missing trip blank samples is expected to be insignificant.

6. A VOC field duplicate sample pair was collected from PAFB03-MW05 (280-25094-5 and 280-25094-6). The results are provided in Table 2 at the end of this document. All VOC detected results agreed within the QAPP-specified ≤20%RPD. No qualifiers were applied as a result of the FD samples.

7. A MS/MSD was analyzed from site PAFB03-MW04. All target analyte %Rs and RPDs were within the DoD QSM criteria with the exceptions summarized below. High recoveries and RPD outliers only affect detected sample results. No associated detections were observed, data qualifiers were not required.

MS/SD Parent Field ID (Lab ID)	Outlier Target	%Rs (RPD)	Criteria %R (RPD)	Action
PAFB03-MW04-N-012612 (280-25094-4)	1,1-Dichloroethylene	128 / **131** (2)	68 - 130 (2)	None - No associated detections.
	Acetone	86 / 107 (**23**)	40 - 135 (20)	

Method 300.0 – Major Anions

1. The following QC items were evaluated and met criteria: ICAL, ICB, CCBs, ICV, CCVs, MBs, LCS/LCSD %Rs and RPDs, and laboratory duplicate RPDs.

2. All appropriate holding times were met for sample analysis. Nitrate/nitrite analyses were performed within 48-hours of sample collection, and all other anions were analyzed within 28-days of collection.

3. MS and MSD analyses were performed on samples PAFB03-MW03-N-012612 (280-25094-3) and PAFB03-MW04-N-012612 (280-25094-4). MS and MSD %Rs were within QAPP-specified 85 - 115% recovery control criteria, and RPDs were within ≤20%. Sample qualification was not necessary.

4. A field duplicate sample pair was collected from PAFB03-MW05 (280-25094-5 and 280-25094-6). Detected results are detailed in Table 2 at the end of the document. Calculated RPDs were less than the control criteria of 20% and data qualifiers were not required.

5. Sample PAFB03-MW-03-N-012612 (280-25094-3) was analyzed at a dilution for nitrate as nitrogen in order to analyze the concentration within the calibrated range. The reporting limit was raised accordingly. No sample qualification was necessary.

Method SM2320 Total, Carbonate, and Bicarbonate Alkalinity

1. The following QC items were performed, evaluated, and met criteria: holding times. Per the QAPP, alkalinity data are defined as screening quality data and required QC is collecting a field duplicate at a 10% frequency. LCS, and MS/MSD analyses are not performed with the samples.

2. Bicarbonate alkalinity was detected in the method blanks at concentrations less than the RL of 5mg/L. Bicarbonate alkalinity was detected at concentrations greater than the RL in the associated samples and qualification was not required.

3. The analytical method specified in the QAPP was EPA 310.1. The analytical method reported as being used in the data package was SM2320B. No action was required due to this change.

4. A field duplicate sample pair was collected from PAFB03-MW05 (280-25094-5 and 280-25094-6). The results are provided in Table 2 at the end of this document. Carbonate was not detected in either sample. Bicarbonate alkalinity was detected in both samples greater than the RL, and the calculated RPD met the ≤20% RPD QC acceptance criteria. Data qualification is not required.

Method 9060 Total Organic Carbon

1. The following QC items were evaluated and met criteria: holding times, MBs, ICAL, ICB, ICVs, CCBs, CCVs, MBs, LCS/LCSD %Rs and RPDs, .

2. TOC MS and MSD analyses were performed on samples PAFB03-MW03-N-012612 (280-25094-3) and PAFB03-MW04-N-012612 (280-25094-4). %Rs and RPDs were within control criteria and sample qualification was not necessary.

3. A laboratory duplicate was not performed in either SDG for this method, and an assessment could not be made. However, since the LCS/LCSD RPD and MS/MSD RPD were within criteria, laboratory precision was met and data usability was not affected.

4. A field duplicate sample pair was collected from PAFB03-MW05 (280-25094-5 and 280-25094-6). The results are provided in Table 2 at the end of this document. The calculated RPD was within the control criteria of ≤20%. No qualifiers were applied.

Reviewer: _____ Date: 3/16/2012

QC Reviewer: _____ Date: 3-19-12

Database Entry Person: _____ Date: 4/6/2012

TABLE 1
SAMPLES COLLECTED
Peterson Air Force Base, January 2012
Fourth Collection Quarter
TestAmerica Laboratories Inc., Denver, CO

Field ID	Location	Lab ID	Sample Type	Date & Time Collected		Analytical Method
PAFB03-MW01-N-012712	PAFB03-MW01	280-25094-1	N	27-Jan-2012	1040	A2320
PAFB03-MW01-N-012712	PAFB03-MW01	280-25094-1	N	27-Jan-2012	1040	E300
PAFB03-MW01-N-012712	PAFB03-MW01	280-25094-1	N	27-Jan-2012	1040	SW6010B
PAFB03-MW01-N-012712	PAFB03-MW01	280-25094-1	N	27-Jan-2012	1040	SW6020
PAFB03-MW01-N-012712	PAFB03-MW01	280-25094-1	N	27-Jan-2012	1040	SW8260B
PAFB03-MW01-N-012712	PAFB03-MW01	280-25094-1	N	27-Jan-2012	1040	SW9060
PAFB03-MW02-N-012612	PAFB03-MW02	280-25094-2	N	26-Jan-2012	1240	A2320
PAFB03-MW02-N-012612	PAFB03-MW02	280-25094-2	N	26-Jan-2012	1240	E300
PAFB03-MW02-N-012612	PAFB03-MW02	280-25094-2	N	26-Jan-2012	1240	SW6010B
PAFB03-MW02-N-012612	PAFB03-MW02	280-25094-2	N	26-Jan-2012	1240	SW6020
PAFB03-MW02-N-012612	PAFB03-MW02	280-25094-2	N	26-Jan-2012	1240	SW8260B
PAFB03-MW02-N-012612	PAFB03-MW02	280-25094-2	N	26-Jan-2012	1240	SW9060
PAFB03-MW03-N-012612	PAFB03-MW03	280-25094-3	N	26-Jan-2012	1400	A2320
PAFB03-MW03-N-012612	PAFB03-MW03	280-25094-3	N	26-Jan-2012	1400	E300
PAFB03-MW03-N-012612	PAFB03-MW03	280-25094-3	N	26-Jan-2012	1400	SW6010B
PAFB03-MW03-N-012612	PAFB03-MW03	280-25094-3	N	26-Jan-2012	1400	SW6020
PAFB03-MW03-N-012612	PAFB03-MW03	280-25094-3	N	26-Jan-2012	1400	SW8260B
PAFB03-MW03-N-012612	PAFB03-MW03	280-25094-3	N	26-Jan-2012	1400	SW9060
PAFB03-MW03-N-012612MS	PAFB03-MW03	280-25094-3MS	MS	26-Jan-2012	1400	E300
PAFB03-MW03-N-012612MS	PAFB03-MW03	280-25094-3MS	MS	26-Jan-2012	1400	SW6010B
PAFB03-MW03-N-012612MS	PAFB03-MW03	280-25094-3MS	MS	26-Jan-2012	1400	SW6020
PAFB03-MW03-N-012612MS	PAFB03-MW03	280-25094-3MS	MS	26-Jan-2012	1400	SW8260B
PAFB03-MW03-N-012612MS	PAFB03-MW03	280-25094-3MS	MS	26-Jan-2012	1400	SW9060
PAFB03-MW03-N-012612SD	PAFB03-MW03	280-25094-3SD	SD	26-Jan-2012	1400	E300
PAFB03-MW03-N-012612SD	PAFB03-MW03	280-25094-3SD	SD	26-Jan-2012	1400	SW6010B
PAFB03-MW03-N-012612SD	PAFB03-MW03	280-25094-3SD	SD	26-Jan-2012	1400	SW6020
PAFB03-MW03-N-012612SD	PAFB03-MW03	280-25094-3SD	SD	26-Jan-2012	1400	SW8260B
PAFB03-MW03-N-012612SD	PAFB03-MW03	280-25094-3SD	SD	26-Jan-2012	1400	SW9060
PAFB03-MW04-N-012612	PAFB03-MW04	280-25094-4	N	26-Jan-2012	1305	A2320
PAFB03-MW04-N-012612	PAFB03-MW04	280-25094-4	N	26-Jan-2012	1305	E300
PAFB03-MW04-N-012612	PAFB03-MW04	280-25094-4	N	26-Jan-2012	1305	SW6010B
PAFB03-MW04-N-012612	PAFB03-MW04	280-25094-4	N	26-Jan-2012	1305	SW6020
PAFB03-MW04-N-012612	PAFB03-MW04	280-25094-4	N	26-Jan-2012	1305	SW8260B
PAFB03-MW04-N-012612	PAFB03-MW04	280-25094-4	N	26-Jan-2012	1305	SW9060
PAFB03-MW04-N-012612MS	PAFB03-MW04	280-25094-4MS	MS	26-Jan-2012	1305	E300
PAFB03-MW04-N-012612MS	PAFB03-MW04	280-25094-4MS	MS	26-Jan-2012	1305	SW6010B
PAFB03-MW04-N-012612MS	PAFB03-MW04	280-25094-4MS	MS	26-Jan-2012	1305	SW6020
PAFB03-MW04-N-012612MS	PAFB03-MW04	280-25094-4MS	MS	26-Jan-2012	1305	SW8260B
PAFB03-MW04-N-012612MS	PAFB03-MW04	280-25094-4MS	MS	26-Jan-2012	1305	SW9060
PAFB03-MW04-N-012612SD	PAFB03-MW04	280-25094-4SD	SD	26-Jan-2012	1305	E300
PAFB03-MW04-N-012612SD	PAFB03-MW04	280-25094-4SD	SD	26-Jan-2012	1305	SW6010B
PAFB03-MW04-N-012612SD	PAFB03-MW04	280-25094-4SD	SD	26-Jan-2012	1305	SW6020

TABLE 1
SAMPLES COLLECTED
Peterson Air Force Base, January 2012
Fourth Collection Quarter
TestAmerica Laboratories Inc., Denver, CO

Field ID	Location	Lab ID	Sample Type	Date & Time Collected		Analytical Method
PAFB03-MW04-N-012612SD	PAFB03-MW04	280-25094-4SD	SD	26-Jan-2012	1305	SW8260B
PAFB03-MW04-N-012612SD	PAFB03-MW04	280-25094-4SD	SD	26-Jan-2012	1305	SW9060
PAFB03-MW05-N-012612	PAFB03-MW05	280-25094-5	N	26-Jan-2012	1145	A2320
PAFB03-MW05-N-012612	PAFB03-MW05	280-25094-5	N	26-Jan-2012	1145	E300
PAFB03-MW05-N-012612	PAFB03-MW05	280-25094-5	N	26-Jan-2012	1145	SW6010B
PAFB03-MW05-N-012612	PAFB03-MW05	280-25094-5	N	26-Jan-2012	1145	SW6020
PAFB03-MW05-N-012612	PAFB03-MW05	280-25094-5	N	26-Jan-2012	1145	SW8260B
PAFB03-MW05-N-012612	PAFB03-MW05	280-25094-5	N	26-Jan-2012	1145	SW9060
PAFB03-MW05-FD-012612FD	PAFB03-MW05	280-25094-6FD	FD	26-Jan-2012	1145	A2320
PAFB03-MW05-FD-012612FD	PAFB03-MW05	280-25094-6FD	FD	26-Jan-2012	1145	E300
PAFB03-MW05-FD-012612FD	PAFB03-MW05	280-25094-6FD	FD	26-Jan-2012	1145	SW6010B
PAFB03-MW05-FD-012612FD	PAFB03-MW05	280-25094-6FD	FD	26-Jan-2012	1145	SW6020
PAFB03-MW05-FD-012612FD	PAFB03-MW05	280-25094-6FD	FD	26-Jan-2012	1145	SW8260B
PAFB03-MW05-FD-012612FD	PAFB03-MW05	280-25094-6FD	FD	26-Jan-2012	1145	SW9060
PAFB03-MW06-N-012612	PAFB03-MW06	280-25094-7	N	26-Jan-2012	1100	A2320
PAFB03-MW06-N-012612	PAFB03-MW06	280-25094-7	N	26-Jan-2012	1100	E300
PAFB03-MW06-N-012612	PAFB03-MW06	280-25094-7	N	26-Jan-2012	1100	SW6010B
PAFB03-MW06-N-012612	PAFB03-MW06	280-25094-7	N	26-Jan-2012	1100	SW6020
PAFB03-MW06-N-012612	PAFB03-MW06	280-25094-7	N	26-Jan-2012	1100	SW8260B
PAFB03-MW06-N-012612	PAFB03-MW06	280-25094-7	N	26-Jan-2012	1100	SW9060
PAFB07-MW01-N-012712	PAFB07-MW01	280-25094-8	N	27-Jan-2012	1145	SW6010B
PAFB07-MW03-N-012712	PAFB07-MW03	280-25094-9	N	27-Jan-2012	1130	SW6010B
PAFB07-MW03-FD-012712FD	PAFB07-MW03	280-25094-10FD	FD	27-Jan-2012	1130	SW6010B

FD = Field duplicate
N = Normal investigative sample
MS = Matrix spike
SD = MS Duplicate

Table 2
Field Duplicate Sample Pair Results

Parent Field ID (Lab ID)	FD Field ID (Lab ID)	Method	Target	Parent Result	FD Result	Units	RL	RPD (%)
PAFB03-MW05-N-012612 280-25094-5	PAFB03-MW05-FD-012612 280-25094-6	A2320	Alkalinity, Bicarbonate	460	460	mg/L	-	0
		E300	Chloride	42	43	mg/L	3	2
		E300	Nitrate as Nitrogen	7.1	7.1	mg/L	0.5	0
		E300	Sulfate (as SO4)	25	25	mg/L	5	0
		SW6010B	Barium (Diss)	140	140	µg/L	50	0
		SW6010B	Calcium (Diss)	140000	140000	µg/L	1100	0
		SW6010B	Magnesium (Diss)	20000	21000	µg/L	1000	5
		SW6010B	Nickel (Diss)	2.1 J	2.5 J	µg/L	20	na
		SW6010B	Potassium (Diss)	2600	3000	µg/L	1000	14
		SW6010B	Sodium (Diss)	46000	47000	µg/L	1000	2
		SW6010B	Zinc (Diss)	4.8 J	4.9 J	µg/L	20	na
		SW6010B	Arsenic	10 J	16 J	µg/L	30	na
		SW6010B	Barium	330	360	µg/L	50	9
		SW6010B	Beryllium	1.4 J	1.7 J	µg/L	4	na
		SW6010B	Calcium	150000	150000	µg/L	1100	0
		SW6010B	Chromium	32	37	µg/L	10	14
		SW6010B	Cobalt	13 J	15 J	µg/L	60	na
		SW6010B	Copper	22	26	µg/L	10	17
		SW6010B	Lead	26	28	µg/L	25	7
		SW6010B	Magnesium	27000	27000	µg/L	1000	0
		SW6010B	Nickel	20	24	µg/L	20	18
		SW6010B	Potassium	6400	7200	µg/L	1000	12
		SW6010B	Sodium	47000	46000	µg/L	1000	2
		SW6010B	Vanadium	52	62	µg/L	10	18
		SW6010B	Zinc	100	110	µg/L	20	10
		SW6020	Cadmium (Diss)	U	0.17 J	µg/L	2	na
		SW6020	Selenium (Diss)	1.5 J	1.4 J	µg/L	2	na
		SW6020	Thallium (Diss)	0.046 J	0.046 J	µg/L	0.2	na
		SW6020	Antimony	U	0.25 J	µg/L	1	na

Table 2
Field Duplicate Sample Pair Results

Parent Field ID (Lab ID)	FD Field ID (Lab ID)	Method	Target	Parent Result	FD Result	Units	RL	RPD (%)
PAFB03-MW05-N-012612 280-25094-5 continued	PAFB03-MW05-FD-012612 280-25094-6 continued	SW6020	Cadmium	0.18 J	0.27 J	µg/L	2	na
		SW6020	Selenium	2	1.9 J	µg/L	2	na
		SW6020	Thallium	0.38	0.45	µg/L	0.2	17
		SW8260B	1,1,1-Trichloroethane	0.14 J	0.14 J	µg/L	1	na
		SW8260B	1,1,2-Trichloroethane	0.19 J	0.2 J	µg/L	1	na
		SW8260B	1,1-Dichloroethane	4	4.1	µg/L	1	2
		SW8260B	1,2-Dichloropropane	2.4	2.5	µg/L	1	4
		SW8260B	1,4-Dichlorobenzene	0.16 J	0.12 J	µg/L	0.5	na
		SW8260B	Chloroform	0.42	0.43	µg/L	0.3	2
		SW8260B	cis-1,2-Dichloroethylene	1.4	1.5	µg/L	1	7
		SW8260B	Dichloromethane	1.2 J	1.3 J	µg/L	2	na
		SW8260B	Tetrachloroethene	1.9	2	µg/L	1	5
		SW8260B	Trichloroethene (TCE)	0.79 J	0.83 J	µg/L	1	na
		SW9060	Total Organic Carbon	1.7	1.7	µg/L	1	0
PAFB07-MW03-N-012712 280-25094-9	PAFB07-MW03-FD-012712 280-25094-10	SW6010B	Lead	27	23	µg/L	9	16

Table 3
Qualified Data Summary

Field Sample ID	Laboratory ID	Test Method	Target Analyte	Result	Applied Flags	Units	Reason
PAFB03-MW01-N-012712	280-25094-1	SW8260B	Dichloromethane	0.42	UB	µg/L	Laboratory Method Blank Detection
PAFB03-MW02-N-012612	280-25094-2	SW8260B	Dichloromethane	0.45	UB	µg/L	
PAFB03-MW03-N-012612	280-25094-3	SW8260B	Dichloromethane	0.42	UB	µg/L	
PAFB03-MW04-N-012612	280-25094-4	SW8260B	Dichloromethane	0.47	UB	µg/L	
PAFB03-MW05-N-012612	280-25094-5	SW8260B	Dichloromethane	1.2	UB	µg/L	
PAFB03-MW05-FD-012612FD	280-25094-6FD	SW8260B	Dichloromethane	1.3	UB	µg/L	
PAFB03-MW06-N-012612	280-25094-7	SW8260B	Dichloromethane	0.47	UB	µg/L	
PAFB03-MW01-N-012712	280-25094-1	SW6020	Antimony (Diss)	0.28	UB	µg/L	Instrument Blank Detections
PAFB03-MW02-N-012612	280-25094-2	SW6020	Antimony (Diss)	0.2	UB	µg/L	
PAFB03-MW03-N-012612	280-25094-3	SW6020	Antimony (Diss)	0.39	UB	µg/L	
PAFB03-MW04-N-012612	280-25094-4	SW6020	Antimony (Diss)	0.27	UB	µg/L	
PAFB03-MW06-N-012612	280-25094-7	SW6020	Antimony (Diss)	0.94	J	µg/L	Less than RL
PAFB03-MW01-N-012712	280-25094-1	SW6020	Antimony (Tot)	0.48	M	µg/L	Low MS / MSD Recoveries
PAFB03-MW02-N-012612	280-25094-2	SW6020	Antimony (Tot)	0.2	M	µg/L	
PAFB03-MW03-N-012612	280-25094-3	SW6020	Antimony (Tot)	0.42	M	µg/L	
PAFB03-MW04-N-012612	280-25094-4	SW6020	Antimony (Tot)	U	M	µg/L	
PAFB03-MW05-N-012612	280-25094-5	SW6020	Antimony (Tot)	U	M	µg/L	
PAFB03-MW05-FD-012612FD	280-25094-6FD	SW6020	Antimony (Tot)	0.25	M	µg/L	
PAFB03-MW06-N-012612	280-25094-7	SW6020	Antimony (Tot)	0.64	M	µg/L	
PAFB03-MW04-N-012612	280-25094-4	SW6020	Cadmium (Diss)	0.043	UB	µg/L	Instrument Blank Detections
PAFB03-MW05-FD-012612FD	280-25094-6FD	SW6020	Cadmium (Diss)	0.17	UB	µg/L	
PAFB03-MW05-N-012612	280-25094-5	SW6020	Cadmium (Tot)	0.18	UB	µg/L	
PAFB03-MW05-FD-012612FD	280-25094-6FD	SW6020	Cadmium (Tot)	0.27	UB	µg/L	
PAFB03-MW01-N-012712	280-25094-1	SW6020	Thallium (Diss)	0.059	UB	µg/L	Instrument and Method Blank Detections
PAFB03-MW03-N-012612	280-25094-3	SW6020	Thallium (Diss)	0.034	UB	µg/L	
PAFB03-MW05-N-012612	280-25094-5	SW6020	Thallium (Diss)	0.046	UB	µg/L	
PAFB03-MW05-FD-012612FD	280-25094-6FD	SW6020	Thallium (Diss)	0.046	UB	µg/L	
PAFB03-MW06-N-012612	280-25094-7	SW6020	Thallium (Diss)	0.037	UB	µg/L	
PAFB03-MW03-N-012612	280-25094-3	SW6020	Thallium (Tot)	0.16	UB	µg/L	
PAFB03-MW04-N-012612	280-25094-4	SW6020	Thallium (Tot)	0.19	UB	µg/L	
PAFB03-MW03-N-012612	280-25094-3	SW6010B	Nickel (Tot)	8.9	UB	µg/L	Method Blank Detections
PAFB03-MW04-N-012612	280-25094-4	SW6010B	Nickel (Tot)	9.4	UB	µg/L	

Client: AECOM Technical Services Inc. Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW01-N-012712**

Lab Sample ID: 280-25094-1 Date Sampled: 01/27/2012 1040
Client Matrix: Water Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2568.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1024			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1024				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.053	U	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.13	U	0.13	1.0
1,1-Dichloroethane	0.057	U	0.057	1.0
1,1-Dichloroethylene	0.075	U	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	0.078	U	0.078	1.0
1,4-Dichlorobenzene	0.12	U	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.052	U	0.052	0.30
Chloromethane	0.083	U	0.083	1.0
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	0.42	F UB	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	0.14	U	0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.11	F	0.10	1.0
Trichlorofluoromethane	0.067	U	0.067	1.0

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Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW01-N-012712**

Lab Sample ID: 280-25094-1
Client Matrix: Water

Date Sampled: 01/27/2012 1040
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2568.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1024			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1024				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	106		81 - 120
Dibromofluoromethane (Surr)	98		85 - 115
4-Bromofluorobenzene (Surr)	102		76 - 119
1,2-Dichloroethane-d4 (Surr)	91		72 - 119

KMP
3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW02-N-012612**

Lab Sample ID: 280-25094-2
Client Matrix: Water

Date Sampled: 01/26/2012 1240
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2569.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1045			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1045				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.43	F	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.13	U	0.13	1.0
1,1-Dichloroethane	0.057	U	0.057	1.0
1,1-Dichloroethylene	0.88	F	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	0.078	U	0.078	1.0
1,4-Dichlorobenzene	0.12	U	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.052	U	0.052	0.30
Chloromethane	0.083	U	0.083	1.0
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	0.45	F UB	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	0.16	F	0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.10	U	0.10	1.0
Trichlorofluoromethane	0.54	F	0.067	1.0

Kelly 3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW02-N-012612**

Lab Sample ID: 280-25094-2
Client Matrix: Water

Date Sampled: 01/26/2012 1240
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2569.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1045			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1045				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	107		81 - 120
Dibromofluoromethane (Surr)	100		85 - 115
4-Bromofluorobenzene (Surr)	103		76 - 119
1,2-Dichloroethane-d4 (Surr)	95		72 - 119

3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW03-N-012612**

Lab Sample ID: 280-25094-3
Client Matrix: Water

Date Sampled: 01/26/2012 1400
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2570.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1105			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1105				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.053	U	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.13	U	0.13	1.0
1,1-Dichloroethane	0.057	U	0.057	1.0
1,1-Dichloroethylene	0.075	U m	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	0.078	U	0.078	1.0
1,4-Dichlorobenzene	0.12	U	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U m	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.052	U	0.052	0.30
Chloromethane	0.083	U	0.083	1.0
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	0.42	F UB	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	0.14	U	0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.10	U	0.10	1.0
Trichlorofluoromethane	0.067	U	0.067	1.0

KMH 3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW03-N-012612**

Lab Sample ID: 280-25094-3
Client Matrix: Water

Date Sampled: 01/26/2012 1400
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2570.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1105			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1105				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	103		81 - 120
Dibromofluoromethane (Surr)	97		85 - 115
4-Bromofluorobenzene (Surr)	104		76 - 119
1,2-Dichloroethane-d4 (Surr)	91		72 - 119

KHH 3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW04-N-012612**

Lab Sample ID: 280-25094-4
Client Matrix: Water

Date Sampled: 01/26/2012 1305
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2573.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1208			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1208				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.083	F	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.13	U	0.13	1.0
1,1-Dichloroethane	0.057	U	0.057	1.0
1,1-Dichloroethylene	0.075	U	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	0.078	U	0.078	1.0
1,4-Dichlorobenzene	0.12	U	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.052	U	0.052	0.30
Chloromethane	0.083	U	0.083	1.0
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	0.47	F UB	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	0.25	F	0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.10	U	0.10	1.0
Trichlorofluoromethane	0.067	U	0.067	1.0

KLL 3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW04-N-012612**

Lab Sample ID: 280-25094-4
Client Matrix: Water

Date Sampled: 01/26/2012 1305
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2573.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1208			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1208				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	108		81 - 120
Dibromofluoromethane (Surr)	101		85 - 115
4-Bromofluorobenzene (Surr)	105		76 - 119
1,2-Dichloroethane-d4 (Surr)	95		72 - 119

KHL 3/9/12

Client: AECOM Technical Services Inc. Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-N-012612**

Lab Sample ID: 280-25094-5 Date Sampled: 01/26/2012 1145
Client Matrix: Water Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2576.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1312			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1312				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.14	F	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.19	F	0.13	1.0
1,1-Dichloroethane	4.0		0.057	1.0
1,1-Dichloroethylene	0.075	U	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	2.4		0.078	1.0
1,4-Dichlorobenzene	0.16	F	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.42		0.052	0.30
Chloromethane	0.083	U	0.083	1.0
cis-1,2-Dichloroethylene	1.4		0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	1.2	F UB	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	1.9		0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.79	F	0.10	1.0
Trichlorofluoromethane	0.067	U	0.067	1.0

KAPE 3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-N-012612**

Lab Sample ID: 280-25094-5
Client Matrix: Water

Date Sampled: 01/26/2012 1145
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2576.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1312			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1312				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	104		81 - 120
Dibromofluoromethane (Surr)	95		85 - 115
4-Bromofluorobenzene (Surr)	97		76 - 119
1,2-Dichloroethane-d4 (Surr)	89		72 - 119

KAL
3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-FD-012612**

Lab Sample ID: 280-25094-6FD
Client Matrix: Water

Date Sampled: 01/26/2012 1145
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2577.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1333			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1333				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.14	F	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.20	F	0.13	1.0
1,1-Dichloroethane	4.1		0.057	1.0
1,1-Dichloroethylene	0.075	U	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	2.5		0.078	1.0
1,4-Dichlorobenzene	0.12	F	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.43		0.052	0.30
Chloromethane	0.083	U	0.083	1.0
cis-1,2-Dichloroethylene	1.5		0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	1.3	F UB	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	2.0		0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.83	F	0.10	1.0
Trichlorofluoromethane	0.067	U	0.067	1.0

KMM 3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-FD-012612**

Lab Sample ID: 280-25094-6FD

Client Matrix: Water

Date Sampled: 01/26/2012 1145

Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2577.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1333			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1333				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	110		81 - 120
Dibromofluoromethane (Surr)	100		85 - 115
4-Bromofluorobenzene (Surr)	103		76 - 119
1,2-Dichloroethane-d4 (Surr)	93		72 - 119

KMM 3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW06-N-012612**

Lab Sample ID: 280-25094-7
Client Matrix: Water

Date Sampled: 01/26/2012 1100
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2560.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 0733			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 0733				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.053	U	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.13	U	0.13	1.0
1,1-Dichloroethane	0.66	F	0.057	1.0
1,1-Dichloroethylene	0.075	U	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	0.078	U	0.078	1.0
1,4-Dichlorobenzene	0.12	U	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	61		1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.052	U	0.052	0.30
Chloromethane	0.083	U	0.083	1.0
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	0.47	F UB	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	0.14	U	0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.10	U	0.10	1.0
Trichlorofluoromethane	0.067	U	0.067	1.0

3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW06-N-012612**

Lab Sample ID: 280-25094-7
Client Matrix: Water

Date Sampled: 01/26/2012 1100
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2560.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 0733			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 0733				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	105		81 - 120
Dibromofluoromethane (Surr)	95		85 - 115
4-Bromofluorobenzene (Surr)	99		76 - 119
1,2-Dichloroethane-d4 (Surr)	88		72 - 119

KHH 3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW01-N-012712**

Lab Sample ID: 280-25094-1
Client Matrix: Water

Date Sampled: 01/27/2012 1040
Date Received: 01/27/2012 1500

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-106113	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-105528	Lab File ID:	25A020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1406			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	16	F	4.4	30
Barium	350		0.58	50
Beryllium	1.9	F	0.47	4.0
Calcium	85000		35	1100
Chromium	63	Q	0.66	10
Cobalt	14	F	1.2	60
Copper	34	Q	1.4	10
Lead	36		2.6	25
Magnesium	24000		11	1000
Nickel	38		1.3	20
Potassium	7000		240	1000
Silver	0.93	U	0.93	10
Sodium	24000		92	1000
Vanadium	85		1.1	10
Zinc	150		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-106115	Instrument ID:	MT_025
Prep Method:	3005A	Prep Batch:	280-105545	Lab File ID:	25B020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1506			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Barium	61		0.58	50
Beryllium	0.47	U	0.47	4.0
Calcium	65000		35	1100
Chromium	0.66	U Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	9500		11	1000
Nickel	1.6	F	1.3	20
Potassium	1700		240	1000
Silver	0.93	U	0.93	10
Sodium	25000		92	1000
Vanadium	1.1	U	1.1	10
Zinc	4.5	U	4.5	20

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KHL

6020 Metals (ICP/MS)

Client: AECOM Technical Services Inc. Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW01-N-012712**

Lab Sample ID: 280-25094-1 Date Sampled: 01/27/2012 1040
Client Matrix: Water Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	077SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 1955			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.48 ~~UB~~ M	F	0.20	1.0
Selenium	2.0		0.70	2.0
Thallium	0.38		0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-106867	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	071SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/08/2012 1616			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.040	U Q	0.040	2.0

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	124SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2014			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

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Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.28 UB	F	0.20	1.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	058SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 1902			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Selenium	1.5	F	0.70	2.0
Thallium	0.059 UB	F	0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-106867	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	040SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/08/2012 1449			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW01-N-012712**

Lab Sample ID: 280-25094-1

Client Matrix: Water

Date Sampled: 01/27/2012 1040

Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.050	F Q	0.040	2.0

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KMM

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW02-N-012612**

Lab Sample ID: 280-25094-2
Client Matrix: Water

Date Sampled: 01/26/2012 1240
Date Received: 01/27/2012 1500

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-106113	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-105528	Lab File ID:	25A020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1409			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	9.2	F	4.4	30
Barium	220		0.58	50
Beryllium	1.3	F	0.47	4.0
Calcium	59000		35	1100
Chromium	16	Q	0.66	10
Cobalt	6.6	F	1.2	60
Copper	14	Q	1.4	10
Lead	21	F	2.6	25
Magnesium	12000		11	1000
Nickel	16	F	1.3	20
Potassium	4100		240	1000
Silver	0.93	U	0.93	10
Sodium	46000		92	1000
Vanadium	36		1.1	10
Zinc	85		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-106115	Instrument ID:	MT_025
Prep Method:	3005A	Prep Batch:	280-105545	Lab File ID:	25B020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1508			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

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Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Barium	21	F	0.58	50
Beryllium	0.47	U	0.47	4.0
Calcium	53000		35	1100
Chromium	1.7	F Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	8900		11	1000
Nickel	1.3	U	1.3	20
Potassium	1500		240	1000
Silver	0.93	U	0.93	10
Sodium	48000		92	1000
Vanadium	1.1	U	1.1	10
Zinc	4.5	U	4.5	20

6020 Metals (ICP/MS)

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW02-N-012612**

Lab Sample ID: 280-25094-2
Client Matrix: Water

Date Sampled: 01/26/2012 1240
Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	078SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 1958			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.20 M	F	0.20	1.0
Selenium	1.9	F	0.70	2.0
Thallium	0.36		0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-106867	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	061SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/08/2012 1548			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.24 ~~UB~~ KMM	F Q	0.040	2.0

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	125SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2017			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

3/15/12

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.20 UB	F	0.20	1.0

KMM

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	059SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 1905			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Selenium	1.7	F	0.70	2.0
Thallium	0.033	U	0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-106867	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	041SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/08/2012 1451			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW02-N-012612**

Lab Sample ID: 280-25094-2

Client Matrix: Water

Date Sampled: 01/26/2012 1240

Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.072 ~~UB~~ KPL	F Q	0.040	2.0

3/15/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW03-N-012612**

Lab Sample ID: 280-25094-3
Client Matrix: Water

Date Sampled: 01/26/2012 1400
Date Received: 01/27/2012 1500

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-106113	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-105528	Lab File ID:	25A020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1339			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Barium	160		0.58	50
Beryllium	0.47	U	0.47	4.0
Calcium	150000		35	1100
Chromium	8.8	F Q	0.66	10
Cobalt	3.5	F	1.2	60
Copper	6.7	F Q	1.4	10
Lead	6.1	F	2.6	25
Magnesium	24000		11	1000
Nickel	8.9 UB	F	1.3	20
Potassium	4300		240	1000
Silver	0.93	U	0.93	10
Sodium	74000		92	1000
Vanadium	15		1.1	10
Zinc	33		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-106115	Instrument ID:	MT_025
Prep Method:	3005A	Prep Batch:	280-105545	Lab File ID:	25B020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1439			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

3/15/12
KAP

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Barium	99		0.58	50
Beryllium	0.47	U	0.47	4.0
Calcium	150000		35	1100
Chromium	0.89	F Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	22000		11	1000
Nickel	2.5	F	1.3	20
Potassium	3100		240	1000
Silver	0.93	U	0.93	10
Sodium	74000		92	1000
Vanadium	1.7	F	1.1	10
Zinc	4.5	U	4.5	20

6020 Metals (ICP/MS)

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW03-N-012612**

Lab Sample ID: 280-25094-3
Client Matrix: Water

Date Sampled: 01/26/2012 1400
Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	079SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 2001			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.42 M	F m	0.20	1.0
Selenium	6.1		0.70	2.0
Thallium	0.16 UB	F	0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-106867	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	064SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/08/2012 1557			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.18 ~~UB~~	F Q	0.040	2.0

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	126SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2019			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

3/15/12

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.39 UB	F	0.20	1.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	060SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 1907			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Selenium	5.3		0.70	2.0
Thallium	0.034 UB	F	0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-106867	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	042SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/08/2012 1454			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW03-N-012612**

Lab Sample ID: 280-25094-3

Client Matrix: Water

Date Sampled: 01/26/2012 1400

Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.040	U Q	0.040	2.0

3/15/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW04-N-012612**

Lab Sample ID: 280-25094-4
Client Matrix: Water

Date Sampled: 01/26/2012 1305
Date Received: 01/27/2012 1500

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-106113	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-105528	Lab File ID:	25A020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1350			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	7.1	F	4.4	30
Barium	210		0.58	50
Beryllium	0.63	F	0.47	4.0
Calcium	93000		35	1100
Chromium	15	Q	0.66	10
Cobalt	3.1	F	1.2	60
Copper	11	Q	1.4	10
Lead	10	F	2.6	25
Magnesium	17000		11	1000
Nickel	9.4 UB	F	1.3	20
Potassium	4500		240	1000
Silver	0.93	U	0.93	10
Sodium	38000		92	1000
Vanadium	27		1.1	10
Zinc	50		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-106115	Instrument ID:	MT_025
Prep Method:	3005A	Prep Batch:	280-105545	Lab File ID:	25B020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1450			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

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Keep

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Barium	100		0.58	50
Beryllium	0.47	U	0.47	4.0
Calcium	87000		35	1100
Chromium	0.66	U Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	13000		11	1000
Nickel	1.3	U	1.3	20
Potassium	2100		240	1000
Silver	0.93	U	0.93	10
Sodium	38000		92	1000
Vanadium	1.1	U	1.1	10
Zinc	4.5	U	4.5	20

6020 Metals (ICP/MS)

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW04-N-012612**

Lab Sample ID: 280-25094-4
Client Matrix: Water

Date Sampled: 01/26/2012 1305
Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	152SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2133			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.040	U Q	0.040	2.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	086SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 2021			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.20 M	U m	0.20	1.0
Selenium	0.70	U	0.70	2.0
Thallium	0.19 UB	F	0.033	0.20

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	133SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2039			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

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Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.27 UB	F	0.20	1.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	067SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 1927			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Selenium	0.70	U	0.70	2.0
Thallium	0.033	U	0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-107056	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	038SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/09/2012 1652			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW04-N-012612**

Lab Sample ID: 280-25094-4

Client Matrix: Water

Date Sampled: 01/26/2012 1305

Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.043 UB	F Q	0.040	2.0

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KMK

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-N-012612**

Lab Sample ID: 280-25094-5
Client Matrix: Water

Date Sampled: 01/26/2012 1145
Date Received: 01/27/2012 1500

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-106113	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-105528	Lab File ID:	25A020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1411			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	10	F	4.4	30
Barium	330		0.58	50
Beryllium	1.4	F	0.47	4.0
Calcium	150000		35	1100
Chromium	32	Q	0.66	10
Cobalt	13	F	1.2	60
Copper	22	Q	1.4	10
Lead	26		2.6	25
Magnesium	27000		11	1000
Nickel	20		1.3	20
Potassium	6400		240	1000
Silver	0.93	U	0.93	10
Sodium	47000		92	1000
Vanadium	52		1.1	10
Zinc	100		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-106115	Instrument ID:	MT_025
Prep Method:	3005A	Prep Batch:	280-105545	Lab File ID:	25B020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1511			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

3/15/12
KMP

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Barium	140		0.58	50
Beryllium	0.47	U	0.47	4.0
Calcium	140000		35	1100
Chromium	0.66	U Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	20000		11	1000
Nickel	2.1	F	1.3	20
Potassium	2600		240	1000
Silver	0.93	U	0.93	10
Sodium	46000		92	1000
Vanadium	1.1	U	1.1	10
Zinc	4.8	F	4.5	20

6020 Metals (ICP/MS)

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-N-012612**

Lab Sample ID: 280-25094-5
Client Matrix: Water

Date Sampled: 01/26/2012 1145
Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	155SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2142			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.18 UB	F Q	0.040	2.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	089SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 2029			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.20 M	U	0.20	1.0
Selenium	2.0		0.70	2.0
Thallium	0.38		0.033	0.20

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	136SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2048			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

3/15/12 KMP

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.20 UB KMP	U	0.20	1.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	070SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 1936			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Selenium	1.5	F	0.70	2.0
Thallium	0.046 UB	F	0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-106867	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	053SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/08/2012 1525			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-N-012612**

Lab Sample ID: 280-25094-5

Client Matrix: Water

Date Sampled: 01/26/2012 1145

Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.040	U Q	0.040	2.0

3/15/12

Client: AECOM Technical Services Inc. Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-FD-012612**

Lab Sample ID: 280-25094-6FD Date Sampled: 01/26/2012 1145
Client Matrix: Water Date Received: 01/27/2012 1500

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-106113	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-105528	Lab File ID:	25A020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1413			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	16	F	4.4	30
Barium	360		0.58	50
Beryllium	1.7	F	0.47	4.0
Calcium	150000		35	1100
Chromium	37	Q	0.66	10
Cobalt	15	F	1.2	60
Copper	26	Q	1.4	10
Lead	28		2.6	25
Magnesium	27000		11	1000
Nickel	24		1.3	20
Potassium	7200		240	1000
Silver	0.93	U	0.93	10
Sodium	46000		92	1000
Vanadium	62		1.1	10
Zinc	110		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-106115	Instrument ID:	MT_025
Prep Method:	3005A	Prep Batch:	280-105545	Lab File ID:	25B020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1513			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

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[illegible]

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Barium	140		0.58	50
Beryllium	0.47	U	0.47	4.0
Calcium	140000		35	1100
Chromium	0.66	U Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	21000		11	1000
Nickel	2.5	F	1.3	20
Potassium	3000		240	1000
Silver	0.93	U	0.93	10
Sodium	47000		92	1000
Vanadium	1.1	U	1.1	10
Zinc	4.9	F	4.5	20

6020 Metals (ICP/MS)

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-FD-012612**

Lab Sample ID: 280-25094-6FD
Client Matrix: Water

Date Sampled: 01/26/2012 1145
Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	156SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2144			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.27 UB	F Q	0.040	2.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	090SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 2032			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.25 M	F	0.20	1.0
Selenium	1.9	F	0.70	2.0
Thallium	0.45		0.033	0.20

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	137SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2051			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

3/15/12

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.20	U	0.20	1.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	071SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 1938			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Selenium	1.4	F	0.70	2.0
Thallium	0.046 UB	F	0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-107056	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	039SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/09/2012 1655			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-FD-012612**

Lab Sample ID: 280-25094-6FD

Client Matrix: Water

Date Sampled: 01/26/2012 1145

Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.17 UB	F Q	0.040	2.0

3/15/12
KMH

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW06-N-012612**

Lab Sample ID: 280-25094-7
Client Matrix: Water

Date Sampled: 01/26/2012 1100
Date Received: 01/27/2012 1500

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-106113	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-105528	Lab File ID:	25A020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1416			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	16	F	4.4	30
Barium	280		0.58	50
Beryllium	0.94	F	0.47	4.0
Calcium	140000		35	1100
Chromium	62	Q	0.66	10
Cobalt	9.8	F	1.2	60
Copper	33	Q	1.4	10
Lead	19	F	2.6	25
Magnesium	30000		11	1000
Nickel	29		1.3	20
Potassium	7700		240	1000
Silver	0.93	U	0.93	10
Sodium	100000		92	1000
Vanadium	58		1.1	10
Zinc	100		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-106115	Instrument ID:	MT_025
Prep Method:	3005A	Prep Batch:	280-105545	Lab File ID:	25B020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1515			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

3/15/12

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Barium	51		0.58	50
Beryllium	0.47	U	0.47	4.0
Calcium	120000		35	1100
Chromium	0.66	U Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	21000		11	1000
Nickel	5.0	F	1.3	20
Potassium	3900		240	1000
Silver	0.93	U	0.93	10
Sodium	100000		92	1000
Vanadium	1.1	U	1.1	10
Zinc	4.9	F	4.5	20

6020 Metals (ICP/MS)

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW06-N-012612**

Lab Sample ID: 280-25094-7
Client Matrix: Water

Date Sampled: 01/26/2012 1100
Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	157SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2147			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.90	F Q	0.040	2.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	091SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 2035			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.64 M	F	0.20	1.0
Selenium	3.7		0.70	2.0
Thallium	0.33		0.033	0.20

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	138SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2053			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

3/15/12
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Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.94 J	F	0.20	1.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	072SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 1941			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Selenium	2.0		0.70	2.0
Thallium	0.037 UB	F	0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-106867	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	055SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/08/2012 1531			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW06-N-012612**

Lab Sample ID: 280-25094-7
Client Matrix: Water

Date Sampled: 01/26/2012 1100
Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.040	U Q	0.040	2.0

3/15/12
KMH

General Chemistry

Client Sample ID: **PAFB03-MW01-N-012712**

Lab Sample ID: 280-25094-1 Date Sampled: 01/27/2012 1040
Client Matrix: Water Date Received: 01/27/2012 1500

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	16		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 1940						
Nitrate as N	4.8		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 1940						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 1940						
Sulfate	23		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 1940						
Total Organic Carbon - Average	1.6		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-106942	Analysis Date: 02/08/2012 1954						
Bicarbonate Alkalinity as CaCO3	1100		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106300	Analysis Date: 02/02/2012 1833						
Carbonate Alkalinity as CaCO3	140		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106300	Analysis Date: 02/02/2012 1833						

3/9/12
KMH

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

General Chemistry

Client Sample ID: **PAFB03-MW02-N-012612**

Lab Sample ID: 280-25094-2

Client Matrix: Water

Date Sampled: 01/26/2012 1240

Date Received: 01/27/2012 1500

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	13		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 1956						
Nitrate as N	3.1		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 1956						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 1956						
Sulfate	29		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 1956						
Total Organic Carbon - Average	1.1		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-106942	Analysis Date: 02/08/2012 2011						
Bicarbonate Alkalinity as CaCO3	54		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1114						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1114						

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General Chemistry

Client Sample ID: **PAFB03-MW03-N-012612**

Lab Sample ID: 280-25094-3 Date Sampled: 01/26/2012 1400
Client Matrix: Water Date Received: 01/27/2012 1500

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	14		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 2012						
Nitrate as N	14		mg/L	0.21	2.5	5.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/28/2012 0303						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 2012						
Sulfate	17		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 2012						
Total Organic Carbon - Average	1.2		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-106942	Analysis Date: 02/08/2012 1859						
Bicarbonate Alkalinity as CaCO3	560		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1125						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1125						

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General Chemistry

Client Sample ID: **PAFB03-MW04-N-012612**

Lab Sample ID: 280-25094-4 Date Sampled: 01/26/2012 1305
Client Matrix: Water Date Received: 01/27/2012 1500

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	8.1		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 2147						
Nitrate as N	0.52		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 2147						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 2147						
Sulfate	12		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 2147						
Total Organic Carbon - Average	1.1		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-106942	Analysis Date: 02/08/2012 2029						
Bicarbonate Alkalinity as CaCO3	350		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1133						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1133						

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General Chemistry

Client Sample ID: **PAFB03-MW05-N-012612**

Lab Sample ID: 280-25094-5 Date Sampled: 01/26/2012 1145
Client Matrix: Water Date Received: 01/27/2012 1500

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	42		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 2250						
Nitrate as N	7.1		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 2250						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 2250						
Sulfate	25		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 2250						
Total Organic Carbon - Average	1.7		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-106942	Analysis Date: 02/08/2012 2122						
Bicarbonate Alkalinity as CaCO3	460		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1200						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1200						

3/9/12
Keep

General Chemistry

Client Sample ID: **PAFB03-MW05-FD-012612**

Lab Sample ID: 280-25094-6FD
Client Matrix: Water

Date Sampled: 01/26/2012 1145
Date Received: 01/27/2012 1500

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	43		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 2306						
Nitrate as N	7.1		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 2306						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 2306						
Sulfate	25		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 2306						
Total Organic Carbon - Average	1.7		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-106942	Analysis Date: 02/08/2012 2140						
Bicarbonate Alkalinity as CaCO3	460		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1209						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1209						

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General Chemistry

Client Sample ID: **PAFB03-MW06-N-012612**

Lab Sample ID: 280-25094-7 Date Sampled: 01/26/2012 1100
Client Matrix: Water Date Received: 01/27/2012 1500

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	26		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 2321						
Nitrate as N	4.6		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 2321						
Nitrite as N	0.57		mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 2321						
Sulfate	160		mg/L	1.2	25	5.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/28/2012 0509						
Total Organic Carbon - Average	2.4		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-106942	Analysis Date: 02/08/2012 2231						
Bicarbonate Alkalinity as CaCO3	450		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1218						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1218						

3/9/12
KMM

DATA COMPLIANCE CHECK - TECHNICAL REVIEW
AECOM Technical Services
Test America Laboratories Inc, Denver CO, SDGs 280-18532-1 and 280-18587 (QC set)
AFCEE - Peterson AFB 2nd Quarter Sampling 2011
Report date: 9/14/2011
Category 2 Review
Reviewers: Steve Szocik and Becki Sheridan

DATA VALIDATION SUMMARY:

Analytical quality was evaluated using the criteria specified in the Quality Assurance Project Plan (QAPP) Site Inspection Site 3 Peterson Air Force Base Colorado Springs, Colorado dated June 2008 and the Air Force Center for Environmental Excellence (AFCEE) Technical Services Quality Assurance Program, version 4.0.02, May 2006. Discussions of reviewed QC issues per method follow.

METHODS:

SW846 - 6020	Metals by Inductively Coupled Plasma – Mass Spectrometry (ICP-MS)
SW846 - 6010B	Metals by Inductively Coupled Plasma (ICP) Atomic Emission Spectrometry
SW846 - 8260B	Volatile Organic Compounds (VOCs) by Gas Chromatography (GC)/Mass Spectrometry (MS)
SM2320B	Alkalinity as Carbonate and Bicarbonate
MCAWW 300	Anions by Ion Chromatography
SW846 9060A	Total Organic Carbon (TOC) by Flame Ionization Detection

SW846 = Test Methods for Evaluating Solid Waste, Physical/Chemical Methods
MCAWW = Methods for Chemical Analysis of Waters and Wastes, Environmental Protection Agency
SM = Standard Methods of Analysis, 18th Edition

SAMPLE NUMBER: 280-18532 4 groundwater samples, 1 field duplicate (FD) and one trip blank.
280-18587 4 groundwater samples, 1 field duplicate (FD), 1 matrix spike (MS) and spike duplicate (MSD) and one trip blank.

SAMPLES, LABORATORY ID, ALIQUOT, and MATRIX:

Field ID	Location	280-18532 Lab ID	Sample Type	Date & Time Collected		Analytical Method
PAFB03-MW02-N-07272011	PAFB03-MW02	280-18532-1	N	27-Jul-2011	1320	A2320
PAFB03-MW02-N-07272011	PAFB03-MW02	280-18532-1	N	27-Jul-2011	1320	E300
PAFB03-MW02-N-07272011	PAFB03-MW02	280-18532-1	N	27-Jul-2011	1320	SW6010B
PAFB03-MW02-N-07272011	PAFB03-MW02	280-18532-1	N	27-Jul-2011	1320	SW6020
PAFB03-MW02-N-07272011	PAFB03-MW02	280-18532-1	N	27-Jul-2011	1320	SW8260B
PAFB03-MW02-N-07272011	PAFB03-MW02	280-18532-1	N	27-Jul-2011	1320	SW9060
PAFB03-MW05-N-07272011	PAFB03-MW05	280-18532-2	N	27-Jul-2011	1530	A2320
PAFB03-MW05-N-07272011	PAFB03-MW05	280-18532-2	N	27-Jul-2011	1530	E300
PAFB03-MW05-N-07272011	PAFB03-MW05	280-18532-2	N	27-Jul-2011	1530	SW6010B
PAFB03-MW05-N-07272011	PAFB03-MW05	280-18532-2	N	27-Jul-2011	1530	SW6020
PAFB03-MW05-N-07272011	PAFB03-MW05	280-18532-2	N	27-Jul-2011	1530	SW8260B
PAFB03-MW05-N-07272011	PAFB03-MW05	280-18532-2	N	27-Jul-2011	1530	SW9060
PAFB07-MW01-N-07272011	PAFB07-MW01	280-18532-3	N	27-Jul-2011	1220	SW6010B
PAFB07-MW03-N-07272011	PAFB07-MW03	280-18532-4	N	27-Jul-2011	1100	SW6010B
PAFB07-MW03-FD-07272011FD	PAFB07-MW03	280-18532-5	FD	27-Jul-2011	1100	SW6010B
PAFB-TRIP-TB-07272011	FIELDQC	280-18532-6	TB	27-Jul-2011	0000	SW8260B

Field ID	Location	280-18587 Lab ID	Sample Type	Date & Time Collected		Analytical Method
PAFB03-MW01-N-07282011	PAFB03-MW01	280-18587-1	N	28-Jul-2011	1300	A2320
PAFB03-MW01-N-07282011	PAFB03-MW01	280-18587-1	N	28-Jul-2011	1300	E300
PAFB03-MW01-N-07282011	PAFB03-MW01	280-18587-1	N	28-Jul-2011	1300	E300
PAFB03-MW01-N-07282011	PAFB03-MW01	280-18587-1	N	28-Jul-2011	1300	SW6010B
PAFB03-MW01-N-07282011	PAFB03-MW01	280-18587-1	N	28-Jul-2011	1300	SW6020
PAFB03-MW01-N-07282011	PAFB03-MW01	280-18587-1	N	28-Jul-2011	1300	SW8260B
PAFB03-MW01-N-07282011	PAFB03-MW01	280-18587-1	N	28-Jul-2011	1300	SW9060
PAFB03-MW01-FD-07282011FD	PAFB03-MW01	280-18587-2FD	FD	28-Jul-2011	1310	A2320
PAFB03-MW01-FD-07282011FD	PAFB03-MW01	280-18587-2FD	FD	28-Jul-2011	1310	E300
PAFB03-MW01-FD-07282011FD	PAFB03-MW01	280-18587-2FD	FD	28-Jul-2011	1310	E300
PAFB03-MW01-FD-07282011FD	PAFB03-MW01	280-18587-2FD	FD	28-Jul-2011	1310	SW6010B
PAFB03-MW01-FD-07282011FD	PAFB03-MW01	280-18587-2FD	FD	28-Jul-2011	1310	SW6020
PAFB03-MW01-FD-07282011FD	PAFB03-MW01	280-18587-2FD	FD	28-Jul-2011	1310	SW8260B
PAFB03-MW01-FD-07282011FD	PAFB03-MW01	280-18587-2FD	FD	28-Jul-2011	1310	SW9060
PAFB03-MW03-N-07282011	PAFB03-MW03	280-18587-3	N	28-Jul-2011	1500	A2320
PAFB03-MW03-N-07282011	PAFB03-MW03	280-18587-3	N	28-Jul-2011	1500	E300
PAFB03-MW03-N-07282011	PAFB03-MW03	280-18587-3	N	28-Jul-2011	1500	E300
PAFB03-MW03-N-07282011	PAFB03-MW03	280-18587-3	N	28-Jul-2011	1500	SW6010B
PAFB03-MW03-N-07282011	PAFB03-MW03	280-18587-3	N	28-Jul-2011	1500	SW6020
PAFB03-MW03-N-07282011	PAFB03-MW03	280-18587-3	N	28-Jul-2011	1500	SW8260B
PAFB03-MW03-N-07282011	PAFB03-MW03	280-18587-3	N	28-Jul-2011	1500	SW9060
PAFB03-MW04-N-07282011	PAFB03-MW04	280-18587-4	N	28-Jul-2011	1400	A2320
PAFB03-MW04-N-07282011	PAFB03-MW04	280-18587-4	N	28-Jul-2011	1400	E300
PAFB03-MW04-N-07282011	PAFB03-MW04	280-18587-4	N	28-Jul-2011	1400	E300
PAFB03-MW04-N-07282011	PAFB03-MW04	280-18587-4	N	28-Jul-2011	1400	SW6010B
PAFB03-MW04-N-07282011	PAFB03-MW04	280-18587-4	N	28-Jul-2011	1400	SW6020
PAFB03-MW04-N-07282011	PAFB03-MW04	280-18587-4	N	28-Jul-2011	1400	SW8260B
PAFB03-MW04-N-07282011	PAFB03-MW04	280-18587-4	N	28-Jul-2011	1400	SW9060
PAFB03-MW04-N-07282011MS	PAFB03-MW04	280-18587-4MS	MS	28-Jul-2011	1400	E300
PAFB03-MW04-N-07282011MS	PAFB03-MW04	280-18587-4MS	MS	28-Jul-2011	1400	E300
PAFB03-MW04-N-07282011MS	PAFB03-MW04	280-18587-4MS	MS	28-Jul-2011	1400	SW6010B
PAFB03-MW04-N-07282011MS	PAFB03-MW04	280-18587-4MS	MS	28-Jul-2011	1400	SW6020
PAFB03-MW04-N-07282011MS	PAFB03-MW04	280-18587-4MS	MS	28-Jul-2011	1400	SW8260B
PAFB03-MW04-N-07282011MS	PAFB03-MW04	280-18587-4MS	MS	28-Jul-2011	1400	SW9060
PAFB03-MW04-N-07282011SD	PAFB03-MW04	280-18587-4SD	SD	28-Jul-2011	1400	E300
PAFB03-MW04-N-07282011SD	PAFB03-MW04	280-18587-4SD	SD	28-Jul-2011	1400	E300
PAFB03-MW04-N-07282011SD	PAFB03-MW04	280-18587-4SD	SD	28-Jul-2011	1400	SW6010B
PAFB03-MW04-N-07282011SD	PAFB03-MW04	280-18587-4SD	SD	28-Jul-2011	1400	SW6020
PAFB03-MW04-N-07282011SD	PAFB03-MW04	280-18587-4SD	SD	28-Jul-2011	1400	SW8260B
PAFB03-MW04-N-07282011SD	PAFB03-MW04	280-18587-4SD	SD	28-Jul-2011	1400	SW9060
PAFB03-MW06-N-07282011	PAFB03-MW07	280-18587-5	N	28-Jul-2011	1520	SW8260B
PAFB-TRIP-TB-07282011	FIELDQC	280-18587-6	TB	28-Jul-2011	1300	SW8260B

FD = Field duplicate
N = Normal investigative sample
MS = Matrix spike
SD = MS Duplicate
TB = Trip Blank
WG = Groundwater
WQ = Aqueous blank samples

DATA COMPLIANCE SUMMARY

Based on the data compliance review, data for the above samples are:
_____Acceptable for use
_____X_____Acceptable as qualified
_____Some data unacceptable for use
_____All data unacceptable for use

Sample Integrity

1. The sample containers were received intact, within the temperature acceptance criteria of ≤ 6˚C (degrees Celsius), and properly preserved on 7/28/11 and 07/29/2011 at Test America Laboratories, Inc.

2. Dedicated sample equipment was used and an equipment blank was not required

3. Discrepancies were observed for sample receipt as follows:

SDG 280-18532:

- Sample PAFB03-MW02 N-07272011 on the chain-of-custody form (CoC) had a sample collection time of 1340 and the sample container a collection time of 1320; the collection time on the sample container was verified to be correct and was used by the laboratory for reporting.

- The sample identifier for sample PAFB03-MW05 N-07272011 was not written on the sample container. The collection time on the sample container was used to verify the sample to the CoC identifier.

- The CoC listed 250 mL nitric acid preserved bottles but the shipment contained 500 mL nitric preserved bottles. The discrepancy was noted by the lab but no corrective action was required.

SDG 280-18587:

- Samples PAFB03-MW01- FD-07282011 and PAFB03-MW03-N-07282011on the CoC had sample labels of PAFB07-MW01- FD-07282011 and PAFB07-MW03-N-07282011 respectively; the sample ID on the CoC form was verified to be correct and was used by the laboratory for reporting.

- Sample PAFB03-MW04-N on the CoC form was logged in as PAFB03-MW04-N-07282011to add the collection date per the project specification.

Method 6020, total and dissolved - (5 investigative, 1 field duplicate, and 1 MS/MSD aqueous samples)

1. The following QC items were evaluated : hold times, method blanks (MBs), laboratory control sample (LCS) percent recoveries (%Rs), initial and continuing calibration blanks (ICBs and CCBs), initial and continuing calibration verifications (ICVs, CCVs), interference check standards (ICSA and ICSAB), RL check standard %Rs, matrix spike/matrix spike duplicate (MS/MSD) %Rs and relative percent difference (RPD), serial dilution percent differences (%Ds), post digestion spike (PDS) %Rs, field duplicate RPDs and comparison of reported results to the raw data. All dissolved metals results were verified to be less than or equal to the total metals results for each sample.

   The following QC parameters met criteria: holding times, LCS %R, MS/MSD RPD, PDS %R, serial dilution %Ds, ICVs, CCVs, ICSAB %Rs, the RL check standard %Rs, and comparison of reported results to raw data.

2. Total thallium was detected in the MBs associated with the investigative samples reported in SDG 280-18532 and SDG 280-18587 at concentrations between the MDL and RL (0.0202 and 0.0269 ug/L). Total thallium was detected in several of the associated samples at concentrations less than the RL of 0.20µg/L and

these results were UB qualified as not detected. No other method 6020 metals were detected in the associated method blanks.

3. Thallium was detected in the CCBs associated with both total and dissolved samples at concentrations between the MDL and RL (concentrations up to 0.031µg/L). Total thallium detected in associated samples at concentrations <RL were previously UB qualified as not detected, dissolved thallium was detected in several of the associated samples at concentrations less than the RL of 0.20µg/L and these results were UB qualified as not detected at the RL.

4. The PDS and serial dilution analyses were performed on project sample PAFB03-MW04-N-072811. The serial dilution was not applicable and %Ds were not evaluated. Control limits were met for the PDS and no sample qualification was required.

5. The MS/MSD analyses were performed on project samples PAFB03-MW04-N-072811 for both the total and dissolved samples. Control limits were met with the exception that the recoveries for total antimony were less than the 80-120% criteria at 46% and 42%. All total antimony results were M qualified to indicate a matrix effect causing a potential low bias to the results.

6. Sample location PAFB03-MW01 (reported in SDG 280-18587-1) was collected as a field duplicate pair for both total and dissolved metals. Results are summarized in the following table, nc means not calculated because either one or both of the results were less than the RL. The RPD in bold for total thallium exceeded the control criteria of ≤15% and all total thallium results for samples included in this validation report were J qualified as estimated. No other qualification was required.

Analyte	Units	Concentration		RL	RPD
		Parent	Duplicate		
Total					
Antimony	ug/L	0.14	0.15	1.0	nc
Cadmium	ug/L	0.57	0.37	2.0	nc
Selenium	ug/L	4.3	3.8	2.0	12
Thallium	ug/L	0.43	0.36	0.20	**18**
Dissolved					
Antimony	ug/L	0.13	0.15	1.0	nc
Cadmium	ug/L	0.087	0.14	2.0	nc
Selenium	ug/L	1.7	1.8	2.0	nc
Thallium	ug/L	0.067	0.095	0.20	nc

7. The analysis of the ICSA interference check standard solution by Method 6020 shows concentrations for antimony, cadmium and thallium at levels greater than 2 times the MDL for both total and dissolved metals analyses. The laboratory narrative indicated that the solution contained trace impurities and that the results are not due to matrix interference. No data qualifiers were assigned.

Method 6010B total and dissolved - (7 investigative, 2 field duplicates, 1 MS/MSD)

1. The following QC items were evaluated : hold times, method blanks (MBs), laboratory control sample (LCS) percent recoveries (%Rs), initial and continuing calibration blanks (ICBs and CCBs), initial and continuing calibration verifications (ICVs, CCVs), interference check standards (ICSA and ICSAB), RL check standard %Rs, matrix spike/matrix spike duplicate (MS/MSD) %Rs and relative percent difference (RPD), serial dilution percent differences (%Ds), post digestion spike (PDS) %Rs, field duplicate RPDs and comparison of reported results to the raw data.

The following QC parameters met criteria: holding time, LCS %R, MS/MSD RPDs, ICBs, CCBs, ICVs, CCVs, ICSAB %Rs, the RL check standard %Rs, and comparison of reported results to raw data.

2. Total and dissolved sodium were detected in the method blanks associated with the investigative samples at concentrations between the MDL and RL (203 and 149 ug/L respectively). Sodium was detected in the associated samples at concentrations greater than the reporting limit and no results were qualified.

3. The analysis of the ICSA interference check standard solution showed results for chromium, copper and vanadium at a level greater than 2 times the MDL for total metals and chromium, copper, lead and vanadium for dissolved metals analysis. The laboratory indicated that the solution contained the trace impurities and that the results are not due to matrix interference. No data qualifiers were assigned.

4. Sample location PAFB03-MW01 was used for the field duplicate for total and dissolved metals and sample PAFB07-MW03 for total and dissolved lead only, results are summarized in the table below. The calculated RPD for metals shown in bold exceeded the control criteria of ≤15% and all results for samples included in this validation report were J qualified as estimated. Only site PAFB07 samples were J qualified as a result of the PAFB07-MW03 sample results. Samples that had been qualified J or M for alternate reasons required no further qualification.

Analyte	Units	Concentration		RL	RPD
		Parent	Duplicate		
Total Metals- PAFB03-MW01					
Arsenic	ug/L	12	11	30	nc
Barium	ug/L	350	300	50	15
Beryllium	ug/L	1.8	1.5	4.0	nc
Calcium	ug/L	79000	73000	1100	8
Chromium	ug/L	76	61	10	**22**
Cobalt	ug/L	14	12	60	nc
Copper	ug/L	34	28	10	**19**
Lead	ug/L	36	32	25	12
Magnesium	ug/L	22000	20000	1000	10
Nickel	ug/L	35	28	20	**22**
Potassium	ug/L	7100	6100	1000	15
Vanadium	ug/L	95	80	10	**17**
Zinc	ug/L	140	120	20	15
Sodium	ug/L	21000	19000	1000	10
Dissolved Metals- PAFB03-MW01					
Barium	ug/L	64	98	50	**42**
Calcium	ug/L	71000	76000	1100	7
Chromium	ug/L	4.6	6.9	10	nc
Cobalt	ug/L	U	2.4	60	nc
Copper	ug/L	4.2	8.0	10	nc
Lead	ug/L	U	6.9	25	nc
Magnesium	ug/L	11000	13000	1000	**17**
Nickel	ug/L	2.3	4.5	20	nc
Potassium	ug/L	2100	2000	1000	5
Vanadium	ug/L	6.5	9.4	10	nc
Zinc	ug/L	10	26	20	nc
Sodium	ug/L	21000	22000	1000	5
Total Metals- PAFB07-MW03					
Lead	ug/L	14	17	9.0	**19**

U–Undetected; the analyte was not detected.

5. The serial dilution and PDS analyses were performed on PAFB03-MW04-N-072811 samples for total and dissolved metals. Serial dilution %Ds (where applicable) and PDS %Rs were in control. Qualification was not required.

6. The total and dissolved metals MS/MSD analyses were also performed using project sample PAFB03-MW04-N-072811. All total and dissolved metals %Rs and RPDs were within control limits and qualification was not required.

Method 8260B VOCs (6 investigative, 1 field duplicate, 1 MS/MSD, and 2 trip blank aqueous samples)

1. The following QC items were evaluated for all samples: initial calibration (ICAL), second source calibration verification standard (SSCV), continuing calibration verification standard (CCV), GC/MS tunes, and internal standard area counts and retention times, holding times, MBs, surrogate %Rs, LCS %Rs, MS/MSD %Rs and RPDs, trip blanks, field duplicate RPDs, and reporting limits (RLs).

   The following QC parameters met criteria: holding times, surrogate %Rs, MS/MSD %Rs, field duplicate RPDs, RLs, ICAL, CCV, GC/MS tunes, and internal standard area counts and retention times.

2. Samples were unpreserved and a hold time of 7 days from collection to analysis was met.

3. VOCs were not detected in the associated method blanks (MBs) with the exception of methylene chloride at 0.613µg/L in the blank associated with batch 280-18587 and at 0.423µg/L in the blank associated with 280-18532, concentrations less than the 2.0µg/L RL.

4. A trip blank was included with each sample shipment. Methylene chloride was detected in PAFB-TRIP-TB-07272011 (0.98µg/L) and PAFB-TRIP-TB-07282011 (0.65µg/L) at concentrations less than the 2.0µg/L RL. Because methylene chloride was also detected in the associated method blanks, concentrations less than the RL of 2.0µg/L in the TB and investigative samples were U B qualified based on the observed blank detection and methylene chloride should be considered not detected at the RL.

   Chloroform was also detected in PAFB-TRIP-TB-07272011 (0.095ug/L) less than the RL. Chloroform was either not detected or detected at a concentration greater than the RL in the associated samples and qualification for chloroform was not required. No other TB detections were observed.

5. The LCS associated with batch 280-18532 did not include summary results for the following analyte:
   - Methyl Iodide

   This analyte was included in the CCV with acceptable results and data qualification was not necessary.

6. A MS/MSD was analyzed from site PAFB03-MW04 and results were provided with SDG 280-18587. This MS/MSD was used for evaluation of all project samples included in this data validation report. All target analyte %Rs and RPDs were within the DoD QSM criteria with one exception. The RPD for acetone (35%) exceeded the criteria of ≤20%. Acetone was detected in sample PAFB03-MW05-N-07272011 and the result was M qualified. Acetone was not detected in the remainder of the project samples and no other qualification was required.

   The MS/MSD did not include summary results for the following analytes:
   - Acrylonitrile
   - trans-1,4-Dichloro-2-butene

   Raw data indicated that acrylonitrile was not detected in the MS/MSD samples. The laboratory reviewed the MS/MSD spike solution and reported that acrylonitrile had not been added to the solution. All project sample results for acrylonitrile were accepted based on the LCS and CCV recoveries. Qualification was not performed for trans-1,4-dichloro-2-butene which had an observed concentration in the MS/MSD analyses.

7. VOC target analytes were not detected greater than the RL in either the parent sample or field duplicate collected from site PAFB03-MW01. RPDs were not calculated and no sample qualification was required.

Method 300 – Major Anions (5 aqueous samples, 1 field duplicate and 1 MS/MSD)

1. The following QC items were evaluated and met criteria: holding times, ICAL, ICB, CCBs, ICV, CCVs, MBs, LCS/LCSD %Rs and RPDs, MS/MSD %Rs and RPDs and laboratory duplicate RPDs.

2. An MS/MSD was performed on sample PAFB03-MW04-N-072811 and results were provided with SDG 280-18587. %Rs and RPDs were within control criteria, and no sample qualification was necessary. An MS/MSD was also performed on a non-project sample and results were provided with SDG 280-18532. Non-project MS/MSDs were considered but were not utilized to qualify project samples since matrix similarity to project samples could not be guaranteed.

3. A field duplicate pair was collected from location PAFB03-MW01-N-072811 and results were reported in SDG 280-18587. Results for anions detected in either the parent or duplicate sample are shown below. Calculated RPDs were less than the control criteria of 15% and data qualifiers were not required.

		Concentration		
Analyte	**Units**	**Parent**	**Duplicate**	**RPD**
Chloride	mg/L	20	20	0
Nitrate as N	mg/L	3.9	3.9	0
Sulfate	mg/L	23	23	0

4. Sample PAFB03-MW-3-N-072811 was analyzed at a dilution for nitrate as nitrogen due to high sample concentration. The reporting limit was raised accordingly. No sample qualification was necessary.

Method SM2320 Total, Carbonate, and Bicarbonate Alkalinity (5 aqueous samples and 1 field duplicate)

1. The following QC items were evaluated and met criteria: holding times and MB. Per the QAPP, alkalinity data are defined as screening data and required QC is a field duplicate at a frequency of 10%.

2. The analytical method specified in the QAPP was EPA 310.1. The analytical method reported as being used in the data package was SM2320B. No action was required due to this change.

3. A field duplicate pair was collected from location PAFB03-MW01-N-072811 and results were provided with SDG 280-18587. Bicarbonate alkalinity was detected at 210mg/L in both samples, with an RPD equal to 0%, within the ≤20% RPD aqueous QC acceptance criteria. Data qualification is not required.

Method 9060 Total Organic Carbon (5 aqueous samples, 1 field duplicate, and 1 MS/MSD)

1. The following QC items were evaluated and met criteria: holding times, ICAL, ICB, ICVs, CCBs, CCVs, MBs, LCS/LCSD %Rs and RPDs, MS/MSD %Rs and RPDs.

2. TOC was detected in the ICB and CCBs associated with project samples in SDGs 280-18532 and 280-18587 in <u>QC batch 79954</u> at concentrations < ½ RL and TOC was detected in project samples at concentrations >RL; therefore, data qualification was not required.

   TOC was detected in the MB, ICB and CCBs in SDGs 280-18532 and 280-18587 in <u>QC batch 80178</u> at concentrations < ½ RL (RL equals 1.0mg/L). The two samples associated with this analytical batch, 280-18532- 1 (PAFB03-MW02-N-07272011) and 280-18587-1 (PAFB03-MW01-N-07282011), had detected

concentrations of TOC. TOC was detected in sample 280-18532- 1 at a concentration >RL at 2.9mg/L and data qualification was not required.

TOC was detected in sample 280-18587-1 at 0.98 mg/L, slightly less than the RL but nearly greater than 4x the MB concentration of 0.254mg/L. Because the found concentration was confirmed with a detection greater than the RL in an associated field duplicate, and both results were J qualified due to field duplicate variability, additional data qualification for the method blank contamination was not required.

3. TOC MS/MSDs were performed per SDG on samples PAFB03-MW04-N-072811 (280-18587-4) and PAFB03-MW02-N-072711 (280-18532-1). %Rs and RPDs were within control criteria and sample qualification was not necessary.

4. A laboratory duplicate was not performed in either SDG 18532 or SDG 18587for this method, and an assessment could not be made. However, since the LCS/LCSD RPD and MS/MSD RPD were within criteria, laboratory precision was met and data usability was not affected.

5. A field duplicate pair was collected from location PAFB03-MW01-N-072811and results were provided with SDG 280-18587. TOC results are shown below. The calculated RPD was greater than the control criteria of 20%. All TOC results were J qualified as estimated as a result of the RPD exceedance.

Analyte	Units	Concentration		RPD
		Parent	Duplicate	
TOC	mg/L	0.98	1.4	**35**

Reviewer: Becki L. Sl[illegible] Date: 03/20/2012

QC Reviewer: [illegible] Date: 3-20-12

Database Entry Person: [illegible] Date: 3/20/2012

Sample Qualifier Summary Table

Field Sample ID	280-18587-1 Laboratory ID	Test Method	Target Analyte	Result	Validation Flags	Reason
PAFB03-MW01-N-07282011	280-18587-1	SW6010B	Barium- Diss	64	J	Field Duplicate failed ≤15% RPD Criteria
PAFB03-MW01-N-07282011	280-18587-1	SW6010B	Magnesium- Diss	11000	J	
PAFB03-MW01-N-07282011	280-18587-1	SW6010B	Chromium	76	J	
PAFB03-MW01-N-07282011	280-18587-1	SW6010B	Copper	34	J	
PAFB03-MW01-N-07282011	280-18587-1	SW6010B	Nickel	35	J	
PAFB03-MW01-N-07282011	280-18587-1	SW6010B	Vanadium	95	J	
PAFB03-MW01-FD-07282011FD	280-18587-2FD	SW6010B	Barium- Diss	98	J	
PAFB03-MW01-FD-07282011FD	280-18587-2FD	SW6010B	Magnesium- Diss	13000	J	
PAFB03-MW01-FD-07282011FD	280-18587-2FD	SW6010B	Chromium	61	J	
PAFB03-MW01-FD-07282011FD	280-18587-2FD	SW6010B	Copper	28	J	
PAFB03-MW01-FD-07282011FD	280-18587-2FD	SW6010B	Nickel	28	J	
PAFB03-MW01-FD-07282011FD	280-18587-2FD	SW6010B	Vanadium	80	J	
PAFB03-MW03-N-07282011	280-18587-3	SW6010B	Barium- Diss	78	J	
PAFB03-MW03-N-07282011	280-18587-3	SW6010B	Magnesium- Diss	23000	J	
PAFB03-MW03-N-07282011	280-18587-3	SW6010B	Chromium	7.7	J	
PAFB03-MW03-N-07282011	280-18587-3	SW6010B	Copper	5.6	J	
PAFB03-MW03-N-07282011	280-18587-3	SW6010B	Nickel	11	J	
PAFB03-MW03-N-07282011	280-18587-3	SW6010B	Vanadium	11	J	
PAFB03-MW04-N-07282011	280-18587-4	SW6010B	Barium- Diss	77	J	
PAFB03-MW04-N-07282011	280-18587-4	SW6010B	Magnesium- Diss	12000	J	
PAFB03-MW04-N-07282011	280-18587-4	SW6010B	Chromium	20	J	
PAFB03-MW04-N-07282011	280-18587-4	SW6010B	Copper	13	J	
PAFB03-MW04-N-07282011	280-18587-4	SW6010B	Nickel	11	J	
PAFB03-MW04-N-07282011	280-18587-4	SW6010B	Vanadium	36	J	
PAFB03-MW01-N-07282011	280-18587-1	SW6020	Thallium- Diss	0.067	B	Method and Instrument Blank Detections less than RL – Associated Results <RL are not detected at the RL.
PAFB03-MW01-FD-07282011FD	280-18587-2FD	SW6020	Thallium- Diss	0.095	B	
PAFB03-MW03-N-07282011	280-18587-3	SW6020	Thallium	0.1	B	
PAFB03-MW03-N-07282011	280-18587-3	SW6020	Thallium- Diss	0.025	B	
PAFB03-MW04-N-07282011	280-18587-4	SW6020	Thallium	0.18	B	
PAFB03-MW04-N-07282011	280-18587-4	SW6020	Thallium- Diss	0.053	B	
PAFB03-MW01-N-07282011	280-18587-1	SW6020	Thallium	0.43	J	Field Duplicate failed ≤15% RPD Criteria

Sample Qualifier Summary Table

Field Sample ID	280-18587-1 Laboratory ID	Test Method	Target Analyte	Result	Validation Flags	Reason
PAFB03-MW01-FD-07282011FD	280-18587-2FD	SW6020	Thallium	0.36	J	Field Duplicate failed ≤15% RPD Criteria
PAFB03-MW01-N-07282011	280-18587-1	SW6020	Antimony	0.14	M	Low MS/MSD Recoveries (46% & 42%) – Less than 80-120% Criteria
PAFB03-MW01-FD-07282011FD	280-18587-2FD	SW6020	Antimony	0.15	M	
PAFB03-MW03-N-07282011	280-18587-3	SW6020	Antimony	0.35	M	
PAFB03-MW04-N-07282011	280-18587-4	SW6020	Antimony	0.18	M	
PAFB03-MW01-N-07282011	280-18587-1	SW8260B	Dichloromethane	0.45	B	Trace detections observed in Analytical/Method blank – All samples not detected at the RL.
PAFB03-MW01-FD-07282011FD	280-18587-2FD	SW8260B	Dichloromethane	0.42	B	
PAFB03-MW03-N-07282011	280-18587-3	SW8260B	Dichloromethane	0.46	B	
PAFB03-MW04-N-07282011	280-18587-4	SW8260B	Dichloromethane	0.41	B	
PAFB03-MW06-N-07282011	280-18587-5	SW8260B	Dichloromethane	0.48	B	
PAFB-TRIP-TB-07282011	280-18587-6	SW8260B	Dichloromethane	0.65	B	
PAFB03-MW01-N-07282011	280-18587-1	SW9060	Total Organic Carbon	0.98	J	Field Duplicate failed ≤15% RPD Criteria
PAFB03-MW01-FD-07282011FD	280-18587-2FD	SW9060	Total Organic Carbon	1.4	J	
PAFB03-MW03-N-07282011	280-18587-3	SW9060	Total Organic Carbon	1.5	J	
PAFB03-MW04-N-07282011	280-18587-4	SW9060	Total Organic Carbon	1.6	J	

Field Sample ID	280-18532-1 Laboratory ID	Test Method	Target Analyte	Result	Validation Flags	Reason
PAFB03-MW02-N-07272011	280-18532-1	SW6010B	Barium - Diss	19	J	Field Duplicate failed ≤15% RPD Criteria
PAFB03-MW02-N-07272011	280-18532-1	SW6010B	Chromium	11	J	
PAFB03-MW02-N-07272011	280-18532-1	SW6010B	Copper	7.3	J	
PAFB03-MW02-N-07272011	280-18532-1	SW6010B	Lead	10	J	
PAFB03-MW02-N-07272011	280-18532-1	SW6010B	Magnesium- Diss	8900	J	
PAFB03-MW02-N-07272011	280-18532-1	SW6010B	Nickel	7.4	J	
PAFB03-MW02-N-07272011	280-18532-1	SW6010B	Vanadium	21	J	
PAFB03-MW05-N-07272011	280-18532-2	SW6010B	Barium- Diss	100	J	
PAFB03-MW05-N-07272011	280-18532-2	SW6010B	Chromium	49	J	
PAFB03-MW05-N-07272011	280-18532-2	SW6010B	Copper	24	J	

Sample Qualifier Summary Table

Field Sample ID	280-18532-1 Laboratory ID	Test Method	Target Analyte	Result	Validation Flags	Reason
PAFB03-MW05-N-07272011	280-18532-2	SW6010B	Lead	27	J	
PAFB03-MW05-N-07272011	280-18532-2	SW6010B	Magnesium- Diss	16000	J	
PAFB03-MW05-N-07272011	280-18532-2	SW6010B	Nickel	19	J	
PAFB03-MW05-N-07272011	280-18532-2	SW6010B	Vanadium	61	J	
PAFB07-MW01-N-07272011	280-18532-3	SW6010B	Lead	5.9	J	
PAFB07-MW03-N-07272011	280-18532-4	SW6010B	Lead	14	J	
PAFB07-MW03-FD-07272011FD	280-18532-5FD	SW6010B	Lead	17	J	
PAFB03-MW02-N-07272011	280-18532-1	SW6020	Antimony	0.24	M	Low MS/MSD Recoveries (46% & 42%) – Less than 80-120% Criteria
PAFB03-MW05-N-07272011	280-18532-2	SW6020	Antimony	0.21	M	
PAFB03-MW05-N-07272011	280-18532-2	SW6020	Thallium	0.37	J	Field Duplicate failed ≤15% RPD Criteria
PAFB03-MW02-N-07272011	280-18532-1	SW6020	Thallium	0.17	B	Trace detections observed in Analytical/Method blank – All samples not detected at the RL.
PAFB03-MW02-N-07272011	280-18532-1	SW6020	Thallium- Diss	0.033	B	
PAFB03-MW05-N-07272011	280-18532-2	SW6020	Thallium- Diss	0.065	B	
PAFB03-MW05-N-07272011	280-18532-2	SW8260B	Acetone	28	M	MS/MSD RPD greater than Criteria.
PAFB03-MW02-N-07272011	280-18532-1	SW8260B	Dichloromethane	0.49	B	Trace detections observed in Analytical/Method blank – All samples not detected at the RL.
PAFB03-MW05-N-07272011	280-18532-2	SW8260B	Dichloromethane	0.98	B	
PAFB-TRIP-TB-07272011	280-18532-6	SW8260B	Dichloromethane	0.98	B	
PAFB03-MW02-N-07272011	280-18532-1	SW9060	Total Organic Carbon	2.9	J	Field Duplicate failed ≤15% RPD Criteria
PAFB03-MW05-N-07272011	280-18532-2	SW9060	Total Organic Carbon	4	J	

Client: AECOM Technical Services Inc. Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW01-N-012712**

Lab Sample ID: 280-25094-1 Date Sampled: 01/27/2012 1040
Client Matrix: Water Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2568.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1024			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1024				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.053	U	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.13	U	0.13	1.0
1,1-Dichloroethane	0.057	U	0.057	1.0
1,1-Dichloroethylene	0.075	U	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	0.078	U	0.078	1.0
1,4-Dichlorobenzene	0.12	U	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.052	U	0.052	0.30
Chloromethane	0.083	U	0.083	1.0
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	0.42	F UB	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	0.14	U	0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.11	F	0.10	1.0
Trichlorofluoromethane	0.067	U	0.067	1.0

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Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW01-N-012712**

Lab Sample ID: 280-25094-1
Client Matrix: Water

Date Sampled: 01/27/2012 1040
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2568.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1024			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1024				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	106		81 - 120
Dibromofluoromethane (Surr)	98		85 - 115
4-Bromofluorobenzene (Surr)	102		76 - 119
1,2-Dichloroethane-d4 (Surr)	91		72 - 119

KMP
3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW02-N-012612**

Lab Sample ID: 280-25094-2
Client Matrix: Water

Date Sampled: 01/26/2012 1240
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2569.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1045			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1045				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.43	F	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.13	U	0.13	1.0
1,1-Dichloroethane	0.057	U	0.057	1.0
1,1-Dichloroethylene	0.88	F	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	0.078	U	0.078	1.0
1,4-Dichlorobenzene	0.12	U	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.052	U	0.052	0.30
Chloromethane	0.083	U	0.083	1.0
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	0.45	F UB	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	0.16	F	0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.10	U	0.10	1.0
Trichlorofluoromethane	0.54	F	0.067	1.0

Kelly 3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW02-N-012612**

Lab Sample ID: 280-25094-2
Client Matrix: Water

Date Sampled: 01/26/2012 1240
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2569.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1045			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1045				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	107		81 - 120
Dibromofluoromethane (Surr)	100		85 - 115
4-Bromofluorobenzene (Surr)	103		76 - 119
1,2-Dichloroethane-d4 (Surr)	95		72 - 119

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Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW03-N-012612**

Lab Sample ID: 280-25094-3
Client Matrix: Water

Date Sampled: 01/26/2012 1400
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2570.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1105			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1105				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.053	U	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.13	U	0.13	1.0
1,1-Dichloroethane	0.057	U	0.057	1.0
1,1-Dichloroethylene	0.075	U m	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	0.078	U	0.078	1.0
1,4-Dichlorobenzene	0.12	U	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U m	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.052	U	0.052	0.30
Chloromethane	0.083	U	0.083	1.0
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	0.42	F UB	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	0.14	U	0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.10	U	0.10	1.0
Trichlorofluoromethane	0.067	U	0.067	1.0

KMH 3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW03-N-012612**

Lab Sample ID: 280-25094-3
Client Matrix: Water

Date Sampled: 01/26/2012 1400
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2570.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1105			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1105				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	103		81 - 120
Dibromofluoromethane (Surr)	97		85 - 115
4-Bromofluorobenzene (Surr)	104		76 - 119
1,2-Dichloroethane-d4 (Surr)	91		72 - 119

KHH 3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW04-N-012612**

Lab Sample ID: 280-25094-4
Client Matrix: Water

Date Sampled: 01/26/2012 1305
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2573.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1208			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1208				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.083	F	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.13	U	0.13	1.0
1,1-Dichloroethane	0.057	U	0.057	1.0
1,1-Dichloroethylene	0.075	U	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	0.078	U	0.078	1.0
1,4-Dichlorobenzene	0.12	U	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.052	U	0.052	0.30
Chloromethane	0.083	U	0.083	1.0
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	0.47	F UB	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	0.25	F	0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.10	U	0.10	1.0
Trichlorofluoromethane	0.067	U	0.067	1.0

KLL 3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW04-N-012612**

Lab Sample ID: 280-25094-4
Client Matrix: Water

Date Sampled: 01/26/2012 1305
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2573.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1208			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1208				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	108		81 - 120
Dibromofluoromethane (Surr)	101		85 - 115
4-Bromofluorobenzene (Surr)	105		76 - 119
1,2-Dichloroethane-d4 (Surr)	95		72 - 119

KHL 3/9/12

Client: AECOM Technical Services Inc. Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-N-012612**

Lab Sample ID: 280-25094-5 Date Sampled: 01/26/2012 1145
Client Matrix: Water Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2576.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1312			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1312				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.14	F	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.19	F	0.13	1.0
1,1-Dichloroethane	4.0		0.057	1.0
1,1-Dichloroethylene	0.075	U	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	2.4		0.078	1.0
1,4-Dichlorobenzene	0.16	F	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.42		0.052	0.30
Chloromethane	0.083	U	0.083	1.0
cis-1,2-Dichloroethylene	1.4		0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	1.2	F UB	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	1.9		0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.79	F	0.10	1.0
Trichlorofluoromethane	0.067	U	0.067	1.0

KAPE 3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-N-012612**

Lab Sample ID: 280-25094-5
Client Matrix: Water

Date Sampled: 01/26/2012 1145
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2576.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1312			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1312				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	104		81 - 120
Dibromofluoromethane (Surr)	95		85 - 115
4-Bromofluorobenzene (Surr)	97		76 - 119
1,2-Dichloroethane-d4 (Surr)	89		72 - 119

KAL
3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-FD-012612**

Lab Sample ID: 280-25094-6FD
Client Matrix: Water

Date Sampled: 01/26/2012 1145
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2577.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1333			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1333				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.14	F	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.20	F	0.13	1.0
1,1-Dichloroethane	4.1		0.057	1.0
1,1-Dichloroethylene	0.075	U	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	2.5		0.078	1.0
1,4-Dichlorobenzene	0.12	F	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	1.6	U	1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.43		0.052	0.30
Chloromethane	0.083	U	0.083	1.0
cis-1,2-Dichloroethylene	1.5		0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	1.3	F UB	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	2.0		0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.83	F	0.10	1.0
Trichlorofluoromethane	0.067	U	0.067	1.0

KMM 3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-FD-012612**

Lab Sample ID: 280-25094-6FD

Client Matrix: Water

Date Sampled: 01/26/2012 1145

Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2577.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 1333			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 1333				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	110		81 - 120
Dibromofluoromethane (Surr)	100		85 - 115
4-Bromofluorobenzene (Surr)	103		76 - 119
1,2-Dichloroethane-d4 (Surr)	93		72 - 119

KMM 3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW06-N-012612**

Lab Sample ID: 280-25094-7
Client Matrix: Water

Date Sampled: 01/26/2012 1100
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2560.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 0733			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 0733				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1,2-Tetrachloroethane	0.14	U	0.14	0.50
1,1,1-Trichloroethane	0.053	U	0.053	1.0
1,1,2,2-Tetrachloroethane	0.15	U	0.15	0.50
1,1,2-Trichloroethane	0.13	U	0.13	1.0
1,1-Dichloroethane	0.66	F	0.057	1.0
1,1-Dichloroethylene	0.075	U	0.075	1.0
1,2,3-Trichloropropane	0.27	U	0.27	1.0
1,2-Dibromo-3-Chloropropane	0.71	U	0.71	2.0
1,2-Dibromoethane	0.18	U	0.18	1.0
1,2-Dichlorobenzene	0.11	U	0.11	1.0
1,2-Dichloroethane	0.068	U	0.068	0.50
1,2-Dichloropropane	0.078	U	0.078	1.0
1,4-Dichlorobenzene	0.12	U	0.12	0.50
2-Butanone	1.2	U	1.2	10
2-Hexanone	1.2	U	1.2	5.0
4-Methyl-2-pentanone	1.1	U	1.1	10
Acetone	61		1.6	10
Acrylonitrile	1.2	U	1.2	20
Benzene	0.13	U	0.13	0.40
Bromochloromethane	0.21	U	0.21	1.0
Bromodichloromethane	0.21	U	0.21	0.50
Bromoform	0.22	U	0.22	1.0
Bromomethane	0.19	U	0.19	3.0
Carbon disulfide	0.20	U	0.20	2.0
Carbon tetrachloride	0.11	U	0.11	1.0
Chlorobenzene	0.076	U	0.076	0.50
Chloroethane	0.13	U	0.13	1.0
Chloroform	0.052	U	0.052	0.30
Chloromethane	0.083	U	0.083	1.0
cis-1,2-Dichloroethylene	0.098	U	0.098	1.0
cis-1,3-Dichloropropene	0.078	U	0.078	0.50
Dibromochloromethane	0.047	U	0.047	0.50
Dibromomethane	0.17	U	0.17	1.0
Ethylbenzene	0.099	U	0.099	1.0
Methyl iodide	0.097	U	0.097	1.0
Methylene Chloride	0.47	F UB	0.21	2.0
m-Xylene & p-Xylene	0.10	U	0.10	2.0
o-Xylene	0.087	U	0.087	1.0
Styrene	0.066	U	0.066	1.0
Tetrachloroethene	0.14	U	0.14	1.0
Toluene	0.068	U	0.068	1.0
trans-1,2-Dichloroethylene	0.056	U	0.056	1.0
trans-1,3-Dichloropropene	0.065	U	0.065	1.0
trans-1,4-Dichloro-2-butene	0.80	U	0.80	3.0
Trichloroethene	0.10	U	0.10	1.0
Trichlorofluoromethane	0.067	U	0.067	1.0

3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW06-N-012612**

Lab Sample ID: 280-25094-7
Client Matrix: Water

Date Sampled: 01/26/2012 1100
Date Received: 01/27/2012 1500

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-105882	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z2560.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	02/01/2012 0733			Final Weight/Volume:	20 mL
Prep Date:	02/01/2012 0733				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Vinyl acetate	0.74	U	0.74	3.0
Vinyl chloride	0.078	U	0.078	1.0
Xylenes, Total	0.11	U	0.11	2.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	105		81 - 120
Dibromofluoromethane (Surr)	95		85 - 115
4-Bromofluorobenzene (Surr)	99		76 - 119
1,2-Dichloroethane-d4 (Surr)	88		72 - 119

KHH 3/9/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW01-N-012712**

Lab Sample ID: 280-25094-1
Client Matrix: Water

Date Sampled: 01/27/2012 1040
Date Received: 01/27/2012 1500

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-106113	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-105528	Lab File ID:	25A020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1406			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	16	F	4.4	30
Barium	350		0.58	50
Beryllium	1.9	F	0.47	4.0
Calcium	85000		35	1100
Chromium	63	Q	0.66	10
Cobalt	14	F	1.2	60
Copper	34	Q	1.4	10
Lead	36		2.6	25
Magnesium	24000		11	1000
Nickel	38		1.3	20
Potassium	7000		240	1000
Silver	0.93	U	0.93	10
Sodium	24000		92	1000
Vanadium	85		1.1	10
Zinc	150		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-106115	Instrument ID:	MT_025
Prep Method:	3005A	Prep Batch:	280-105545	Lab File ID:	25B020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1506			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Barium	61		0.58	50
Beryllium	0.47	U	0.47	4.0
Calcium	65000		35	1100
Chromium	0.66	U Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	9500		11	1000
Nickel	1.6	F	1.3	20
Potassium	1700		240	1000
Silver	0.93	U	0.93	10
Sodium	25000		92	1000
Vanadium	1.1	U	1.1	10
Zinc	4.5	U	4.5	20

3/15/12
KHL

6020 Metals (ICP/MS)

Client: AECOM Technical Services Inc. Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW01-N-012712**

Lab Sample ID: 280-25094-1 Date Sampled: 01/27/2012 1040
Client Matrix: Water Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	077SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 1955			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.48 ~~UB~~ M	F	0.20	1.0
Selenium	2.0		0.70	2.0
Thallium	0.38		0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-106867	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	071SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/08/2012 1616			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.040	U Q	0.040	2.0

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	124SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2014			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

3/15/12

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.28 UB	F	0.20	1.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	058SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 1902			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Selenium	1.5	F	0.70	2.0
Thallium	0.059 UB	F	0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-106867	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	040SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/08/2012 1449			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW01-N-012712**

Lab Sample ID: 280-25094-1

Client Matrix: Water

Date Sampled: 01/27/2012 1040

Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.050	F Q	0.040	2.0

3/15/12
KMM

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW02-N-012612**

Lab Sample ID: 280-25094-2
Client Matrix: Water

Date Sampled: 01/26/2012 1240
Date Received: 01/27/2012 1500

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-106113	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-105528	Lab File ID:	25A020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1409			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	9.2	F	4.4	30
Barium	220		0.58	50
Beryllium	1.3	F	0.47	4.0
Calcium	59000		35	1100
Chromium	16	Q	0.66	10
Cobalt	6.6	F	1.2	60
Copper	14	Q	1.4	10
Lead	21	F	2.6	25
Magnesium	12000		11	1000
Nickel	16	F	1.3	20
Potassium	4100		240	1000
Silver	0.93	U	0.93	10
Sodium	46000		92	1000
Vanadium	36		1.1	10
Zinc	85		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-106115	Instrument ID:	MT_025
Prep Method:	3005A	Prep Batch:	280-105545	Lab File ID:	25B020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1508			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

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Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Barium	21	F	0.58	50
Beryllium	0.47	U	0.47	4.0
Calcium	53000		35	1100
Chromium	1.7	F Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	8900		11	1000
Nickel	1.3	U	1.3	20
Potassium	1500		240	1000
Silver	0.93	U	0.93	10
Sodium	48000		92	1000
Vanadium	1.1	U	1.1	10
Zinc	4.5	U	4.5	20

6020 Metals (ICP/MS)

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW02-N-012612**

Lab Sample ID: 280-25094-2
Client Matrix: Water

Date Sampled: 01/26/2012 1240
Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	078SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 1958			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.20 M	F	0.20	1.0
Selenium	1.9	F	0.70	2.0
Thallium	0.36		0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-106867	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	061SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/08/2012 1548			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.24 ~~UB~~ KMM	F Q	0.040	2.0

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	125SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2017			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

3/15/12

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.20 UB	F	0.20	1.0

KMM

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	059SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 1905			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Selenium	1.7	F	0.70	2.0
Thallium	0.033	U	0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-106867	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	041SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/08/2012 1451			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW02-N-012612**

Lab Sample ID: 280-25094-2

Client Matrix: Water

Date Sampled: 01/26/2012 1240

Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.072 ~~UB~~ KPL	F Q	0.040	2.0

3/15/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW03-N-012612**

Lab Sample ID: 280-25094-3
Client Matrix: Water

Date Sampled: 01/26/2012 1400
Date Received: 01/27/2012 1500

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-106113	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-105528	Lab File ID:	25A020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1339			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Barium	160		0.58	50
Beryllium	0.47	U	0.47	4.0
Calcium	150000		35	1100
Chromium	8.8	F Q	0.66	10
Cobalt	3.5	F	1.2	60
Copper	6.7	F Q	1.4	10
Lead	6.1	F	2.6	25
Magnesium	24000		11	1000
Nickel	8.9 UB	F	1.3	20
Potassium	4300		240	1000
Silver	0.93	U	0.93	10
Sodium	74000		92	1000
Vanadium	15		1.1	10
Zinc	33		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-106115	Instrument ID:	MT_025
Prep Method:	3005A	Prep Batch:	280-105545	Lab File ID:	25B020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1439			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

3/15/12
KAP

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Barium	99		0.58	50
Beryllium	0.47	U	0.47	4.0
Calcium	150000		35	1100
Chromium	0.89	F Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	22000		11	1000
Nickel	2.5	F	1.3	20
Potassium	3100		240	1000
Silver	0.93	U	0.93	10
Sodium	74000		92	1000
Vanadium	1.7	F	1.1	10
Zinc	4.5	U	4.5	20

6020 Metals (ICP/MS)

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW03-N-012612**

Lab Sample ID: 280-25094-3
Client Matrix: Water

Date Sampled: 01/26/2012 1400
Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	079SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 2001			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.42 M	F m	0.20	1.0
Selenium	6.1		0.70	2.0
Thallium	0.16 UB	F	0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-106867	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	064SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/08/2012 1557			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.18 ~~UB~~	F Q	0.040	2.0

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	126SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2019			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

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Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.39 UB	F	0.20	1.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	060SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 1907			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Selenium	5.3		0.70	2.0
Thallium	0.034 UB	F	0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-106867	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	042SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/08/2012 1454			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW03-N-012612**

Lab Sample ID: 280-25094-3

Client Matrix: Water

Date Sampled: 01/26/2012 1400

Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.040	U Q	0.040	2.0

3/15/12

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW04-N-012612**

Lab Sample ID: 280-25094-4
Client Matrix: Water

Date Sampled: 01/26/2012 1305
Date Received: 01/27/2012 1500

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-106113	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-105528	Lab File ID:	25A020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1350			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	7.1	F	4.4	30
Barium	210		0.58	50
Beryllium	0.63	F	0.47	4.0
Calcium	93000		35	1100
Chromium	15	Q	0.66	10
Cobalt	3.1	F	1.2	60
Copper	11	Q	1.4	10
Lead	10	F	2.6	25
Magnesium	17000		11	1000
Nickel	9.4 UB	F	1.3	20
Potassium	4500		240	1000
Silver	0.93	U	0.93	10
Sodium	38000		92	1000
Vanadium	27		1.1	10
Zinc	50		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-106115	Instrument ID:	MT_025
Prep Method:	3005A	Prep Batch:	280-105545	Lab File ID:	25B020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1450			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

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Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Barium	100		0.58	50
Beryllium	0.47	U	0.47	4.0
Calcium	87000		35	1100
Chromium	0.66	U Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	13000		11	1000
Nickel	1.3	U	1.3	20
Potassium	2100		240	1000
Silver	0.93	U	0.93	10
Sodium	38000		92	1000
Vanadium	1.1	U	1.1	10
Zinc	4.5	U	4.5	20

6020 Metals (ICP/MS)

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW04-N-012612**

Lab Sample ID: 280-25094-4
Client Matrix: Water

Date Sampled: 01/26/2012 1305
Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	152SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2133			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.040	U Q	0.040	2.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	086SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 2021			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.20 M	U m	0.20	1.0
Selenium	0.70	U	0.70	2.0
Thallium	0.19 UB	F	0.033	0.20

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	133SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2039			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

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Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.27 UB	F	0.20	1.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	067SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 1927			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Selenium	0.70	U	0.70	2.0
Thallium	0.033	U	0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-107056	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	038SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/09/2012 1652			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW04-N-012612**

Lab Sample ID: 280-25094-4

Client Matrix: Water

Date Sampled: 01/26/2012 1305

Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.043 UB	F Q	0.040	2.0

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KMK

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-N-012612**

Lab Sample ID: 280-25094-5
Client Matrix: Water

Date Sampled: 01/26/2012 1145
Date Received: 01/27/2012 1500

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-106113	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-105528	Lab File ID:	25A020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1411			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	10	F	4.4	30
Barium	330		0.58	50
Beryllium	1.4	F	0.47	4.0
Calcium	150000		35	1100
Chromium	32	Q	0.66	10
Cobalt	13	F	1.2	60
Copper	22	Q	1.4	10
Lead	26		2.6	25
Magnesium	27000		11	1000
Nickel	20		1.3	20
Potassium	6400		240	1000
Silver	0.93	U	0.93	10
Sodium	47000		92	1000
Vanadium	52		1.1	10
Zinc	100		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-106115	Instrument ID:	MT_025
Prep Method:	3005A	Prep Batch:	280-105545	Lab File ID:	25B020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1511			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

3/15/12
KMP

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Barium	140		0.58	50
Beryllium	0.47	U	0.47	4.0
Calcium	140000		35	1100
Chromium	0.66	U Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	20000		11	1000
Nickel	2.1	F	1.3	20
Potassium	2600		240	1000
Silver	0.93	U	0.93	10
Sodium	46000		92	1000
Vanadium	1.1	U	1.1	10
Zinc	4.8	F	4.5	20

6020 Metals (ICP/MS)

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-N-012612**

Lab Sample ID: 280-25094-5
Client Matrix: Water

Date Sampled: 01/26/2012 1145
Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	155SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2142			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.18 UB	F Q	0.040	2.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	089SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 2029			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.20 M	U	0.20	1.0
Selenium	2.0		0.70	2.0
Thallium	0.38		0.033	0.20

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	136SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2048			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

3/15/12 KMP

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.20 UB KMP	U	0.20	1.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	070SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 1936			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Selenium	1.5	F	0.70	2.0
Thallium	0.046 UB	F	0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-106867	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	053SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/08/2012 1525			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-N-012612**

Lab Sample ID: 280-25094-5

Client Matrix: Water

Date Sampled: 01/26/2012 1145

Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.040	U Q	0.040	2.0

3/15/12

Client: AECOM Technical Services Inc. Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-FD-012612**

Lab Sample ID: 280-25094-6FD Date Sampled: 01/26/2012 1145
Client Matrix: Water Date Received: 01/27/2012 1500

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-106113	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-105528	Lab File ID:	25A020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1413			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	16	F	4.4	30
Barium	360		0.58	50
Beryllium	1.7	F	0.47	4.0
Calcium	150000		35	1100
Chromium	37	Q	0.66	10
Cobalt	15	F	1.2	60
Copper	26	Q	1.4	10
Lead	28		2.6	25
Magnesium	27000		11	1000
Nickel	24		1.3	20
Potassium	7200		240	1000
Silver	0.93	U	0.93	10
Sodium	46000		92	1000
Vanadium	62		1.1	10
Zinc	110		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-106115	Instrument ID:	MT_025
Prep Method:	3005A	Prep Batch:	280-105545	Lab File ID:	25B020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1513			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

3/15/12
[illegible]

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Barium	140		0.58	50
Beryllium	0.47	U	0.47	4.0
Calcium	140000		35	1100
Chromium	0.66	U Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	21000		11	1000
Nickel	2.5	F	1.3	20
Potassium	3000		240	1000
Silver	0.93	U	0.93	10
Sodium	47000		92	1000
Vanadium	1.1	U	1.1	10
Zinc	4.9	F	4.5	20

6020 Metals (ICP/MS)

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-FD-012612**

Lab Sample ID: 280-25094-6FD
Client Matrix: Water

Date Sampled: 01/26/2012 1145
Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	156SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2144			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.27 UB	F Q	0.040	2.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	090SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 2032			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.25 M	F	0.20	1.0
Selenium	1.9	F	0.70	2.0
Thallium	0.45		0.033	0.20

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	137SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2051			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

3/15/12

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.20	U	0.20	1.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	071SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 1938			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Selenium	1.4	F	0.70	2.0
Thallium	0.046 UB	F	0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-107056	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	039SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/09/2012 1655			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW05-FD-012612**

Lab Sample ID: 280-25094-6FD

Client Matrix: Water

Date Sampled: 01/26/2012 1145

Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.17 UB	F Q	0.040	2.0

3/15/12
KMH

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW06-N-012612**

Lab Sample ID: 280-25094-7
Client Matrix: Water

Date Sampled: 01/26/2012 1100
Date Received: 01/27/2012 1500

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-106113	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-105528	Lab File ID:	25A020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1416			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	16	F	4.4	30
Barium	280		0.58	50
Beryllium	0.94	F	0.47	4.0
Calcium	140000		35	1100
Chromium	62	Q	0.66	10
Cobalt	9.8	F	1.2	60
Copper	33	Q	1.4	10
Lead	19	F	2.6	25
Magnesium	30000		11	1000
Nickel	29		1.3	20
Potassium	7700		240	1000
Silver	0.93	U	0.93	10
Sodium	100000		92	1000
Vanadium	58		1.1	10
Zinc	100		4.5	20

6010B Metals (ICP)-Dissolved

Analysis Method:	6010B	Analysis Batch:	280-106115	Instrument ID:	MT_025
Prep Method:	3005A	Prep Batch:	280-105545	Lab File ID:	25B020212.asc
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 1515			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

3/15/12

Analyte	Result (ug/L)	Qualifier	MDL	RL
Arsenic	4.4	U	4.4	30
Barium	51		0.58	50
Beryllium	0.47	U	0.47	4.0
Calcium	120000		35	1100
Chromium	0.66	U Q	0.66	10
Cobalt	1.2	U	1.2	60
Copper	1.4	U Q	1.4	10
Lead	2.6	U	2.6	25
Magnesium	21000		11	1000
Nickel	5.0	F	1.3	20
Potassium	3900		240	1000
Silver	0.93	U	0.93	10
Sodium	100000		92	1000
Vanadium	1.1	U	1.1	10
Zinc	4.9	F	4.5	20

6020 Metals (ICP/MS)

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW06-N-012612**

Lab Sample ID: 280-25094-7
Client Matrix: Water

Date Sampled: 01/26/2012 1100
Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	157SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2147			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.90	F Q	0.040	2.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3020A	Prep Batch:	280-105536	Lab File ID:	091SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 2035			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.64 M	F	0.20	1.0
Selenium	3.7		0.70	2.0
Thallium	0.33		0.033	0.20

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-106317	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	138SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/02/2012 2053			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

3/15/12
Kelle

Analyte	Result (ug/L)	Qualifier	MDL	RL
Antimony	0.94 J	F	0.20	1.0

Analysis Method:	6020	Analysis Batch:	280-106479	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	072SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/06/2012 1941			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Selenium	2.0		0.70	2.0
Thallium	0.037 UB	F	0.033	0.20

Analysis Method:	6020	Analysis Batch:	280-106867	Instrument ID:	MT_077
Prep Method:	3005A	Prep Batch:	280-105547	Lab File ID:	055SMPL.D
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	02/08/2012 1531			Final Weight/Volume:	50 mL
Prep Date:	02/02/2012 0645				

Analyte	Result (ug/L)	Qualifier	MDL	RL

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

Client Sample ID: **PAFB03-MW06-N-012612**

Lab Sample ID: 280-25094-7
Client Matrix: Water

Date Sampled: 01/26/2012 1100
Date Received: 01/27/2012 1500

6020 Metals (ICP/MS)-Dissolved

Analyte	Result (ug/L)	Qualifier	MDL	RL
Cadmium	0.040	U Q	0.040	2.0

3/15/12
KMH

General Chemistry

Client Sample ID: **PAFB03-MW01-N-012712**

Lab Sample ID: 280-25094-1 Date Sampled: 01/27/2012 1040
Client Matrix: Water Date Received: 01/27/2012 1500

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	16		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 1940						
Nitrate as N	4.8		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 1940						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 1940						
Sulfate	23		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 1940						
Total Organic Carbon - Average	1.6		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-106942	Analysis Date: 02/08/2012 1954						
Bicarbonate Alkalinity as CaCO3	1100		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106300	Analysis Date: 02/02/2012 1833						
Carbonate Alkalinity as CaCO3	140		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106300	Analysis Date: 02/02/2012 1833						

3/9/12
KMH

Client: AECOM Technical Services Inc.

Job Number: 280-25094-1

General Chemistry

Client Sample ID: **PAFB03-MW02-N-012612**

Lab Sample ID: 280-25094-2

Client Matrix: Water

Date Sampled: 01/26/2012 1240

Date Received: 01/27/2012 1500

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	13		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 1956						
Nitrate as N	3.1		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 1956						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 1956						
Sulfate	29		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 1956						
Total Organic Carbon - Average	1.1		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-106942	Analysis Date: 02/08/2012 2011						
Bicarbonate Alkalinity as CaCO3	54		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1114						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1114						

3/9/12

General Chemistry

Client Sample ID: **PAFB03-MW03-N-012612**

Lab Sample ID: 280-25094-3 Date Sampled: 01/26/2012 1400
Client Matrix: Water Date Received: 01/27/2012 1500

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	14		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 2012						
Nitrate as N	14		mg/L	0.21	2.5	5.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/28/2012 0303						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 2012						
Sulfate	17		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 2012						
Total Organic Carbon - Average	1.2		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-106942	Analysis Date: 02/08/2012 1859						
Bicarbonate Alkalinity as CaCO3	560		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1125						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1125						

3/9/12
KHH

General Chemistry

Client Sample ID: **PAFB03-MW04-N-012612**

Lab Sample ID: 280-25094-4 Date Sampled: 01/26/2012 1305
Client Matrix: Water Date Received: 01/27/2012 1500

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	8.1		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 2147						
Nitrate as N	0.52		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 2147						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 2147						
Sulfate	12		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 2147						
Total Organic Carbon - Average	1.1		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-106942	Analysis Date: 02/08/2012 2029						
Bicarbonate Alkalinity as CaCO3	350		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1133						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1133						

3/9/12
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General Chemistry

Client Sample ID: **PAFB03-MW05-N-012612**

Lab Sample ID: 280-25094-5 Date Sampled: 01/26/2012 1145
Client Matrix: Water Date Received: 01/27/2012 1500

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	42		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 2250						
Nitrate as N	7.1		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 2250						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 2250						
Sulfate	25		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 2250						
Total Organic Carbon - Average	1.7		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-106942	Analysis Date: 02/08/2012 2122						
Bicarbonate Alkalinity as CaCO3	460		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1200						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1200						

3/9/12
Keep

General Chemistry

Client Sample ID: **PAFB03-MW05-FD-012612**

Lab Sample ID: 280-25094-6FD
Client Matrix: Water

Date Sampled: 01/26/2012 1145
Date Received: 01/27/2012 1500

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	43		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 2306						
Nitrate as N	7.1		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 2306						
Nitrite as N	0.049	U	mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 2306						
Sulfate	25		mg/L	0.23	5.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 2306						
Total Organic Carbon - Average	1.7		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-106942	Analysis Date: 02/08/2012 2140						
Bicarbonate Alkalinity as CaCO3	460		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1209						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1209						

3/9/12

General Chemistry

Client Sample ID: **PAFB03-MW06-N-012612**

Lab Sample ID: 280-25094-7 Date Sampled: 01/26/2012 1100
Client Matrix: Water Date Received: 01/27/2012 1500

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	26		mg/L	0.25	3.0	1.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/27/2012 2321						
Nitrate as N	4.6		mg/L	0.042	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 2321						
Nitrite as N	0.57		mg/L	0.049	0.50	1.0	300.0
Analysis Batch: 280-105337	Analysis Date: 01/27/2012 2321						
Sulfate	160		mg/L	1.2	25	5.0	300.0
Analysis Batch: 280-105338	Analysis Date: 01/28/2012 0509						
Total Organic Carbon - Average	2.4		mg/L	0.16	1.0	1.0	9060A
Analysis Batch: 280-106942	Analysis Date: 02/08/2012 2231						
Bicarbonate Alkalinity as CaCO3	450		mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1218						
Carbonate Alkalinity as CaCO3	1.1	U	mg/L	1.1	5.0	1.0	SM 2320B
Analysis Batch: 280-106458	Analysis Date: 02/06/2012 1218						

3/9/12
KMM

ANALYTICAL REPORT

Job Number: 280-30655-1

Job Description: Peterson AFB 2012, Site 3 Confirm 2012

For:
AECOM Technical Services Inc.
717 17th Street
Suite 2600
Denver, CO 80202

Attention: Dwight Parks

Approved for release.
Patrick J McEntee
Project Manager II
7/10/2012 11:04 AM

Patrick J McEntee
Project Manager II
patrick.mcentee@testamericainc.com
07/10/2012

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is E87667.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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CASE NARRATIVE

Client: AECOM Technical Services Inc.

Project: Peterson AFB 2012, Site 3 Confirm 2012

Report Number: 280-30655-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 7/2/2012 1:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.6º C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples PAFB03-MW05-N-070212 (280-30655-1), PAFB03-MW05-FD-070212 (280-30655-2) and PAFB03-TRIP-TB-070212 (280-30655-3) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 07/05/2012.

No difficulties were encountered during the volatiles analyses.

All quality control parameters were within the acceptance limits.

SAMPLE SUMMARY

Client: AECOM Technical Services Inc. Job Number: 280-30655-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-30655-1	PAFB03-MW05-N-070212	Water	07/02/2012 1005	07/02/2012 1325
280-30655-1MS	PAFB03-MW05-N-070212	Water	07/02/2012 1005	07/02/2012 1325
280-30655-1MSD	PAFB03-MW05-N-070212	Water	07/02/2012 1005	07/02/2012 1325
280-30655-2FD	PAFB03-MW05-FD-070212	Water	07/02/2012 1005	07/02/2012 1325
280-30655-3TB	PAFB03-TRIP-TB-070212	Water	07/02/2012 0930	07/02/2012 1325

EXECUTIVE SUMMARY - Detections

Client: AECOM Technical Services Inc. Job Number: 280-30655-1

Lab Sample ID Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-30655-1	**PAFB03-MW05-N-070212**					
1,2-Dichloropropane		0.78	F	1.0	ug/L	8260B/AFCEE
280-30655-2FD	**PAFB03-MW05-FD-070212**					
1,2-Dichloropropane		0.76	F	1.0	ug/L	8260B/AFCEE

METHOD SUMMARY

Client: AECOM Technical Services Inc. Job Number: 280-30655-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL DEN	SW846 8260B/AFCEE	
Purge and Trap	TAL DEN		SW846 5030B

Lab References:

TAL DEN = TestAmerica Denver

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: AECOM Technical Services Inc. Job Number: 280-30655-1

Method	Analyst	Analyst ID
SW846 8260B/AFCEE	Meier, Greg P	GPM

Client: AECOM Technical Services Inc. Job Number: 280-30655-1

Client Sample ID: **PAFB03-MW05-N-070212**

Lab Sample ID: 280-30655-1 Date Sampled: 07/02/2012 1005
Client Matrix: Water Date Received: 07/02/2012 1325

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-126759	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z8043.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	07/05/2012 0828			Final Weight/Volume:	20 mL
Prep Date:	07/05/2012 0828				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,2-Dichloropropane	0.78	F	0.078	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	93		81 - 120
Dibromofluoromethane (Surr)	89		85 - 115
4-Bromofluorobenzene (Surr)	96		76 - 119
1,2-Dichloroethane-d4 (Surr)	90		72 - 119

Client: AECOM Technical Services Inc. Job Number: 280-30655-1

Client Sample ID: **PAFB03-MW05-FD-070212**

Lab Sample ID: 280-30655-2FD Date Sampled: 07/02/2012 1005
Client Matrix: Water Date Received: 07/02/2012 1325

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-126759	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z8046.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	07/05/2012 0932			Final Weight/Volume:	20 mL
Prep Date:	07/05/2012 0932				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,2-Dichloropropane	0.76	F	0.078	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	88		81 - 120
Dibromofluoromethane (Surr)	86		85 - 115
4-Bromofluorobenzene (Surr)	91		76 - 119
1,2-Dichloroethane-d4 (Surr)	91		72 - 119

Client: AECOM Technical Services Inc. Job Number: 280-30655-1

Client Sample ID: **PAFB03-TRIP-TB-070212**

Lab Sample ID: 280-30655-3TB Date Sampled: 07/02/2012 0930
Client Matrix: Water Date Received: 07/02/2012 1325

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B/AFCEE	Analysis Batch:	280-126759	Instrument ID:	MSV_Z
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	Z8047.D
Dilution:	1.0			Initial Weight/Volume:	20 mL
Analysis Date:	07/05/2012 0954			Final Weight/Volume:	20 mL
Prep Date:	07/05/2012 0954				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,2-Dichloropropane	0.078	U	0.078	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	93		81 - 120
Dibromofluoromethane (Surr)	92		85 - 115
4-Bromofluorobenzene (Surr)	98		76 - 119
1,2-Dichloroethane-d4 (Surr)	97		72 - 119

Client: AECOM Technical Services Inc.

Job Number: 280-30655-1

Surrogate Recovery Report

8260B/AFCEE Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DBFM %Rec	DCA %Rec	TOL %Rec	BFB %Rec
280-30655-1	PAFB03-MW05-N-07 0212	89	90	93	96
280-30655-2	PAFB03-MW05-FD-0 70212	86	91	88	91
280-30655-3	PAFB03-TRIP-TB-070 212	92	97	93	98
MB 280-126759/5		88	93	89	94
LCS 280-126759/4		85	92	94	86
280-30655-1 MS	PAFB03-MW05-N-07 0212 MS	86	92	95	89
280-30655-1 MSD	PAFB03-MW05-N-07 0212 MSD	89	97	98	91

Surrogate	Acceptance Limits
DBFM = Dibromofluoromethane (Surr)	85-115
DCA = 1,2-Dichloroethane-d4 (Surr)	72-119
TOL = Toluene-d8 (Surr)	81-120
BFB = 4-Bromofluorobenzene (Surr)	76-119

Client: AECOM Technical Services Inc. Job Number: 280-30655-1

Method Blank - Batch: 280-126759 **Method: 8260B/AFCEE**
Preparation: 5030B

Lab Sample ID:	MB 280-126759/5	Analysis Batch:	280-126759	Instrument ID:	MSV_Z
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Z8042.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	07/05/2012 0757	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	07/05/2012 0757				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
1,2-Dichloropropane	0.078	U	0.078	1.0

Surrogate	% Rec	Acceptance Limits
Toluene-d8 (Surr)	89	81 - 120
Dibromofluoromethane (Surr)	88	85 - 115
4-Bromofluorobenzene (Surr)	94	76 - 119
1,2-Dichloroethane-d4 (Surr)	93	72 - 119

Lab Control Sample - Batch: 280-126759 **Method: 8260B/AFCEE**
Preparation: 5030B

Lab Sample ID:	LCS 280-126759/4	Analysis Batch:	280-126759	Instrument ID:	MSV_Z
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Z8041.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	07/05/2012 0736	Units:	ug/L	Final Weight/Volume:	20 mL
Prep Date:	07/05/2012 0736				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
1,2-Dichloropropane	5.00	4.94	99	75 - 125	

Surrogate	% Rec	Acceptance Limits
Toluene-d8 (Surr)	94	81 - 120
Dibromofluoromethane (Surr)	85	85 - 115
4-Bromofluorobenzene (Surr)	86	76 - 119
1,2-Dichloroethane-d4 (Surr)	92	72 - 119

Client: AECOM Technical Services Inc. Job Number: 280-30655-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-126759

Method: 8260B/AFCEE
Preparation: 5030B

MS Lab Sample ID:	280-30655-1	Analysis Batch:	280-126759	Instrument ID:	MSV_Z
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Z8044.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	07/05/2012 0849			Final Weight/Volume:	20 mL
Prep Date:	07/05/2012 0849				
Leach Date:	N/A				

MSD Lab Sample ID:	280-30655-1	Analysis Batch:	280-126759	Instrument ID:	MSV_Z
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Z8045.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	07/05/2012 0911			Final Weight/Volume:	20 mL
Prep Date:	07/05/2012 0911				
Leach Date:	N/A				

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
1,2-Dichloropropane	95	107	75 - 125	10	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Toluene-d8 (Surr)	95	98	81 - 120
Dibromofluoromethane (Surr)	86	89	85 - 115
4-Bromofluorobenzene (Surr)	89	91	76 - 119
1,2-Dichloroethane-d4 (Surr)	92	97	72 - 119

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-126759

Method: 8260B/AFCEE
Preparation: 5030B

MS Lab Sample ID:	280-30655-1	Units:	ug/L	MSD Lab Sample ID:	280-30655-1
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	07/05/2012 0849			Analysis Date:	07/05/2012 0911
Prep Date:	07/05/2012 0849			Prep Date:	07/05/2012 0911
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
1,2-Dichloropropane	0.78	F	5.00	5.00	5.55	6.11

DATA REPORTING QUALIFIERS

Client: AECOM Technical Services Inc. Job Number: 280-30655-1

Lab Section	Qualifier	Description
GC/MS VOA		
	U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL
	F	The analyte was positively identified but the associated numerical value is below the RL.

Client: AECOM Technical Services Inc. Job Number: 280-30655-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:280-126759					
LCS 280-126759/4	Lab Control Sample	T	Water	8260B/AFCEE	
MB 280-126759/5	Method Blank	T	Water	8260B/AFCEE	
280-30655-1	PAFB03-MW05-N-070212	T	Water	8260B/AFCEE	
280-30655-1MS	Matrix Spike	T	Water	8260B/AFCEE	
280-30655-1MSD	Matrix Spike Duplicate	T	Water	8260B/AFCEE	
280-30655-2FD	PAFB03-MW05-FD-070212	T	Water	8260B/AFCEE	
280-30655-3TB	PAFB03-TRIP-TB-070212	T	Water	8260B/AFCEE	

Report Basis
T = Total

Client: AECOM Technical Services Inc. Job Number: 280-30655-1

Laboratory Chronicle

Lab ID: 280-30655-1 **Client ID:** PAFB03-MW05-N-070212

Sample Date/Time: 07/02/2012 10:05 Received Date/Time: 07/02/2012 13:25

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-30655-D-1		280-126759		07/05/2012 08:28	1	TAL DEN	GPM
A:8260B/AFCEE	280-30655-D-1		280-126759		07/05/2012 08:28	1	TAL DEN	GPM

Lab ID: 280-30655-1 **Client ID:** PAFB03-MW05-N-070212

Sample Date/Time: 07/02/2012 10:05 Received Date/Time: 07/02/2012 13:25

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-30655-F-1 MS		280-126759		07/05/2012 08:49	1	TAL DEN	GPM
A:8260B/AFCEE	280-30655-F-1 MS		280-126759		07/05/2012 08:49	1	TAL DEN	GPM

Lab ID: 280-30655-1 **Client ID:** PAFB03-MW05-N-070212

Sample Date/Time: 07/02/2012 10:05 Received Date/Time: 07/02/2012 13:25

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-30655-F-1 MSD		280-126759		07/05/2012 09:11	1	TAL DEN	GPM
A:8260B/AFCEE	280-30655-F-1 MSD		280-126759		07/05/2012 09:11	1	TAL DEN	GPM

Lab ID: 280-30655-2 **Client ID:** PAFB03-MW05-FD-070212

Sample Date/Time: 07/02/2012 10:05 Received Date/Time: 07/02/2012 13:25

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-30655-C-2		280-126759		07/05/2012 09:32	1	TAL DEN	GPM
A:8260B/AFCEE	280-30655-C-2		280-126759		07/05/2012 09:32	1	TAL DEN	GPM

Lab ID: 280-30655-3 **Client ID:** PAFB03-TRIP-TB-070212

Sample Date/Time: 07/02/2012 09:30 Received Date/Time: 07/02/2012 13:25

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-30655-A-3		280-126759		07/05/2012 09:54	1	TAL DEN	GPM
A:8260B/AFCEE	280-30655-A-3		280-126759		07/05/2012 09:54	1	TAL DEN	GPM

Lab ID: MB **Client ID:** N/A

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	MB 280-126759/5		280-126759		07/05/2012 07:57	1	TAL DEN	GPM
A:8260B/AFCEE	MB 280-126759/5		280-126759		07/05/2012 07:57	1	TAL DEN	GPM

Client: AECOM Technical Services Inc. Job Number: 280-30655-1

Laboratory Chronicle

Lab ID: **LCS** **Client ID:** **N/A**

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	LCS 280-126759/4		280-126759		07/05/2012 07:36	1	TAL DEN	GPM
A:8260B/AFCEE	LCS 280-126759/4		280-126759		07/05/2012 07:36	1	TAL DEN	GPM

Lab References:
TAL DEN = TestAmerica Denver

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
MV-2 Cleve_00012	10/28/12	04/28/12	P&T Methanol, Lot DE977	10 mL	MV-30265_00015	200 uL	2-Chloroethyl vinyl ether	40 ug/mL
.MV-30265_00015	01/31/16	RESTEK, Lot A079020			(Purchased Reagent)		2-Chloroethyl vinyl ether	2000 ug/mL
MV-524 A_00014	09/30/12	03/14/12	Methanol, Lot df233	10 mL	MV-DWM589N_00041	200 uL	1,2-Dichloropropane	40 ug/mL
.MV-DWM589N_00041	12/31/13	Ultra Scientific, Lot CG-3928			(Purchased Reagent)		1,2-Dichloropropane	2000 ug/mL
MV-Archon IS_00510	11/14/12	Supelco, Lot LB88967			(Purchased Reagent)		1,4-Dichlorobenzene-d4	250 ug/mL
							Chlorobenzene-d5	250 ug/mL
							Fluorobenzene	250 ug/mL
MV-Archon SS_00643	11/14/12	Restek, Lot A087857			(Purchased Reagent)		1,2-Dichloroethane-d4 (Surr)	250 ug/mL
							4-Bromofluorobenzene (Surr)	250 ug/mL
							Dibromofluoromethane (Surr)	250 ug/mL
							Toluene-d8 (Surr)	250 ug/mL
MV-Main GasKe_00029	06/22/12	05/22/12	P&T Methanol, Lot DF369	10 mL	MV- Acrolein_00010	100 uL	Acrolein	397.818 ug/mL
					MV-5M06036_00033	200 uL	Bromomethane	40 ug/mL
							Chloroethane	40 ug/mL
							Chloromethane	40 ug/mL
							Dichlorodifluoromethane	40 ug/mL
							Trichlorofluoromethane	40 ug/mL
							Vinyl chloride	40 ug/mL
					MV-861149_00048	400 uL	2-Butanone (MEK)	160 ug/mL
							2-Hexanone	160 ug/mL
							4-Methyl-2-pentanone (MIBK)	160 ug/mL
							Acetone	160 ug/mL
					MV-861149_00049	400 uL	2-Butanone (MEK)	160 ug/mL
							2-Hexanone	160 ug/mL
							4-Methyl-2-pentanone (MIBK)	160 ug/mL
							Acetone	160 ug/mL
.MV- Acrolein_00010	06/22/12	12/22/11	P&T Methanol, Lot De997	5 mL	MV-48501_00005	0.2038 g	Acrolein	39781.8 ug/mL
..MV-48501_00005	06/30/12	Supelco, Lot LB85669v			(Purchased Reagent)		Acrolein	0.976 mL/mL
.MV-5M06036_00033	11/30/12	Supelco, Lot LB86965			(Purchased Reagent)		Bromomethane	2000 ug/mL
							Chloroethane	2000 ug/mL
							Chloromethane	2000 ug/mL
							Dichlorodifluoromethane	2000 ug/mL
							Trichlorofluoromethane	2000 ug/mL
							Vinyl chloride	2000 ug/mL
.MV-861149_00048	11/30/13	Supelco, Lot LB85301			(Purchased Reagent)		2-Butanone (MEK)	2000 ug/mL
							2-Hexanone	2000 ug/mL
							4-Methyl-2-pentanone (MIBK)	2000 ug/mL
							Acetone	2000 ug/mL
.MV-861149_00049	11/30/13	Supelco, Lot LB85301			(Purchased Reagent)		2-Butanone (MEK)	2000 ug/mL
							2-Hexanone	2000 ug/mL
							4-Methyl-2-pentanone (MIBK)	2000 ug/mL
							Acetone	2000 ug/mL
MV-Main_00023	06/30/12	01/25/12	P&T Methanol, Lot de997	10 mL	MV-1-Ch Hex_00008	10.2 uL	1-Chlorohexane	39.944 ug/mL
					MV-502111_00024	200 uL	1,1,1,2-Tetrachloroethane	40 ug/mL
							1,1,1-Trichloroethane	40 ug/mL
							1,1,2,2-Tetrachloroethane	40 ug/mL
							1,1,2-Trichloroethane	40 ug/mL
							1,1-Dichloroethane	40 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							1,1-Dichloroethene	40 ug/mL
							1,1-Dichloropropene	40 ug/mL
							1,2,3-Trichlorobenzene	40 ug/mL
							1,2,3-Trichloropropane	40 ug/mL
							1,2,4-Trichlorobenzene	40 ug/mL
							1,2,4-Trimethylbenzene	40 ug/mL
							1,2-Dibromo-3-Chloropropane	40 ug/mL
							1,2-Dichlorobenzene	40 ug/mL
							1,2-Dichloroethane	40 ug/mL
							1,2-Dichloroethene, Total	80 ug/mL
							1,2-Dichloropropane	40 ug/mL
							1,3,5-Trimethylbenzene	40 ug/mL
							1,3-Dichlorobenzene	40 ug/mL
							1,3-Dichloropropane	40 ug/mL
							1,4-Dichlorobenzene	40 ug/mL
							2,2-Dichloropropane	40 ug/mL
							2-Chlorotoluene	40 ug/mL
							4-Chlorotoluene	40 ug/mL
							4-Isopropyltoluene	40 ug/mL
							Benzene	40 ug/mL
							Bromobenzene	40 ug/mL
							Bromoform	40 ug/mL
							Carbon tetrachloride	40 ug/mL
							Chlorobenzene	40 ug/mL
							Chlorobromomethane	40 ug/mL
							Chlorodibromomethane	40 ug/mL
							Chloroform	40 ug/mL
							cis-1,2-Dichloroethene	40 ug/mL
							cis-1,3-Dichloropropene	40 ug/mL
							Dibromomethane	40 ug/mL
							Dichlorobromomethane	40 ug/mL
							Ethylbenzene	40 ug/mL
							Ethylene Dibromide	40 ug/mL
							Hexachlorobutadiene	40 ug/mL
							Isopropylbenzene	40 ug/mL
							m-Xylene & p-Xylene	80 ug/mL
							Methylene Chloride	40 ug/mL
							n-Butylbenzene	40 ug/mL
							N-Propylbenzene	40 ug/mL
							Naphthalene	40 ug/mL
							o-Xylene	40 ug/mL
							sec-Butylbenzene	40 ug/mL
							Styrene	40 ug/mL
							tert-Butylbenzene	40 ug/mL
							Tetrachloroethene	40 ug/mL
							Toluene	40 ug/mL
							trans-1,2-Dichloroethene	40 ug/mL
							trans-1,3-Dichloropropene	40 ug/mL
							Trichloroethene	40 ug/mL
							Xylenes, Total	[illegible] ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					MV-506052_00025	200 uL	Iodomethane	40 ug/mL
					MV-861145_00020	200 uL	2-Chloro-1,3-butadiene	40 ug/mL
					MV-CUS11338_00029	500 uL	1,4-Dioxane	2000 ug/mL
							Acetonitrile	400 ug/mL
							Acrylonitrile	400 ug/mL
							Isobutyl alcohol	800 ug/mL
							Methacrylonitrile	400 ug/mL
							Propionitrile	400 ug/mL
					MV-CUS11338_00030	500 uL	1,4-Dioxane	2000 ug/mL
							Acetonitrile	400 ug/mL
							Acrylonitrile	400 ug/mL
							Isobutyl alcohol	800 ug/mL
							Methacrylonitrile	400 ug/mL
							Propionitrile	400 ug/mL
.MV-1-Ch Hex_00008	07/25/12	01/25/12	P&T Methanol, Lot dd946	5 mL	MV-442258_00002	0.196 g	1-Chlorohexane	39160.8 ug/mL
..MV-442258_00002	07/31/13		Supelco, Lot LB77927		(Purchased Reagent)		1-Chlorohexane	0.999 mL/mL
.MV-502111_00024	04/30/13		Supelco, Lot LB83949		(Purchased Reagent)		1,1,1,2-Tetrachloroethane	2000 ug/mL
							1,1,1-Trichloroethane	2000 ug/mL
							1,1,2,2-Tetrachloroethane	2000 ug/mL
							1,1,2-Trichloroethane	2000 ug/mL
							1,1-Dichloroethane	2000 ug/mL
							1,1-Dichloroethene	2000 ug/mL
							1,1-Dichloropropene	2000 ug/mL
							1,2,3-Trichlorobenzene	2000 ug/mL
							1,2,3-Trichloropropane	2000 ug/mL
							1,2,4-Trichlorobenzene	2000 ug/mL
							1,2,4-Trimethylbenzene	2000 ug/mL
							1,2-Dibromo-3-Chloropropane	2000 ug/mL
							1,2-Dichlorobenzene	2000 ug/mL
							1,2-Dichloroethane	2000 ug/mL
							1,2-Dichloroethene, Total	4000 ug/mL
							1,2-Dichloropropane	2000 ug/mL
							1,3,5-Trimethylbenzene	2000 ug/mL
							1,3-Dichlorobenzene	2000 ug/mL
							1,3-Dichloropropane	2000 ug/mL
							1,4-Dichlorobenzene	2000 ug/mL
							2,2-Dichloropropane	2000 ug/mL
							2-Chlorotoluene	2000 ug/mL
							4-Chlorotoluene	2000 ug/mL
							4-Isopropyltoluene	2000 ug/mL
							Benzene	2000 ug/mL
							Bromobenzene	2000 ug/mL
							Bromoform	2000 ug/mL
							Carbon tetrachloride	2000 ug/mL
							Chlorobenzene	2000 ug/mL
							Chlorobromomethane	2000 ug/mL
							Chlorodibromomethane	2000 ug/mL
							Chloroform	2000 ug/mL
							cis-1,2-Dichloroethene	2000 ug/mL
							cis-1,3-Dichloropropene	2000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Dibromomethane	2000 ug/mL
							Dichlorobromomethane	2000 ug/mL
							Ethylbenzene	2000 ug/mL
							Ethylene Dibromide	2000 ug/mL
							Hexachlorobutadiene	2000 ug/mL
							Isopropylbenzene	2000 ug/mL
							m-Xylene & p-Xylene	4000 ug/mL
							Methylene Chloride	2000 ug/mL
							n-Butylbenzene	2000 ug/mL
							N-Propylbenzene	2000 ug/mL
							Naphthalene	2000 ug/mL
							o-Xylene	2000 ug/mL
							sec-Butylbenzene	2000 ug/mL
							Styrene	2000 ug/mL
							tert-Butylbenzene	2000 ug/mL
							Tetrachloroethene	2000 ug/mL
							Toluene	2000 ug/mL
							trans-1,2-Dichloroethene	2000 ug/mL
							trans-1,3-Dichloropropene	2000 ug/mL
							Trichloroethene	2000 ug/mL
							Xylenes, Total	6000 ug/mL
.MV-506052_00025	01/31/13	Supelco, Lot LB89742			(Purchased Reagent)		Iodomethane	2000 ug/mL
.MV-861145_00020	06/30/12	Supelco, Lot LB85068			(Purchased Reagent)		2-Chloro-1,3-butadiene	2000 ug/mL
.MV-CUS11338_00029	11/30/13	Ultra, Lot CH-3475			(Purchased Reagent)		1,4-Dioxane	20000 ug/mL
							Acetonitrile	4000 ug/mL
							Acrylonitrile	4000 ug/mL
							Isobutyl alcohol	8000 ug/mL
							Methacrylonitrile	4000 ug/mL
							Propionitrile	4000 ug/mL
.MV-CUS11338_00030	11/30/13	Ultra, Lot CH-3475			(Purchased Reagent)		1,4-Dioxane	20000 ug/mL
							Acetonitrile	4000 ug/mL
							Acrylonitrile	4000 ug/mL
							Isobutyl alcohol	8000 ug/mL
							Methacrylonitrile	4000 ug/mL
							Propionitrile	4000 ug/mL
MV-Main_00024	12/22/12	06/22/12	P&T Methanol, Lot dg256	10 mL	MV-502111_00025	200 uL	1,2-Dichloropropane	40 ug/mL
.MV-502111_00025	04/30/13	Supelco, Lot LB83949			(Purchased Reagent)		1,2-Dichloropropane	2000 ug/mL
MV-Supp Std_00023	12/19/12	05/17/12	P&T Methanol, Lot DF700	10 mL	MV-562811_00013	200 uL	Vinyl acetate	80 ug/mL
					MV-564150_00012	200 uL	1,1,2-Trichloro-1,2,2-trifluor oethane	40 ug/mL
							3-Chloro-1-propene	40 ug/mL
							Carbon disulfide	40 ug/mL
							Ethyl methacrylate	80 ug/mL
							Methyl methacrylate	80 ug/mL
							Methyl tert-butyl ether	40 ug/mL
							Methylcyclohexane	40 ug/mL
							Tetrahydrofuran	80 ug/mL
							trans-1,4-Dichloro-2-butene	40 ug/mL
.MV-562811_00013	07/31/13	RESTEK, Lot A086189			(Purchased Reagent)		Vinyl acetate	4000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.MV-564150_00012	01/30/13	RESTEK, Lot A086228			(Purchased Reagent)		1,1,2-Trichloro-1,2,2-trifluor oethane	2000 ug/mL
							3-Chloro-1-propene	2000 ug/mL
							Carbon disulfide	2000 ug/mL
							Ethyl methacrylate	4000 ug/mL
							Methyl methacrylate	4000 ug/mL
							Methyl tert-butyl ether	2000 ug/mL
							Methylcyclohexane	2000 ug/mL
							Tetrahydrofuran	4000 ug/mL
							trans-1,4-Dichloro-2-butene	2000 ug/mL

Certification Summary

Client: AECOM Technical Services Inc.
Project/Site: Peterson AFB 2011

TestAmerica Job ID: 280-30655-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Denver	A2LA	DoD ELAP		2907.01
TestAmerica Denver	A2LA	ISO/IEC 17025		2907.01
TestAmerica Denver	Alabama	State Program	4	40730
TestAmerica Denver	Alaska (UST)	State Program	10	UST-30
TestAmerica Denver	Arizona	State Program	9	AZ0713
TestAmerica Denver	Arkansas DEQ	State Program	6	88-0687
TestAmerica Denver	California	State Program	9	2513
TestAmerica Denver	Colorado	State Program	8	N/A
TestAmerica Denver	Connecticut	State Program	1	PH-0686
TestAmerica Denver	Florida	NELAC	4	E87667
TestAmerica Denver	Georgia	State Program	4	N/A
TestAmerica Denver	Idaho	State Program	10	CO00026
TestAmerica Denver	Illinois	NELAC	5	200017
TestAmerica Denver	Iowa	State Program	7	370
TestAmerica Denver	Kansas	NELAC	7	E-10166
TestAmerica Denver	Louisiana	NELAC	6	30785
TestAmerica Denver	Maine	State Program	1	CO0002
TestAmerica Denver	Maryland	State Program	3	268
TestAmerica Denver	Minnesota	NELAC	5	8-999-405
TestAmerica Denver	Nevada	State Program	9	CO0026
TestAmerica Denver	New Jersey	NELAC	2	CO004
TestAmerica Denver	New Mexico	State Program	6	N/A
TestAmerica Denver	New York	NELAC	2	11964
TestAmerica Denver	North Carolina DENR	State Program	4	358
TestAmerica Denver	North Dakota	State Program	8	R-034
TestAmerica Denver	Oklahoma	State Program	6	8614
TestAmerica Denver	Oregon	NELAC	10	CO200001
TestAmerica Denver	Pennsylvania	NELAC	3	68-00664
TestAmerica Denver	South Carolina	State Program	4	72002
TestAmerica Denver	Tennessee	State Program	4	TN02944
TestAmerica Denver	Texas	NELAC	6	T104704183-08-TX
TestAmerica Denver	USDA	Federal		P330-08-00036
TestAmerica Denver	Utah	NELAC	8	QUAN5
TestAmerica Denver	Virginia	NELAC Secondary AB	3	
TestAmerica Denver	Washington	State Program	10	C1284
TestAmerica Denver	West Virginia DEP	State Program	3	354
TestAmerica Denver	Wisconsin	State Program	5	999615430
TestAmerica Denver	Wyoming (UST)	A2LA	8	

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Method 8260B AFCEE

Volatile Organic Compounds (GC/MS) by Method 8260B/AFCEE

FORM II
GC/MS VOA SURROGATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): DB-624 ID: 0.53 (mm)

Client Sample ID	Lab Sample ID	DBFM #	DCA #	TOL #	BFB #
PAFB03-MW05-N-070212	280-30655-1	89	90	93	96
PAFB03-MW05-FD-070212	280-30655-2	86	91	88	91
PAFB03-TRIP-TB-070212	280-30655-3	92	97	93	98
	MB 280-126759/5	88	93	89	94
	LCS 280-126759/4	85	92	94	86
PAFB03-MW05-N-070212 MS	280-30655-1 MS	86	92	95	89
PAFB03-MW05-N-070212 MSD	280-30655-1 MSD	89	97	98	91

	QC LIMITS
DBFM = Dibromofluoromethane (Surr)	85-115
DCA = 1,2-Dichloroethane-d4 (Surr)	72-119
TOL = Toluene-d8 (Surr)	81-120
BFB = 4-Bromofluorobenzene (Surr)	76-119

Column to be used to flag recovery values

FORM II 8260B/AFCEE

FORM III
GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Matrix: Water Level: Low Lab File ID: Z8041.D

Lab ID: LCS 280-126759/4 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
1,2-Dichloropropane	5.00	4.94	99	75-125	

Column to be used to flag recovery and RPD values

FORM III 8260B/AFCEE

FORM III
GC/MS VOA MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Matrix: Water Level: Low Lab File ID: Z8044.D

Lab ID: 280-30655-1 MS Client ID: PAFB03-MW05-N-070212 MS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
1,2-Dichloropropane	5.00	0.78 F	5.55	95	75-125	

Column to be used to flag recovery and RPD values

FORM III 8260B/AFCEE

FORM III
GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Matrix: Water Level: Low Lab File ID: Z8045.D

Lab ID: 280-30655-1 MSD Client ID: PAFB03-MW05-N-070212 MSD

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
1,2-Dichloropropane	5.00	6.11	107	10	20	75-125	

Column to be used to flag recovery and RPD values

FORM III 8260B/AFCEE

FORM IV
GC/MS VOA METHOD BLANK SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Lab File ID: Z8042.D Lab Sample ID: MB 280-126759/5

Matrix: Water Heated Purge:(Y/N) N

Instrument ID: MSV_Z Date Analyzed: 07/05/2012 07:57

GC Column: DB-624 (75.53) ID: 0.53(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 280-126759/4	Z8041.D	07/05/2012 07:36
PAFB03-MW05-N-070212	280-30655-1	Z8043.D	07/05/2012 08:28
PAFB03-MW05-N-070212 MS	280-30655-1 MS	Z8044.D	07/05/2012 08:49
PAFB03-MW05-N-070212 MSD	280-30655-1 MSD	Z8045.D	07/05/2012 09:11
PAFB03-MW05-FD-070212	280-30655-2	Z8046.D	07/05/2012 09:32
PAFB03-TRIP-TB-070212	280-30655-3	Z8047.D	07/05/2012 09:54

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Lab File ID: Z7127.D BFB Injection Date: 06/11/2012

Instrument ID: MSV_Z BFB Injection Time: 10:51

Analysis Batch No.: 123533

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	24.0	
75	30.0 - 60.0 % of mass 95	48.5	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	8.0	
173	Less than 2.0 % of mass 174	0.0	(0.0)1
174	50.0 - 120.00 % of mass 95	61.5	
175	5.0 - 9.0 % of mass 174	4.5	(7.4)1
176	95.0 - 101.0 % of mass 174	60.5	(98.2)1
177	5.0 - 9.0 % of mass 176	4.1	(6.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	IC 280-123533/2	Z7128.D	06/11/2012	10:59
	IC 280-123533/3	Z7129.D	06/11/2012	11:21
	IC 280-123533/4	Z7130.D	06/11/2012	11:42
	ICIS 280-123533/5	Z7131.D	06/11/2012	12:03
	IC 280-123533/6	Z7132.D	06/11/2012	12:25
	IC 280-123533/7	Z7133.D	06/11/2012	12:46
	ICV 280-123533/8	Z7134.D	06/11/2012	13:07
	IC 280-123533/9	Z7135.D	06/11/2012	13:29
	IC 280-123533/10	Z7136.D	06/11/2012	13:50
	IC 280-123533/11	Z7137.D	06/11/2012	14:11
	IC 280-123533/12	Z7138.D	06/11/2012	14:33
	IC 280-123533/13	Z7139.D	06/11/2012	14:54
	IC 280-123533/14	Z7140.D	06/11/2012	15:15
	IC 280-123533/15	Z7141.D	06/11/2012	15:37
	ICV 280-123533/16	Z7142.D	06/11/2012	15:58
	ICV 280-123533/17	Z7143.D	06/11/2012	16:19
	ICV 280-123533/18	Z7144.D	06/11/2012	16:41

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Lab File ID: Z7145.D BFB Injection Date: 06/11/2012

Instrument ID: MSV_Z BFB Injection Time: 23:51

Analysis Batch No.: 123534

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	23.6	
75	30.0 - 60.0 % of mass 95	47.9	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	7.9	
173	Less than 2.0 % of mass 174	0.0	(0.0)1
174	50.0 - 120.00 % of mass 95	62.1	
175	5.0 - 9.0 % of mass 174	4.6	(7.5)1
176	95.0 - 101.0 % of mass 174	60.7	(97.7)1
177	5.0 - 9.0 % of mass 176	4.3	(7.0)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	ICV 280-123534/2	Z7146.D	06/12/2012	00:11

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Lab File ID: Z8038.D BFB Injection Date: 07/05/2012

Instrument ID: MSV_Z BFB Injection Time: 06:47

Analysis Batch No.: 126759

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	23.2	
75	30.0 - 60.0 % of mass 95	48.3	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	7.3	
173	Less than 2.0 % of mass 174	0.0	(0.0)1
174	50.0 - 120.00 % of mass 95	63.3	
175	5.0 - 9.0 % of mass 174	4.5	(7.2)1
176	95.0 - 101.0 % of mass 174	61.2	(96.7)1
177	5.0 - 9.0 % of mass 176	4.2	(6.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCV 280-126759/2	Z8039.D	07/05/2012	06:53
	CCV 280-126759/3	Z8040.D	07/05/2012	07:14
	LCS 280-126759/4	Z8041.D	07/05/2012	07:36
	MB 280-126759/5	Z8042.D	07/05/2012	07:57
PAFB03-MW05-N-070212	280-30655-1	Z8043.D	07/05/2012	08:28
PAFB03-MW05-N-070212 MS	280-30655-1 MS	Z8044.D	07/05/2012	08:49
PAFB03-MW05-N-070212 MSD	280-30655-1 MSD	Z8045.D	07/05/2012	09:11
PAFB03-MW05-FD-070212	280-30655-2	Z8046.D	07/05/2012	09:32
PAFB03-TRIP-TB-070212	280-30655-3	Z8047.D	07/05/2012	09:54

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Sample No.: ICIS 280-123533/5 Date Analyzed: 06/11/2012 12:03

Instrument ID: MSV_Z GC Column: DB-624 (75.53) ID: 0.53(mm)

Lab File ID (Standard): Z7131.D Heated Purge: (Y/N) N

Calibration ID: 9582

		FB		CBZ		DCB	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		912076	4.77	208964	9.20	304398	13.22
UPPER LIMIT		1824152	5.27	417928	9.70	608796	13.72
LOWER LIMIT		456038	4.27	104482	8.70	152199	12.72
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICV 280-123533/8		1050715	4.77	238465	9.21	327233	13.22
ICV 280-123533/16		1088018	4.77	273058	9.20	397465	13.22
ICV 280-123533/17		982037	4.78	216059	9.20	356103	13.22
ICV 280-123533/18		1125787	4.77	231068	9.20	339276	13.24
ICV 280-123534/2		1060586	4.75	229359	9.19	369521	13.21
CCV 280-126759/2		834445	4.77	171774	9.20	297585	13.21
CCV 280-126759/3		869645	4.76	192878	9.20	301794	13.22
LCS 280-126759/4		867744	4.77	178606	9.20	308842	13.21
MB 280-126759/5		854266	4.78	188829	9.22	280375	13.24
280-30655-1	PAFB03-MW05-N-070212	873148	4.76	187901	9.22	277617	13.24
280-30655-1 MS	PAFB03-MW05-N-070212 MS	901678	4.78	186057	9.22	310093	13.22
280-30655-1 MSD	PAFB03-MW05-N-070212 MSD	877264	4.78	181364	9.22	311076	13.22
280-30655-2	PAFB03-MW05-FD-070212	909578	4.76	198516	9.22	305134	13.24
280-30655-3	PAFB03-TRIP-TB-070212	858144	4.78	188288	9.22	284638	13.24

FB = Fluorobenzene
CBZ = Chlorobenzene-d5
DCB = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8260B/AFCEE

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-30655-1

SDG No.:

Client Sample ID: PAFB03-MW05-N-070212 | Lab Sample ID: 280-30655-1

Matrix: Water | Lab File ID: Z8043.D

Analysis Method: 8260B/AFCEE | Date Collected: 07/02/2012 10:05

Sample wt/vol: 20(mL) | Date Analyzed: 07/05/2012 08:28

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 (75.53) ID: 0.53(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 126759 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
78-87-5	1,2-Dichloropropane	0.78	F	1.0	0.078

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	93		81-120
1868-53-7	Dibromofluoromethane (Surr)	89		85-115
460-00-4	4-Bromofluorobenzene (Surr)	96		76-119
17060-07-0	1,2-Dichloroethane-d4 (Surr)	90		72-119

TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\Z8043.D
Lab Smp Id: 280-30655-D-1 Client Smp ID: PAFB03-MW05-N-07021
Inj Date : 05-JUL-2012 08:28
Operator : MEIERG Inst ID: Z.i
Smp Info : 280-30655-d-1,,PH=7
Misc Info : 280-30655-D-1
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\8260B-H2O.m
Meth Date : 12-Jun-2012 06:45 meierg Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: DOD.sub
Target Version: 4.14
Processing Host: DENPC186

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
* 62 Fluorobenzene	96	4.764	4.767	(1.000)	873148	12.5000	
* 86 Chlorobenzene-d5	119	9.219	9.204	(1.000)	187901	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.239	13.207	(1.000)	277617	12.5000	(Q)
$ 51 Dibromofluoromethane (Surr)	111	3.964	3.947	(0.832)	385788	8.00413	8.00413
$ 56 1,2-Dichloroethane-d4	65	4.347	4.330	(0.912)	185122	8.12100	8.12100
$ 75 Toluene-d8	98	6.974	6.958	(0.757)	785384	8.35953	8.35953
$ 98 4-Bromofluorobenzene (Surr)	95	11.220	11.186	(0.848)	432332	8.65293	8.65293
M 1 1,2-Dichloroethene (total)	96				16343	0.54597	0.545966(a)
M 2 Xylene (total)	106	Compound Not Detected.					
6 dichlorodifluoromethane	85	Compound Not Detected.					
8 1,2-Dichlorotetrafluoroethane	85	Compound Not Detected.					
7 Chloromethane	50	Compound Not Detected.					
9 Vinyl Chloride	62	Compound Not Detected.					
11 Ethylene Oxide	43	Compound Not Detected.					
12 Bromomethane	94	Compound Not Detected.					
13 Chloroethane	64	Compound Not Detected.					
14 Dichlorofluoromethane	67	Compound Not Detected.					
16 Trichlorofluoromethane	101	Compound Not Detected.					
17 Ethyl Ether	59	1.911	1.894	(0.401)	2594	0.15212	0.152118(a)
19 1,2-dichloro-1,1,2-trifluoro	117	Compound Not Detected.					
20 2,2-dichloro-1,1,1-trifluoro	83	Compound Not Detected.					
21 Acrolein	56	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
23 1,1-Dichloroethene	96	Compound Not Detected.					
24 Trichlorotrifluoroethane	151	Compound Not Detected.					
22 Acetone	43	Compound Not Detected.					
25 Iodomethane	142	Compound Not Detected.					
18 2-propanol	45	Compound Not Detected.					
26 Carbon Disulfide	76	Compound Not Detected.					
39 Allyl Chloride	41	Compound Not Detected.					
27 Methyl Acetate	43	Compound Not Detected.					
28 Methylene Chloride	84	2.363	2.366	(0.496)	13571	0.50747	0.507474(a)
30 tert-Butyl alcohol	59	Compound Not Detected.					
31 Acrylonitrile	53	Compound Not Detected.					
33 Methyl t-butyl ether	73	Compound Not Detected.					
32 trans-1,2-Dichloroethene	96	Compound Not Detected.					
34 Hexane	57	Compound Not Detected.					
36 1,1-Dichloroethane	63	2.903	2.905	(0.609)	83740	1.40024	1.40024
35 Vinyl Acetate	43	Compound Not Detected.					
37 Isopropyl ether	87	Compound Not Detected.					
38 Chloroprene	53	Compound Not Detected.					
40 ETBE	59	Compound Not Detected.					
42 cis-1,2-Dichloroethene	96	3.459	3.462	(0.726)	16343	0.54597	0.545966(a)
43 2,2-Dichloropropane	77	Compound Not Detected.					
41 2-Butanone	43	Compound Not Detected.					
44 Ethyl Acetate	43	Compound Not Detected.					
49 2-Butanol	45	Compound Not Detected.					
46 Methacrylonitrile	41	Compound Not Detected.					
47 Bromochloromethane	128	Compound Not Detected.					
48 Tetrahydrofuran	42	Compound Not Detected.					
50 Chloroform	83	3.790	3.793	(0.795)	29715	0.52290	0.522904
52 1,1,1-Trichloroethane	97	4.016	4.019	(0.843)	9661	0.16727	0.167268(a)
53 Cyclohexane	56	Compound Not Detected.					
54 1,1-Dichloropropene	75	Compound Not Detected.					
55 Carbon Tetrachloride	117	Compound Not Detected.					
59 Benzene	78	Compound Not Detected.					
57 1,2-Dichloroethane	62	Compound Not Detected.					
60 TAME	73	Compound Not Detected.					
63 Trichloroethene	95	5.252	5.255	(1.102)	15206	0.40059	0.400586(a)
64 2-Pentanone	43	Compound Not Detected.					
65 Methyl Cyclohexane	55	Compound Not Detected.					
66 1,2-Dichloropropane	63	5.530	5.516	(1.161)	24962	0.77995	0.779950(a)
67 Dibromomethane	93	Compound Not Detected.					
68 Methyl Methacrylate	100	Compound Not Detected.					
69 1,4-Dioxane	88	Compound Not Detected.					
70 Bromodichloromethane	83	Compound Not Detected.					
72 2-Chloroethyl vinyl ether	63	Compound Not Detected.					
73 cis-1,3-Dichloropropene	75	Compound Not Detected.					
74 4-Methyl-2-pentanone	43	Compound Not Detected.					
76 Toluene	91	Compound Not Detected.					
77 trans-1,3-Dichloropropene	75	Compound Not Detected.					
78 Ethyl methacrylate	69	Compound Not Detected.					
79 1,1,2-Trichloroethane	97	Compound Not Detected.					
80 Tetrachloroethene	164	7.914	7.899	(0.858)	35962	1.18334	1.18334
81 1,3-Dichloropropane	76	Compound Not Detected.					
82 2-Hexanone	43	Compound Not Detected.					
84 Dibromochloromethane	129	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
85 1,2-Dibromoethane	107	Compound Not Detected.					
88 1-Chlorohexane	91	Compound Not Detected.					
87 Chlorobenzene	112	Compound Not Detected.					
89 1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
90 Ethylbenzene	106	Compound Not Detected.					
91 m and p-Xylene	106	Compound Not Detected.					
92 o-Xylene	106	Compound Not Detected.					
93 Styrene	104	Compound Not Detected.					
94 Bromoform	173	Compound Not Detected.					
95 isopropyl benzene	105	Compound Not Detected.					
96 cis-1,4-dichloro-2-butene	53	Compound Not Detected.					
97 Cyclohexanone	55	Compound Not Detected.					
99 Bromobenzene	156	Compound Not Detected.					
100 1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
101 1,2,3-Trichloropropane	110	Compound Not Detected.					
102 t-1,4-Dichloro-2-butene	53	Compound Not Detected.					
103 n-Propylbenzene	120	Compound Not Detected.					
104 2-Chlorotoluene	126	Compound Not Detected.					
106 1,3,5-Trimethylbenzene	105	Compound Not Detected.					
105 4-Chlorotoluene	126	Compound Not Detected.					
107 tert-Butylbenzene	119	Compound Not Detected.					
108 1,2,4-Trimethylbenzene	105	Compound Not Detected.					
109 sec-Butylbenzene	134	Compound Not Detected.					
110 1,3-Dichlorobenzene	146	Compound Not Detected.					
112 4-Isopropyltoluene	119	Compound Not Detected.					
113 1,4-dichlorobenzene	146	Compound Not Detected.					
116 n-Butylbenzene	91	Compound Not Detected.					
115 1,2-Dichlorobenzene	146	Compound Not Detected.					
117 1,2-Dibromo-3-chloropropane	157	Compound Not Detected.					
118 1,2,4-Trichlorobenzene	180	Compound Not Detected.					
119 Hexachlorobutadiene	225	Compound Not Detected.					
120 Naphthalene	128	Compound Not Detected.					
121 1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

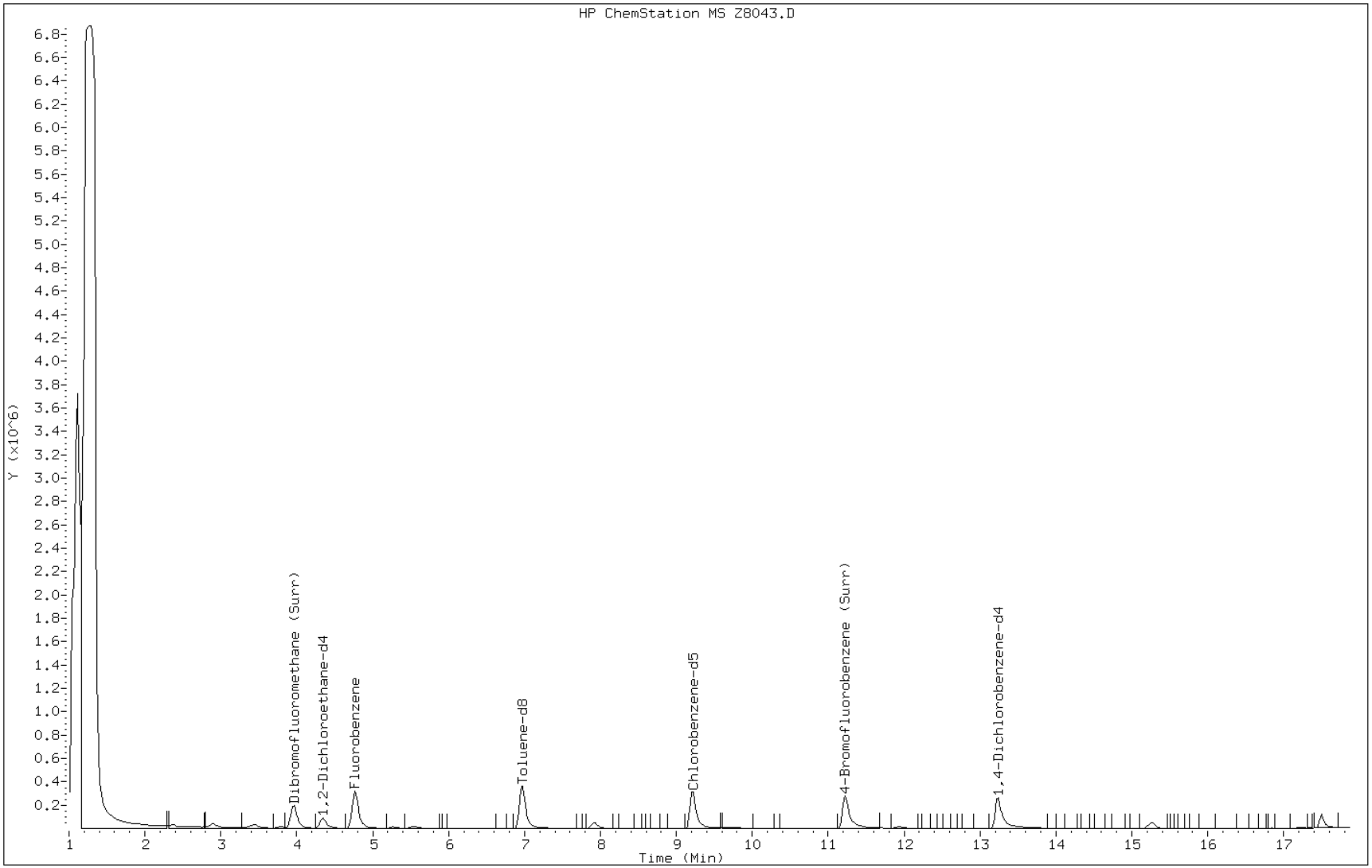
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.

Data File: Z8043.D

Date: 05-JUL-2012 08:28

Client ID: PAFB03-MW05-N-07021 Instrument: Z.i

Sample Info: 280-30655-d-1,,PH=7 Operator: MEIERG



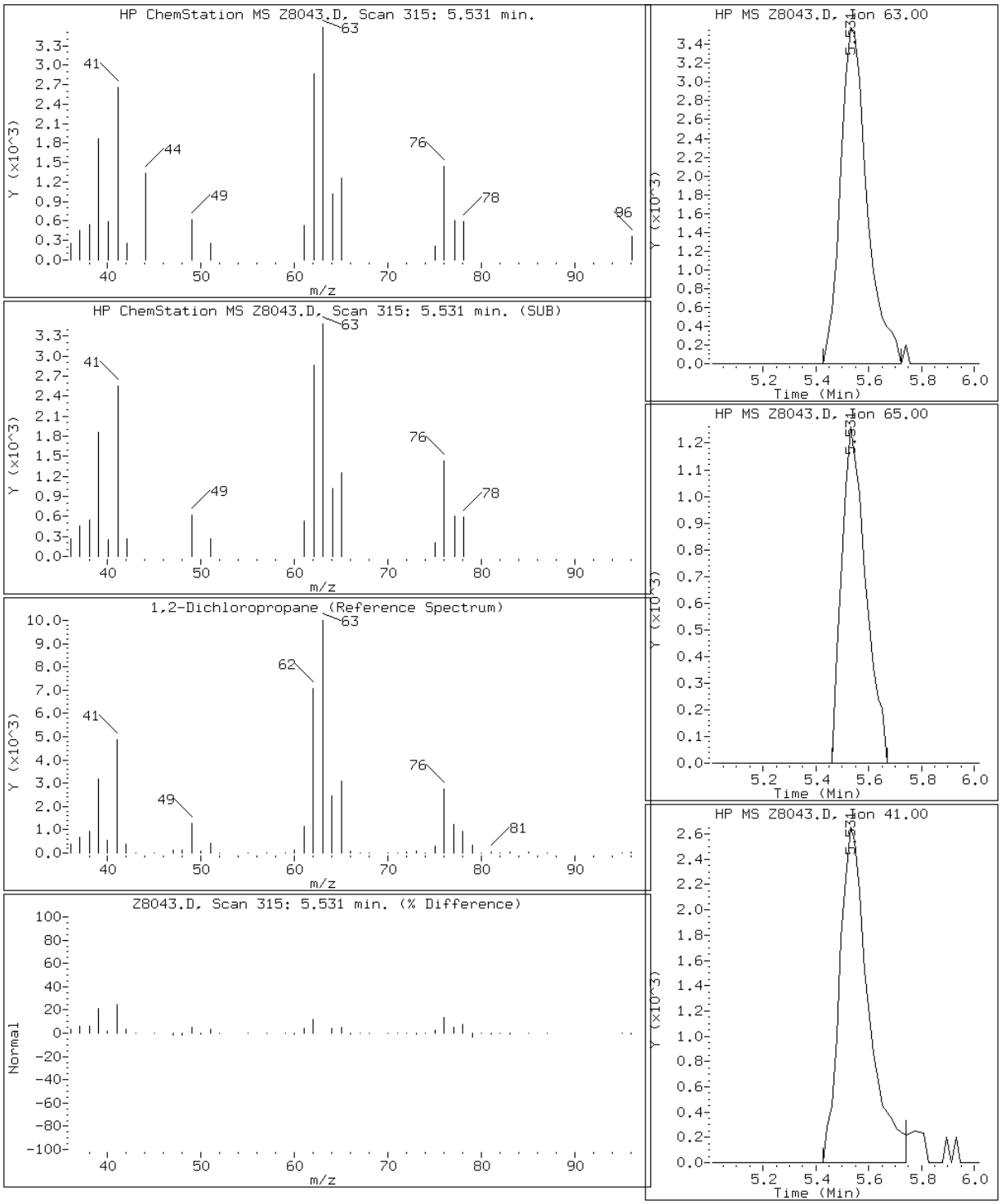
Data File: Z8043.D

Date: 05-JUL-2012 08:28

Client ID: PAFB03-MW05-N-07021 Instrument: Z.i

Sample Info: 280-30655-d-1,,PH=7 Operator: MEIERG

66 1,2-Dichloropropane



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-30655-1

SDG No.:

Client Sample ID: PAFB03-MW05-FD-070212 | Lab Sample ID: 280-30655-2

Matrix: Water | Lab File ID: Z8046.D

Analysis Method: 8260B/AFCEE | Date Collected: 07/02/2012 10:05

Sample wt/vol: 20(mL) | Date Analyzed: 07/05/2012 09:32

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 (75.53) ID: 0.53(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 126759 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
78-87-5	1,2-Dichloropropane	0.76	F	1.0	0.078

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	88		81-120
1868-53-7	Dibromofluoromethane (Surr)	86		85-115
460-00-4	4-Bromofluorobenzene (Surr)	91		76-119
17060-07-0	1,2-Dichloroethane-d4 (Surr)	91		72-119

TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\Z8046.D
Lab Smp Id: 280-30655-C-2 Client Smp ID: PAFB03-MW05-FD-0702
Inj Date : 05-JUL-2012 09:32
Operator : MEIERG Inst ID: Z.i
Smp Info : 280-30655-c-2,,PH=7
Misc Info : 280-30655-C-2
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\8260B-H2O.m
Meth Date : 12-Jun-2012 06:45 meierg Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: DOD.sub
Target Version: 4.14
Processing Host: DENPC186

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
* 62 Fluorobenzene	96	4.761	4.767	(1.000)	909578	12.5000	
* 86 Chlorobenzene-d5	119	9.216	9.204	(1.000)	198516	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.235	13.207	(1.000)	305134	12.5000	(Q)
$ 51 Dibromofluoromethane (Surr)	111	3.961	3.947	(0.832)	388871	7.74496	7.74496
$ 56 1,2-Dichloroethane-d4	65	4.344	4.330	(0.912)	195003	8.21184	8.21184
$ 75 Toluene-d8	98	6.971	6.958	(0.756)	781935	7.87778	7.87778
$ 98 4-Bromofluorobenzene (Surr)	95	11.217	11.186	(0.847)	450874	8.21025	8.21025
M 1 1,2-Dichloroethene (total)	96				16179	0.51884	0.518840(a)
M 2 Xylene (total)	106	Compound Not Detected.					
6 dichlorodifluoromethane	85	Compound Not Detected.					
8 1,2-Dichlorotetrafluoroethane	85	Compound Not Detected.					
7 Chloromethane	50	Compound Not Detected.					
9 Vinyl Chloride	62	Compound Not Detected.					
11 Ethylene Oxide	43	Compound Not Detected.					
12 Bromomethane	94	Compound Not Detected.					
13 Chloroethane	64	Compound Not Detected.					
14 Dichlorofluoromethane	67	Compound Not Detected.					
16 Trichlorofluoromethane	101	Compound Not Detected.					
17 Ethyl Ether	59	1.890	1.894	(0.397)	2848	0.16032	0.160325(a)
19 1,2-dichloro-1,1,2-trifluoro	117	Compound Not Detected.					
20 2,2-dichloro-1,1,1-trifluoro	83	Compound Not Detected.					
21 Acrolein	56	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
23 1,1-Dichloroethene	96	Compound Not Detected.					
24 Trichlorotrifluoroethane	151	Compound Not Detected.					
22 Acetone	43	Compound Not Detected.					
25 Iodomethane	142	Compound Not Detected.					
18 2-propanol	45	Compound Not Detected.					
26 Carbon Disulfide	76	Compound Not Detected.					
39 Allyl Chloride	41	Compound Not Detected.					
27 Methyl Acetate	43	Compound Not Detected.					
28 Methylene Chloride	84	2.360	2.366	(0.496)	13860	0.49752	0.497522(a)
30 tert-Butyl alcohol	59	Compound Not Detected.					
31 Acrylonitrile	53	Compound Not Detected.					
33 Methyl t-butyl ether	73	Compound Not Detected.					
32 trans-1,2-Dichloroethene	96	Compound Not Detected.					
34 Hexane	57	Compound Not Detected.					
36 1,1-Dichloroethane	63	2.899	2.905	(0.609)	83680	1.34319	1.34319
35 Vinyl Acetate	43	Compound Not Detected.					
37 Isopropyl ether	87	Compound Not Detected.					
38 Chloroprene	53	Compound Not Detected.					
40 ETBE	59	Compound Not Detected.					
42 cis-1,2-Dichloroethene	96	3.456	3.462	(0.726)	16179	0.51884	0.518840(a)
43 2,2-Dichloropropane	77	Compound Not Detected.					
41 2-Butanone	43	Compound Not Detected.					
44 Ethyl Acetate	43	Compound Not Detected.					
49 2-Butanol	45	Compound Not Detected.					
46 Methacrylonitrile	41	Compound Not Detected.					
47 Bromochloromethane	128	Compound Not Detected.					
48 Tetrahydrofuran	42	Compound Not Detected.					
50 Chloroform	83	3.787	3.793	(0.795)	31680	0.53515	0.535154
52 1,1,1-Trichloroethane	97	4.013	4.019	(0.843)	9549	0.15871	0.158708(a)
53 Cyclohexane	56	Compound Not Detected.					
54 1,1-Dichloropropene	75	Compound Not Detected.					
55 Carbon Tetrachloride	117	Compound Not Detected.					
59 Benzene	78	Compound Not Detected.					
57 1,2-Dichloroethane	62	Compound Not Detected.					
60 TAME	73	Compound Not Detected.					
63 Trichloroethene	95	5.266	5.255	(1.106)	15881	0.40161	0.401612(a)
64 2-Pentanone	43	Compound Not Detected.					
65 Methyl Cyclohexane	55	Compound Not Detected.					
66 1,2-Dichloropropane	63	5.527	5.516	(1.161)	25239	0.75702	0.757020(a)
67 Dibromomethane	93	Compound Not Detected.					
68 Methyl Methacrylate	100	Compound Not Detected.					
69 1,4-Dioxane	88	Compound Not Detected.					
70 Bromodichloromethane	83	Compound Not Detected.					
72 2-Chloroethyl vinyl ether	63	Compound Not Detected.					
73 cis-1,3-Dichloropropene	75	Compound Not Detected.					
74 4-Methyl-2-pentanone	43	Compound Not Detected.					
76 Toluene	91	Compound Not Detected.					
77 trans-1,3-Dichloropropene	75	Compound Not Detected.					
78 Ethyl methacrylate	69	Compound Not Detected.					
79 1,1,2-Trichloroethane	97	Compound Not Detected.					
80 Tetrachloroethene	164	7.928	7.899	(0.860)	37635	1.17217	1.17217
81 1,3-Dichloropropane	76	Compound Not Detected.					
82 2-Hexanone	43	Compound Not Detected.					
84 Dibromochloromethane	129	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
85 1,2-Dibromoethane	107	Compound Not Detected.					
88 1-Chlorohexane	91	Compound Not Detected.					
87 Chlorobenzene	112	Compound Not Detected.					
89 1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
90 Ethylbenzene	106	Compound Not Detected.					
91 m and p-Xylene	106	Compound Not Detected.					
92 o-Xylene	106	Compound Not Detected.					
93 Styrene	104	Compound Not Detected.					
94 Bromoform	173	Compound Not Detected.					
95 isopropyl benzene	105	Compound Not Detected.					
96 cis-1,4-dichloro-2-butene	53	Compound Not Detected.					
97 Cyclohexanone	55	Compound Not Detected.					
99 Bromobenzene	156	Compound Not Detected.					
100 1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
101 1,2,3-Trichloropropane	110	Compound Not Detected.					
102 t-1,4-Dichloro-2-butene	53	Compound Not Detected.					
103 n-Propylbenzene	120	Compound Not Detected.					
104 2-Chlorotoluene	126	Compound Not Detected.					
106 1,3,5-Trimethylbenzene	105	Compound Not Detected.					
105 4-Chlorotoluene	126	Compound Not Detected.					
107 tert-Butylbenzene	119	Compound Not Detected.					
108 1,2,4-Trimethylbenzene	105	Compound Not Detected.					
109 sec-Butylbenzene	134	Compound Not Detected.					
110 1,3-Dichlorobenzene	146	Compound Not Detected.					
112 4-Isopropyltoluene	119	Compound Not Detected.					
113 1,4-dichlorobenzene	146	13.270	13.241	(1.003)	6540	0.11272	0.112717(aQ)
116 n-Butylbenzene	91	Compound Not Detected.					
115 1,2-Dichlorobenzene	146	Compound Not Detected.					
117 1,2-Dibromo-3-chloropropane	157	Compound Not Detected.					
118 1,2,4-Trichlorobenzene	180	Compound Not Detected.					
119 Hexachlorobutadiene	225	Compound Not Detected.					
120 Naphthalene	128	Compound Not Detected.					
121 1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

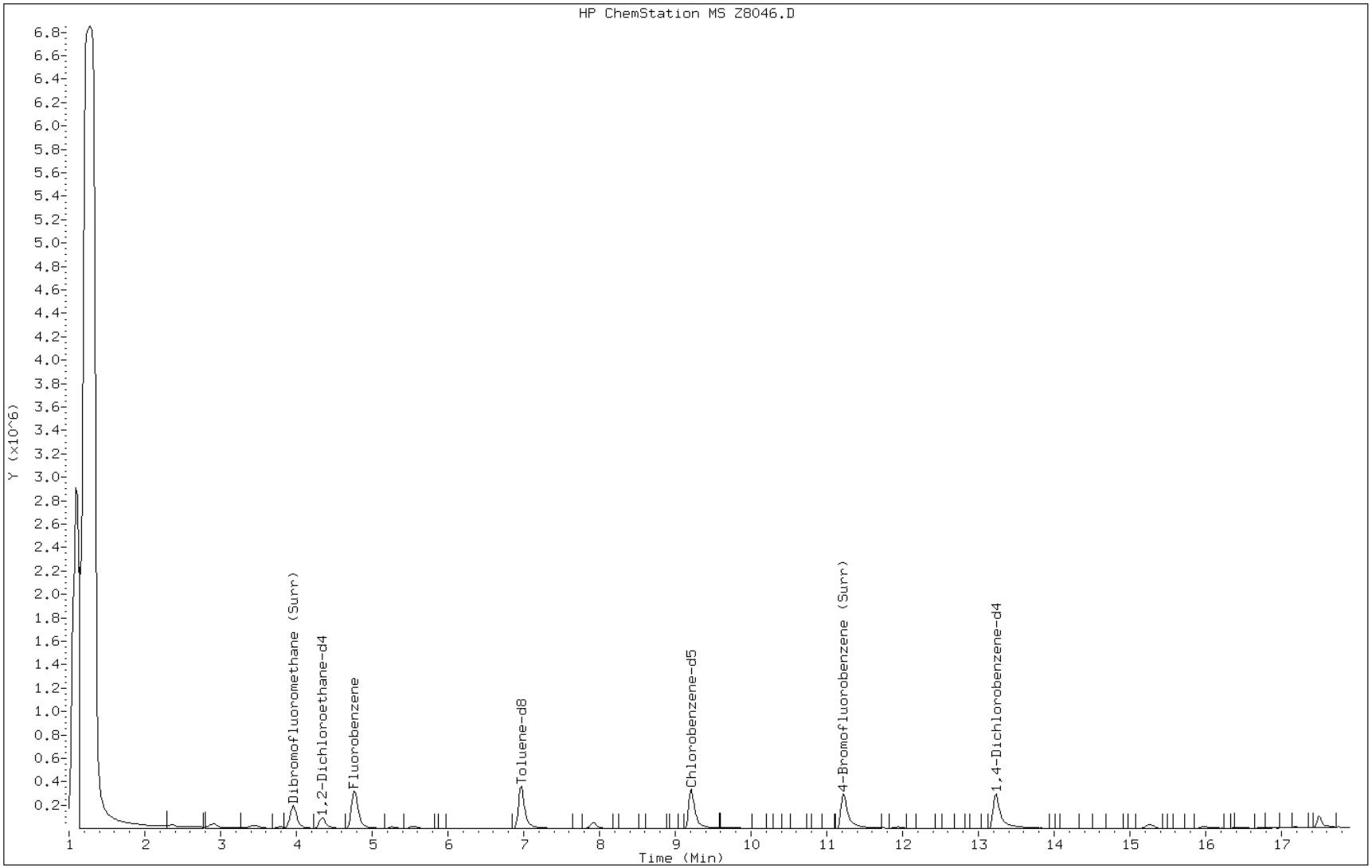
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.

Data File: Z8046.D

Date: 05-JUL-2012 09:32

Client ID: PAFB03-MW05-FD-0702 Instrument: Z.i

Sample Info: 280-30655-c-2,,PH=7 Operator: MEIERG



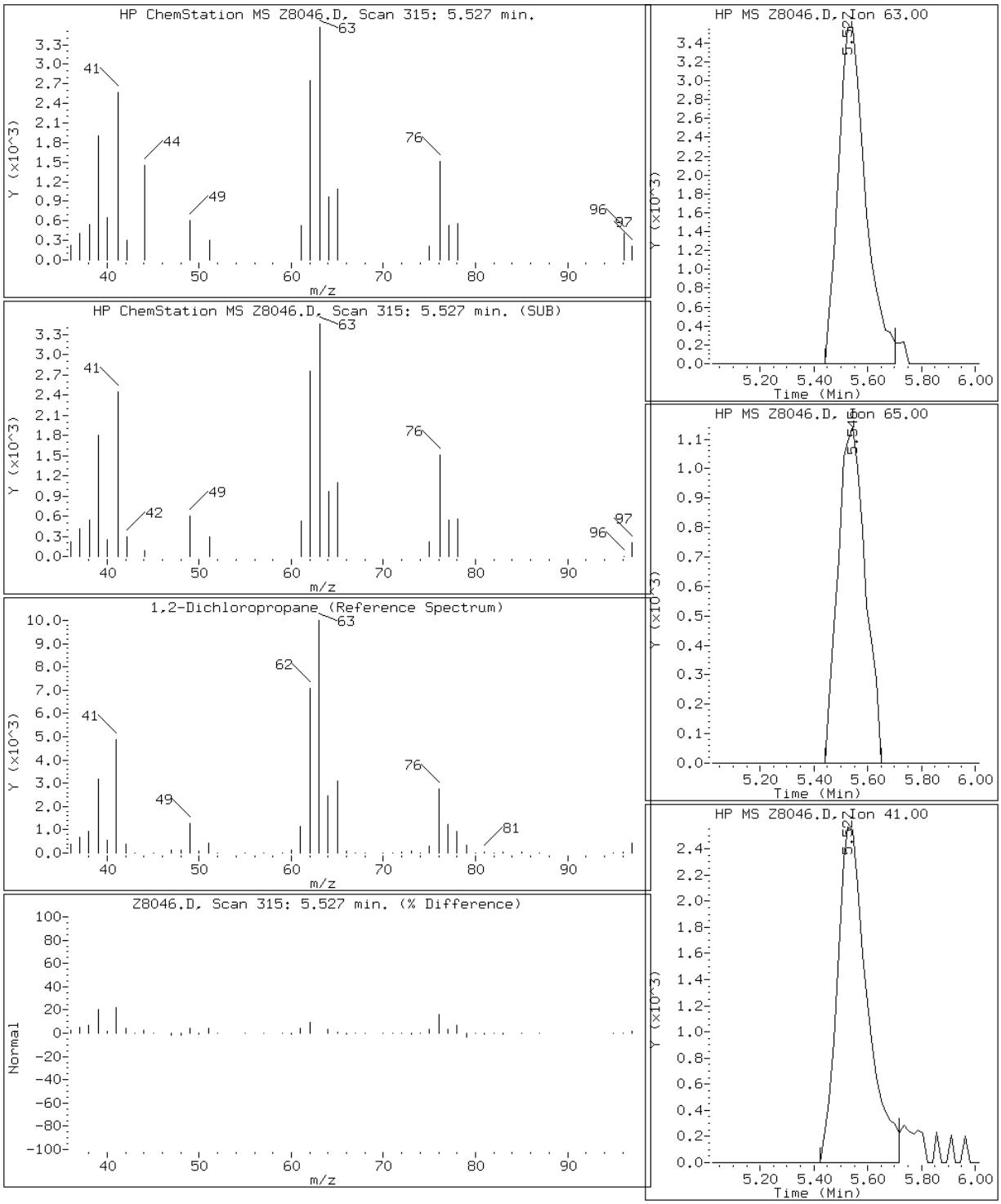
Data File: Z8046.D

Date: 05-JUL-2012 09:32

Client ID: PAFB03-MW05-FD-0702 Instrument: Z.i

Sample Info: 280-30655-c-2,,PH=7 Operator: MEIERG

66 1,2-Dichloropropane



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-30655-1

SDG No.:

Client Sample ID: PAFB03-TRIP-TB-070212 | Lab Sample ID: 280-30655-3

Matrix: Water | Lab File ID: Z8047.D

Analysis Method: 8260B/AFCEE | Date Collected: 07/02/2012 09:30

Sample wt/vol: 20(mL) | Date Analyzed: 07/05/2012 09:54

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 (75.53) ID: 0.53(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 126759 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
78-87-5	1,2-Dichloropropane	0.078	U	1.0	0.078

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	93		81-120
1868-53-7	Dibromofluoromethane (Surr)	92		85-115
460-00-4	4-Bromofluorobenzene (Surr)	98		76-119
17060-07-0	1,2-Dichloroethane-d4 (Surr)	97		72-119

TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\Z8047.D
Lab Smp Id: 280-30655-A-3 Client Smp ID: PAFB03-TRIP-TB-0702
Inj Date : 05-JUL-2012 09:54
Operator : MEIERG Inst ID: Z.i
Smp Info : 280-30655-a-3,,PH=7
Misc Info : 280-30655-A-3
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\8260B-H2O.m
Meth Date : 12-Jun-2012 06:45 meierg Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: DOD.sub
Target Version: 4.14
Processing Host: DENPC186

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
* 62 Fluorobenzene	96	4.778	4.767	(1.000)	858144	12.5000	
* 86 Chlorobenzene-d5	119	9.215	9.204	(1.000)	188288	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.235	13.207	(1.000)	284638	12.5000	(Q)
$ 51 Dibromofluoromethane (Surr)	111	3.977	3.947	(0.832)	393693	8.31095	8.31095
$ 56 1,2-Dichloroethane-d4	65	4.360	4.330	(0.913)	195849	8.74179	8.74179
$ 75 Toluene-d8	98	6.970	6.958	(0.756)	787938	8.36947	8.36947
$ 98 4-Bromofluorobenzene (Surr)	95	11.216	11.186	(0.847)	450155	8.78742	8.78742
M 1 1,2-Dichloroethene (total)	96	Compound Not Detected.					
M 2 Xylene (total)	106	Compound Not Detected.					
6 dichlorodifluoromethane	85	Compound Not Detected.					
8 1,2-Dichlorotetrafluoroethane	85	Compound Not Detected.					
7 Chloromethane	50	Compound Not Detected.					
9 Vinyl Chloride	62	Compound Not Detected.					
11 Ethylene Oxide	43	Compound Not Detected.					
12 Bromomethane	94	Compound Not Detected.					
13 Chloroethane	64	Compound Not Detected.					
14 Dichlorofluoromethane	67	Compound Not Detected.					
16 Trichlorofluoromethane	101	Compound Not Detected.					
17 Ethyl Ether	59	Compound Not Detected.					
19 1,2-dichloro-1,1,2-trifluoro	117	Compound Not Detected.					
20 2,2-dichloro-1,1,1-trifluoro	83	Compound Not Detected.					
21 Acrolein	56	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
23 1,1-Dichloroethene	96	Compound Not Detected.					
24 Trichlorotrifluoroethane	151	Compound Not Detected.					
22 Acetone	43	Compound Not Detected.					
25 Iodomethane	142	Compound Not Detected.					
18 2-propanol	45	Compound Not Detected.					
26 Carbon Disulfide	76	Compound Not Detected.					
39 Allyl Chloride	41	Compound Not Detected.					
27 Methyl Acetate	43	Compound Not Detected.					
28 Methylene Chloride	84	2.376	2.366	(0.497)	9390	0.35727	0.357268(a)
30 tert-Butyl alcohol	59	Compound Not Detected.					
31 Acrylonitrile	53	Compound Not Detected.					
33 Methyl t-butyl ether	73	Compound Not Detected.					
32 trans-1,2-Dichloroethene	96	Compound Not Detected.					
34 Hexane	57	Compound Not Detected.					
36 1,1-Dichloroethane	63	Compound Not Detected.					
35 Vinyl Acetate	43	Compound Not Detected.					
37 Isopropyl ether	87	Compound Not Detected.					
38 Chloroprene	53	Compound Not Detected.					
40 ETBE	59	Compound Not Detected.					
42 cis-1,2-Dichloroethene	96	Compound Not Detected.					
43 2,2-Dichloropropane	77	Compound Not Detected.					
41 2-Butanone	43	Compound Not Detected.					
44 Ethyl Acetate	43	Compound Not Detected.					
49 2-Butanol	45	Compound Not Detected.					
46 Methacrylonitrile	41	Compound Not Detected.					
47 Bromochloromethane	128	Compound Not Detected.					
48 Tetrahydrofuran	42	Compound Not Detected.					
50 Chloroform	83	3.803	3.793	(0.796)	10774	0.19291	0.192908(a)
52 1,1,1-Trichloroethane	97	Compound Not Detected.					
53 Cyclohexane	56	Compound Not Detected.					
54 1,1-Dichloropropene	75	Compound Not Detected.					
55 Carbon Tetrachloride	117	Compound Not Detected.					
59 Benzene	78	Compound Not Detected.					
57 1,2-Dichloroethane	62	Compound Not Detected.					
60 TAME	73	Compound Not Detected.					
63 Trichloroethene	95	Compound Not Detected.					
64 2-Pentanone	43	Compound Not Detected.					
65 Methyl Cyclohexane	55	Compound Not Detected.					
66 1,2-Dichloropropane	63	Compound Not Detected.					
67 Dibromomethane	93	Compound Not Detected.					
68 Methyl Methacrylate	100	Compound Not Detected.					
69 1,4-Dioxane	88	Compound Not Detected.					
70 Bromodichloromethane	83	Compound Not Detected.					
72 2-Chloroethyl vinyl ether	63	Compound Not Detected.					
73 cis-1,3-Dichloropropene	75	Compound Not Detected.					
74 4-Methyl-2-pentanone	43	Compound Not Detected.					
76 Toluene	91	Compound Not Detected.					
77 trans-1,3-Dichloropropene	75	Compound Not Detected.					
78 Ethyl methacrylate	69	Compound Not Detected.					
79 1,1,2-Trichloroethane	97	Compound Not Detected.					
80 Tetrachloroethene	164	Compound Not Detected.					
81 1,3-Dichloropropane	76	Compound Not Detected.					
82 2-Hexanone	43	Compound Not Detected.					
84 Dibromochloromethane	129	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
85 1,2-Dibromoethane	107	Compound Not Detected.					
88 1-Chlorohexane	91	Compound Not Detected.					
87 Chlorobenzene	112	Compound Not Detected.					
89 1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
90 Ethylbenzene	106	Compound Not Detected.					
91 m and p-Xylene	106	Compound Not Detected.					
92 o-Xylene	106	Compound Not Detected.					
93 Styrene	104	Compound Not Detected.					
94 Bromoform	173	Compound Not Detected.					
95 isopropyl benzene	105	Compound Not Detected.					
96 cis-1,4-dichloro-2-butene	53	Compound Not Detected.					
97 Cyclohexanone	55	Compound Not Detected.					
99 Bromobenzene	156	Compound Not Detected.					
100 1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
101 1,2,3-Trichloropropane	110	Compound Not Detected.					
102 t-1,4-Dichloro-2-butene	53	Compound Not Detected.					
103 n-Propylbenzene	120	Compound Not Detected.					
104 2-Chlorotoluene	126	Compound Not Detected.					
106 1,3,5-Trimethylbenzene	105	Compound Not Detected.					
105 4-Chlorotoluene	126	Compound Not Detected.					
107 tert-Butylbenzene	119	Compound Not Detected.					
108 1,2,4-Trimethylbenzene	105	Compound Not Detected.					
109 sec-Butylbenzene	134	Compound Not Detected.					
110 1,3-Dichlorobenzene	146	Compound Not Detected.					
112 4-Isopropyltoluene	119	Compound Not Detected.					
113 1,4-dichlorobenzene	146	Compound Not Detected.					
116 n-Butylbenzene	91	Compound Not Detected.					
115 1,2-Dichlorobenzene	146	Compound Not Detected.					
117 1,2-Dibromo-3-chloropropane	157	Compound Not Detected.					
118 1,2,4-Trichlorobenzene	180	Compound Not Detected.					
119 Hexachlorobutadiene	225	Compound Not Detected.					
120 Naphthalene	128	Compound Not Detected.					
121 1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

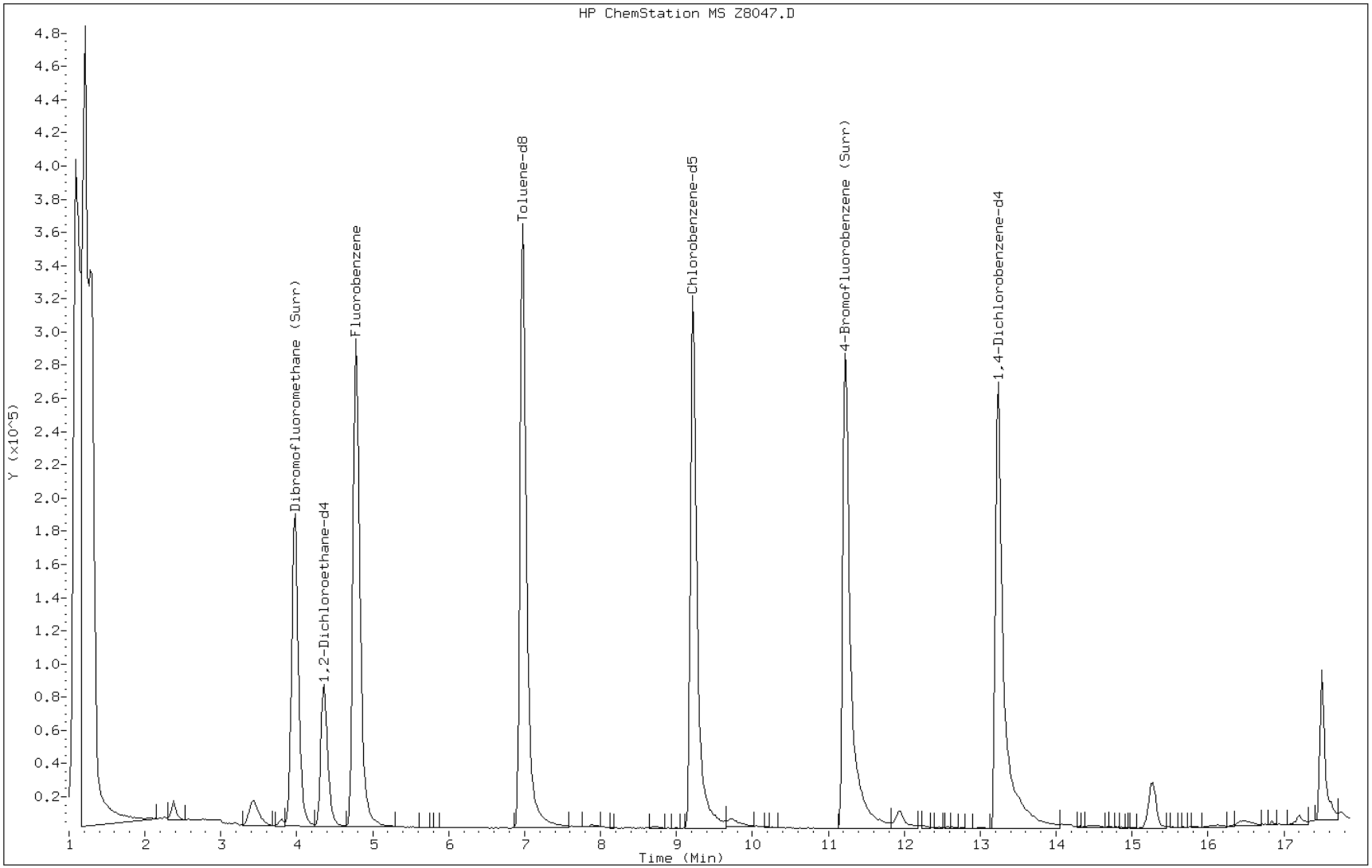
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.

Data File: Z8047.D

Date: 05-JUL-2012 09:54

Client ID: PAFB03-TRIP-TB-0702 Instrument: Z.i

Sample Info: 280-30655-a-3,,PH=7 Operator: MEIERG



FORM VI
GC/MS VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-30655-1 Analy Batch No.: 123533

SDG No.:

Instrument ID: MSV_Z GC Column: DB-624 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/11/2012 10:59 Calibration End Date: 06/11/2012 12:46 Calibration ID: 9582

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-123533/2	Z7128.D
Level 2	IC 280-123533/3	Z7129.D
Level 3	IC 280-123533/4	Z7130.D
Level 4	ICIS 280-123533/5	Z7131.D
Level 5	IC 280-123533/6	Z7132.D
Level 6	IC 280-123533/7	Z7133.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
1,1,2-Trichloro-1,2,2-trifluoroethane	0.5627 0.5172	0.5057	0.5873	0.5898	0.5004	Ave		0.5439				7.5		15.0			
Carbon disulfide	1.6210 1.4387	1.4364	1.6359	1.6020	1.3839	Ave		1.5196				7.4		15.0			
Allyl chloride	0.7914 0.7357	0.7126	0.8185	0.8163	0.7210	Ave		0.7659				6.3		15.0			
Methyl tert-butyl ether	+++++ 0.5932	0.5615	0.6460	0.6523	0.5733	Ave		0.6053				6.9		15.0			
Vinyl acetate	0.5334 0.5445	0.4494	0.5590	0.5562	0.4952	Ave		0.5230				8.2		15.0			
Tetrahydrofuran	+++++ 0.0388	0.0321	0.0346	0.0374	0.0391	Ave		0.0364				8.2		15.0			
Methylcyclohexane	0.8163 0.7115	0.7573	0.7741	0.7653	0.7322	Ave		0.7594				4.8		15.0			
Methyl methacrylate	+++++ 0.0507	0.0430	0.0517	0.0528	0.0495	Ave		0.0495				7.8		15.0			
2-Chloroethyl vinyl ether	+++++ 0.1280	0.0849	0.1075	0.1176	0.1157	Ave		0.1108				14.6		15.0			
Ethyl methacrylate	1.1919 1.5046	1.1835	1.3215	1.3630	1.4257	Ave		1.3317				9.6		15.0			
trans-1,4-Dichloro-2-butene	+++++ 0.1880	0.1145	0.1587	0.1474	0.1837	Lin2	0.0619	0.1832							0.9935		0.9900
Dibromofluoromethane (Surr)	+++++ 0.6385	0.7261	0.7159	0.6956	0.6740	Ave		0.6900				5.1		15.0			
1,2-Dichloroethane-d4 (Surr)	+++++ 0.2912	0.3562	0.3437	0.3244	0.3162	Ave		0.3263				7.7		15.0			
Toluene-d8 (Surr)	6.5660 6.0300	6.6962	6.2600	6.1195	5.8284	Ave		6.2500				5.3		15.0			
4-Bromofluorobenzene (Surr)	2.5453 2.0837	2.1140	2.1982	2.1572	2.3996	Ave		2.2497				8.1		15.0			

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-30655-1 Analy Batch No.: 123533

SDG No.:

Instrument ID: MSV_Z GC Column: DB-624 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/11/2012 10:59 Calibration End Date: 06/11/2012 12:46 Calibration ID: 9582

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-123533/2	Z7128.D
Level 2	IC 280-123533/3	Z7129.D
Level 3	IC 280-123533/4	Z7130.D
Level 4	ICIS 280-123533/5	Z7131.D
Level 5	IC 280-123533/6	Z7132.D
Level 6	IC 280-123533/7	Z7133.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
1,1,2-Trichloro-1,2,2-trifluoroetha ne	FB	Ave	45400 2499939	82258	209938	430381	1248458	1.00 60.0	2.00	5.00	10.0	30.0
Carbon disulfide	FB	Ave	130781 6954443	233664	584760	1168916	3452505	1.00 60.0	2.00	5.00	10.0	30.0
Allyl chloride	FB	Ave	63849 3556196	115925	292588	595638	1798815	1.00 60.0	2.00	5.00	10.0	30.0
Methyl tert-butyl ether	FB	Ave	+++++ 2867360	91346	230934	475986	1430326	+++++ 60.0	2.00	5.00	10.0	30.0
Vinyl acetate	FB	Ave	86064 5263808	146215	399621	811743	2470940	2.00 120	4.00	10.0	20.0	60.0
Tetrahydrofuran	FB	Ave	+++++ 375259	10442	24746	54559	195092	+++++ 120	4.00	10.0	20.0	60.0
Methylcyclohexane	FB	Ave	65856 3439090	123198	276715	558405	1826712	1.00 60.0	2.00	5.00	10.0	30.0
Methyl methacrylate	FB	Ave	+++++ 490041	13998	36939	77117	247020	+++++ 120	4.00	10.0	20.0	60.0
2-Chloroethyl vinyl ether	FB	Ave	+++++ 618628	13813	38440	85841	288715	+++++ 60.0	2.00	5.00	10.0	30.0
Ethyl methacrylate	CBZ	Ave	44611 3190987	80266	213988	455699	1464894	2.00 120	4.00	10.0	20.0	60.0
trans-1,4-Dichloro-2-butene	DCB	Lin2	+++++ 297691	5974	19494	35898	137296	+++++ 60.0	2.00	5.00	10.0	30.0
Dibromofluoromethane (Surr)	FB	Ave	+++++ 3086260	118122	255904	507528	1681507	+++++ 60.0	2.00	5.00	10.0	30.0
1,2-Dichloroethane-d4 (Surr)	FB	Ave	+++++ 1407494	57947	122861	236712	788842	+++++ 60.0	2.00	5.00	10.0	30.0
Toluene-d8 (Surr)	CBZ	Ave	122874 6394352	227064	506855	1023010	2994299	1.00 60.0	2.00	5.00	10.0	30.0
4-Bromofluorobenzene (Surr)	DCB	Ave	65745 3300345	110277	269962	525318	1793196	1.00 60.0	2.00	5.00	10.0	30.0

FORM VI
GC/MS VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-30655-1 Analy Batch No.: 123533

SDG No.:

Instrument ID: MSV_Z GC Column: DB-624 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/11/2012 10:59 Calibration End Date: 06/11/2012 12:46 Calibration ID: 9582

Curve Type Legend:

Ave = Average ISTD
Lin2 = Linear 1/conc^2 ISTD

TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\Z7128.D
Lab Smp Id: IC
Inj Date : 11-JUN-2012 10:59
Operator : MEIERG Inst ID: Z.i
Smp Info : IC,,S1.0
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\8260B-H2O.m
Meth Date : 11-Jun-2012 23:25 Z.i Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 2-supp-.sub
Target Version: 4.14
Processing Host: DENPC293

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
* 62 Fluorobenzene	96	4.761	4.761	(1.000)	1008473	12.5000	
* 86 Chlorobenzene-d5	119	9.216	9.216	(1.000)	233922	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.235	13.235	(1.000)	322880	12.5000	
$ 51 Dibromofluoromethane (Surr)	111	3.961	3.961	(0.832)	63116	1.00000	1.13378
$ 56 1,2-Dichloroethane-d4	65	4.344	4.344	(0.912)	30106	1.00000	1.14348
$ 75 Toluene-d8	98	6.989	6.989	(0.758)	122874	1.00000	1.05055
$ 98 4-Bromofluorobenzene (Surr)	95	11.269	11.269	(0.851)	65745	1.00000	1.13139
11 Ethylene Oxide	43	1.577	1.577	(0.331)	77467	125.000	143.676(a)
14 Dichlorofluoromethane	67	1.734	1.734	(0.364)	86415	1.00000	1.06021(a)
19 1,2-dichloro-1,1,2-trifluoro	117	1.908	1.908	(0.401)	53778	1.00000	1.11270(a)
17 Ethyl Ether	59	1.908	1.908	(0.401)	21612	1.00000	1.09731(a)
20 2,2-dichloro-1,1,1-trifluoro	83	1.942	1.942	(0.408)	90164	1.00000	1.07144(a)
24 Trichlorotrifluoroethane	151	2.116	2.116	(0.445)	45400	1.00000	1.03471(a)
18 2-propanol	45	1.890	1.890	(0.397)	15082	20.0000	22.7394(a)
27 Methyl Acetate	43	2.273	2.273	(0.477)	45965	5.00000	5.22649
39 Allyl Chloride	41	2.273	2.273	(0.477)	63849	1.00000	1.03326(a)
26 Carbon Disulfide	76	2.238	2.238	(0.470)	130781	1.00000	1.06672(a)
33 Methyl t-butyl ether	73	2.586	2.586	(0.543)	52547	1.00000	1.07606(a)
34 Hexane	57	2.778	2.778	(0.301)	59327	1.00000	0.978696(a)
35 Vinyl acetate	43	2.934	2.934	(0.616)	86064	2.00000	2.03989(a)
40 ETBE	59	3.334	3.334	(0.700)	513381	5.00000	5.22751
44 Ethyl Acetate	43	3.543	3.543	(0.744)	38146	2.00000	3.47216(a)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
48 Tetrahydrofuran	42	3.769	3.769	(0.792)	9163	2.00000	3.12002(a)
49 2-Butanol	45	3.735	3.735	(0.784)	21787	30.0000	24.9767
53 Cyclohexane	56	4.100	4.100	(0.861)	72212	1.00000	1.08212(a)
60 TAME	73	4.605	4.605	(0.967)	367494	5.00000	5.49377
64 2-Pentanone	43	Compound Not Detected.					
65 Methyl Cyclohexane	55	5.527	5.527	(1.161)	65856	1.00000	1.07484
68 Methyl Methacrylate	100	5.788	5.788	(1.216)	7237	2.00000	1.81046(a)
71 2-nitropropane	41	6.258	6.258	(1.314)	2254	1.00000	2.01734(aQ)
72 2-Chloroethyl vinyl ether	63	6.467	6.467	(1.358)	5252	1.00000	0.587744(aQ)
78 Ethyl methacrylate	69	7.702	7.702	(0.836)	44611	2.00000	1.79009(a)
83 Tetrahydrothiophene	60	Compound Not Detected.					
96 cis-1,4-dichloro-2-butene	53	11.234	11.234	(0.849)	1264	1.00000	1.80706(aQ)
102 t-1,4-Dichloro-2-butene	53	Compound Not Detected.					
114 1,2,3-Trimethylbenzene	105	13.409	13.409	(1.013)	103468	1.00000	1.01804

QC Flag Legend

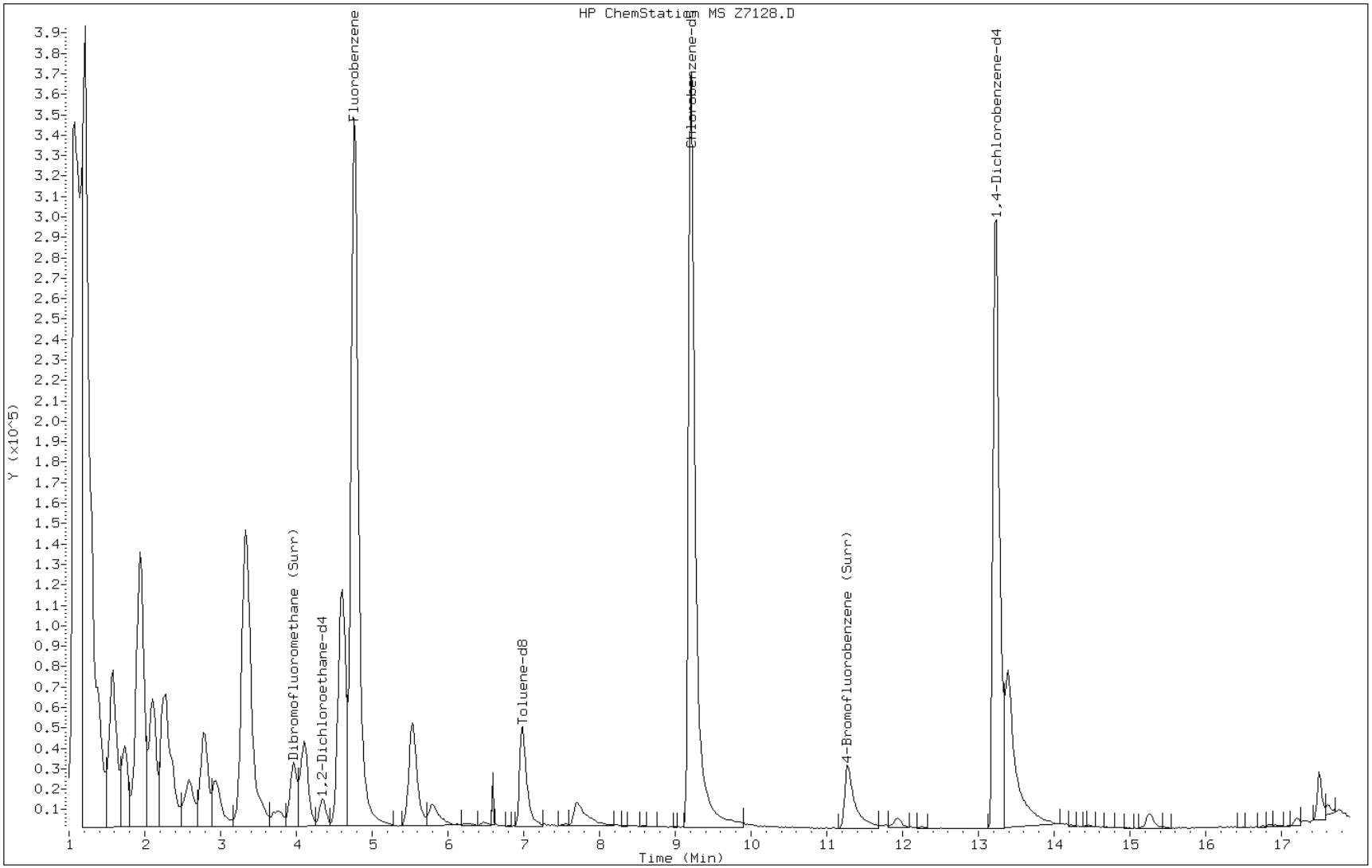
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.

Data File: Z7128.D

Date: 11-JUN-2012 10:59

Client ID: Instrument: Z.i

Sample Info: IC,,S1.0 Operator: MEIERG



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VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\Z7129.D
Lab Smp Id: IC
Inj Date : 11-JUN-2012 11:21
Operator : MEIERG Inst ID: Z.i
Smp Info : IC,,S2.0
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\8260B-H2O.m
Meth Date : 11-Jun-2012 23:25 Z.i Quant Type: ISTD
Cal Date : 11-JUN-2012 10:59 Cal File: Z7128.D
Als bottle: 2 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 2-supp-.sub
Target Version: 4.14
Processing Host: DENPC293

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
* 62 Fluorobenzene	96	4.779	4.779	(1.000)	1016727	12.5000	
* 86 Chlorobenzene-d5	119	9.216	9.216	(1.000)	211934	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.236	13.236	(1.000)	326032	12.5000	
$ 51 Dibromofluoromethane (Surr)	111	3.961	3.961	(0.829)	118122	2.00000	2.10465
$ 56 1,2-Dichloroethane-d4	65	4.344	4.344	(0.909)	57947	2.00000	2.18306
$ 75 Toluene-d8	98	6.989	6.989	(0.758)	227064	2.00000	2.14277
$ 98 4-Bromofluorobenzene (Surr)	95	11.252	11.252	(0.850)	110277	2.00000	1.87939
11 Ethylene Oxide	43	1.577	1.577	(0.330)	134950	250.000	248.257(a)
14 Dichlorofluoromethane	67	1.751	1.751	(0.367)	152760	2.00000	1.85897(a)
19 1,2-dichloro-1,1,2-trifluoro	117	1.925	1.925	(0.403)	90537	2.00000	1.85805(a)
17 Ethyl Ether	59	1.908	1.908	(0.399)	37278	2.00000	1.87736(a)
20 2,2-dichloro-1,1,1-trifluoro	83	1.943	1.943	(0.407)	159601	2.00000	1.88119(a)
24 Trichlorotrifluoroethane	151	2.117	2.117	(0.443)	82258	2.00000	1.85952(a)
18 2-propanol	45	1.908	1.908	(0.399)	26126	40.0000	39.0709(a)
27 Methyl Acetate	43	2.291	2.291	(0.479)	81512	10.0000	9.19315
39 Allyl Chloride	41	2.291	2.291	(0.479)	115925	2.00000	1.86077(a)
26 Carbon Disulfide	76	2.239	2.239	(0.468)	233664	2.00000	1.89041(a)
33 Methyl t-butyl ether	73	2.587	2.587	(0.541)	91346	2.00000	1.85540(a)
34 Hexane	57	2.795	2.795	(0.303)	108116	2.00000	1.96859(a)
35 Vinyl acetate	43	2.935	2.935	(0.614)	146215	4.00000	3.43746
40 ETBE	59	3.335	3.335	(0.698)	905222	10.0000	9.14260
44 Ethyl Acetate	43	3.561	3.561	(0.745)	45800	4.00000	3.83710(aQ)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
48 Tetrahydrofuran	42	3.787	3.787	(0.792)	10442	4.00000	3.52665(aQ)
49 2-Butanol	45	3.735	3.735	(0.782)	39940	60.0000	45.4157
53 Cyclohexane	56	4.101	4.101	(0.858)	131685	2.00000	1.95731(a)
60 TAME	73	4.605	4.605	(0.964)	650078	10.0000	9.63930
64 2-Pentanone	43	5.580	5.580	(1.167)	94497	8.00000	6.90230
65 Methyl Cyclohexane	55	5.527	5.527	(1.157)	123198	2.00000	1.99440
68 Methyl Methacrylate	100	5.771	5.771	(1.208)	13998	4.00000	3.47342(a)
71 2-nitropropane	41	6.258	6.258	(1.309)	2235	2.00000	2.00164(aQ)
72 2-Chloroethyl vinyl ether	63	6.467	6.467	(1.353)	13813	2.00000	1.53324(aQ)
78 Ethyl methacrylate	69	7.685	7.685	(0.834)	80266	4.00000	3.55497
83 Tetrahydrothiophene	60	8.346	8.346	(0.906)	1647	2.00000	2.09514(Q)
96 cis-1,4-dichloro-2-butene	53	11.183	11.183	(0.845)	2903	2.00000	2.06796(a)
102 t-1,4-Dichloro-2-butene	53	11.792	11.792	(0.891)	5974	2.00000	2.02368(aQ)
114 1,2,3-Trimethylbenzene	105	13.392	13.392	(1.012)	193460	2.00000	1.88508

QC Flag Legend

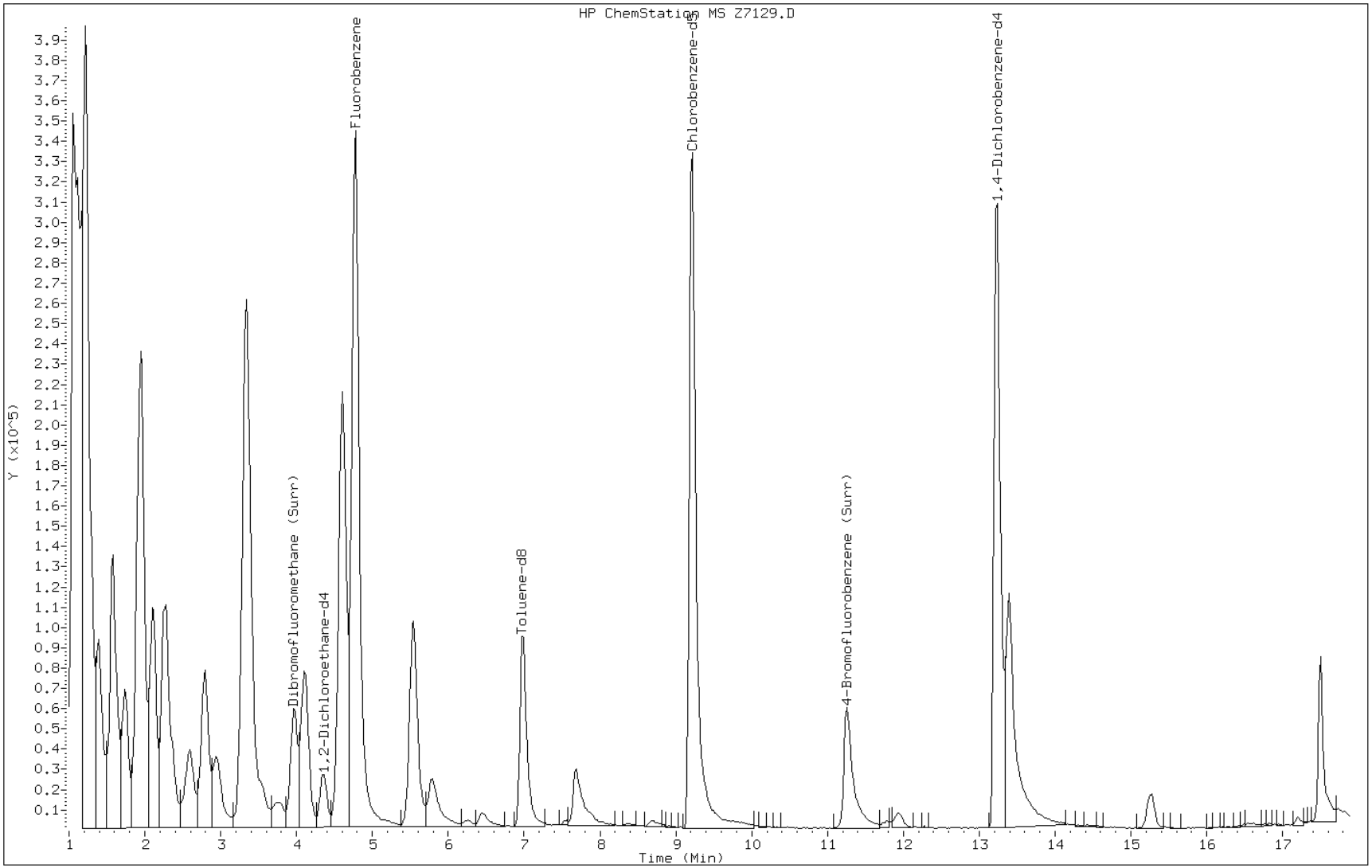
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.

Data File: Z7129.D

Date: 11-JUN-2012 11:21

Client ID: Instrument: Z.i

Sample Info: IC,,S2.0 Operator: MEIERG



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VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\Z7130.D
Lab Smp Id: IC
Inj Date : 11-JUN-2012 11:42
Operator : MEIERG Inst ID: Z.i
Smp Info : IC,,S5.0
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\8260B-H2O.m
Meth Date : 11-Jun-2012 23:25 Z.i Quant Type: ISTD
Cal Date : 18-APR-2012 13:44 Cal File: Z4907.D
Als bottle: 2 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 2-supp-.sub
Target Version: 4.14
Processing Host: DENPC293

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
* 62 Fluorobenzene	96	4.761	4.761	(1.000)	893657	12.5000	
* 86 Chlorobenzene-d5	119	9.216	9.216	(1.000)	202417	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.218	13.218	(1.000)	307029	12.5000	
$ 51 Dibromofluoromethane (Surr)	111	3.961	3.961	(0.832)	255904	5.00000	5.18752
$ 56 1,2-Dichloroethane-d4	65	4.344	4.344	(0.912)	122861	5.00000	5.26602
$ 75 Toluene-d8	98	6.971	6.971	(0.756)	506855	5.00000	5.00801
$ 98 4-Bromofluorobenzene (Surr)	95	11.217	11.217	(0.849)	269962	5.00000	4.88557
11 Ethylene Oxide	43	1.577	1.577	(0.331)	336333	625.000	703.934
14 Dichlorofluoromethane	67	1.751	1.751	(0.368)	392870	5.00000	5.43932
19 1,2-dichloro-1,1,2-trifluoro	117	1.925	1.925	(0.404)	230127	5.00000	5.37319
17 Ethyl Ether	59	1.908	1.908	(0.401)	94457	5.00000	5.41207
20 2,2-dichloro-1,1,1-trifluoro	83	1.942	1.942	(0.408)	408464	5.00000	5.47752
24 Trichlorotrifluoroethane	151	2.116	2.116	(0.445)	209938	5.00000	5.39942
18 2-propanol	45	1.908	1.908	(0.401)	65311	100.000	111.122
27 Methyl Acetate	43	2.290	2.290	(0.481)	206834	25.0000	26.5398
39 Allyl Chloride	41	2.290	2.290	(0.481)	292588	5.00000	5.34326
26 Carbon Disulfide	76	2.238	2.238	(0.470)	584760	5.00000	5.38239
33 Methyl t-butyl ether	73	2.586	2.586	(0.543)	230934	5.00000	5.33665
34 Hexane	57	2.795	2.795	(0.303)	270418	5.00000	5.15531
35 Vinyl acetate	43	2.934	2.934	(0.616)	399621	10.0000	10.6888
40 ETBE	59	3.334	3.334	(0.700)	2292346	25.0000	26.3408
44 Ethyl Acetate	43	3.543	3.543	(0.744)	164401	10.0000	10.8578

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
48 Tetrahydrofuran	42	3.787	3.787	(0.795)	24746	10.0000	9.50862
49 2-Butanol	45	3.717	3.717	(0.781)	115430	150.000	149.331
53 Cyclohexane	56	4.100	4.100	(0.861)	300529	5.00000	5.08211
60 TAME	73	4.605	4.605	(0.967)	1483823	25.0000	25.0320
64 2-Pentanone	43	5.527	5.527	(1.161)	246127	20.0000	20.4535
65 Methyl Cyclohexane	55	5.527	5.527	(1.161)	276715	5.00000	5.09652
68 Methyl Methacrylate	100	5.771	5.771	(1.212)	36939	10.0000	10.4282
71 2-nitropropane	41	6.223	6.223	(1.307)	8281	5.00000	5.01273(M)
72 2-Chloroethyl vinyl ether	63	6.414	6.414	(1.347)	38440	5.00000	4.85446
78 Ethyl methacrylate	69	7.650	7.650	(0.830)	213988	10.0000	9.92310
83 Tetrahydrothiophene	60	8.294	8.294	(0.900)	21198	5.00000	4.58482(Q)
96 cis-1,4-dichloro-2-butene	53	11.130	11.130	(0.842)	18011	5.00000	4.66993(Q)
102 t-1,4-Dichloro-2-butene	53	11.704	11.704	(0.885)	19494	5.00000	5.10629(Q)
114 1,2,3-Trimethylbenzene	105	13.392	13.392	(1.013)	484596	5.00000	5.01416

QC Flag Legend

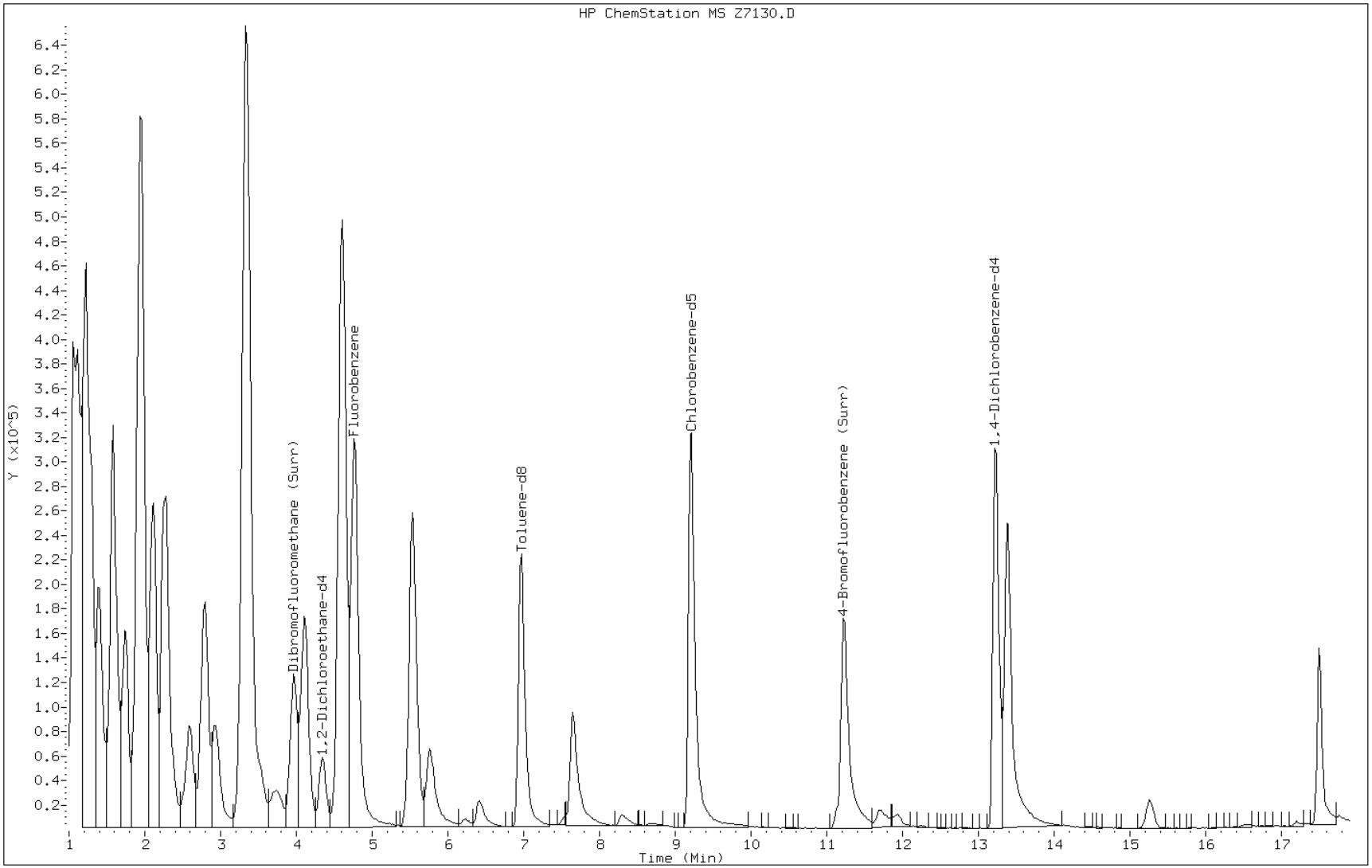
Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Data File: Z7130.D

Date: 11-JUN-2012 11:42

Client ID: Instrument: Z.i

Sample Info: IC,,S5.0 Operator: MEIERG



TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\Z7131.D
Lab Smp Id: ICIS
Inj Date : 11-JUN-2012 12:03
Operator : MEIERG Inst ID: Z.i
Smp Info : ICIS,,S10
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\8260B-H2O.m
Meth Date : 11-Jun-2012 23:28 Z.i Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 2-supp-.sub
Target Version: 4.14
Processing Host: DENPC293

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
* 62 Fluorobenzene	96	4.767	4.767	(1.000)	912076	12.5000	
* 86 Chlorobenzene-d5	119	9.204	9.204	(1.000)	208964	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.224	13.224	(1.000)	304398	12.5000	
$ 51 Dibromofluoromethane (Surr)	111	3.966	3.966	(0.832)	507528	10.0000	10.0805
$ 56 1,2-Dichloroethane-d4	65	4.349	4.349	(0.912)	236712	10.0000	9.94096
$ 75 Toluene-d8	98	6.959	6.959	(0.756)	1023010	10.0000	9.79123
$ 98 4-Bromofluorobenzene (Surr)	95	11.205	11.205	(0.847)	525318	10.0000	9.58898
11 Ethylene Oxide	43	1.583	1.583	(0.332)	665382	1250.00	1364.50
14 Dichlorofluoromethane	67	1.757	1.757	(0.369)	782367	10.0000	10.6132
19 1,2-dichloro-1,1,2-trifluoro	117	1.931	1.931	(0.405)	462128	10.0000	10.5722
17 Ethyl Ether	59	1.913	1.913	(0.401)	188834	10.0000	10.6011
20 2,2-dichloro-1,1,1-trifluoro	83	1.948	1.948	(0.409)	810492	10.0000	10.6492
24 Trichlorotrifluoroethane	151	2.122	2.122	(0.445)	430381	10.0000	10.8455
18 2-propanol	45	1.913	1.913	(0.401)	131783	200.000	219.692
27 Methyl Acetate	43	2.279	2.279	(0.478)	423278	50.0000	53.2159
39 Allyl Chloride	41	2.296	2.296	(0.482)	595638	10.0000	10.6579
26 Carbon Disulfide	76	2.244	2.244	(0.471)	1168916	10.0000	10.5419
33 Methyl t-butyl ether	73	2.592	2.592	(0.544)	475986	10.0000	10.7774
34 Hexane	57	2.801	2.801	(0.304)	556624	10.0000	10.2791
35 Vinyl acetate	43	2.940	2.940	(0.617)	811743	20.0000	21.2734
40 ETBE	59	3.340	3.340	(0.701)	4774762	50.0000	53.7576
44 Ethyl Acetate	43	3.531	3.531	(0.741)	356104	20.0000	21.2924(Q)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
48 Tetrahydrofuran	42	3.775	3.775	(0.792)	54559	20.0000	20.5409
49 2-Butanol	45	3.705	3.705	(0.777)	249002	300.000	315.627
53 Cyclohexane	56	4.106	4.106	(0.861)	598677	10.0000	9.91950
60 TAME	73	4.610	4.610	(0.967)	3037328	50.0000	50.2048
64 2-Pentanone	43	5.515	5.515	(1.157)	532179	40.0000	43.3318
65 Methyl Cyclohexane	55	5.532	5.532	(1.161)	558405	10.0000	10.0770
68 Methyl Methacrylate	100	5.759	5.759	(1.208)	77117	20.0000	21.3312
71 2-nitropropane	41	6.228	6.228	(1.307)	19178	10.0000	10.0227
72 2-Chloroethyl vinyl ether	63	6.402	6.402	(1.343)	85841	10.0000	10.6216
78 Ethyl methacrylate	69	7.638	7.638	(0.830)	455699	20.0000	20.4697
83 Tetrahydrothiophene	60	8.282	8.282	(0.900)	58364	10.0000	9.06785
96 cis-1,4-dichloro-2-butene	53	11.118	11.118	(0.841)	44970	10.0000	9.32771(Q)
102 t-1,4-Dichloro-2-butene	53	11.658	11.658	(0.882)	35898	10.0000	8.82152
114 1,2,3-Trimethylbenzene	105	13.380	13.380	(1.012)	983257	10.0000	10.2618

QC Flag Legend

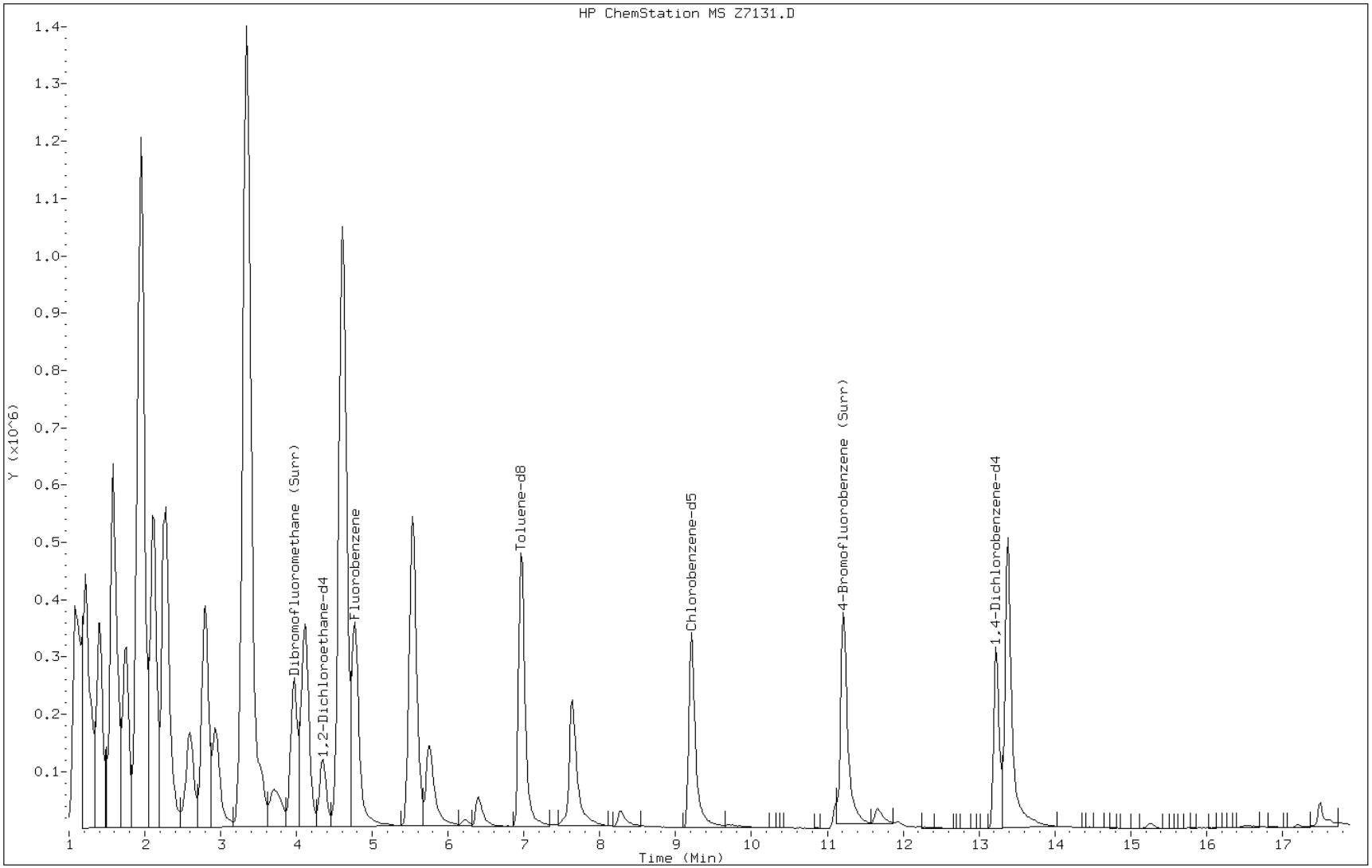
Q - Qualifier signal failed the ratio test.

Data File: Z7131.D

Date: 11-JUN-2012 12:03

Client ID: Instrument: Z.i

Sample Info: ICIS,,S10 Operator: MEIERG



TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\Z7132.D
Lab Smp Id: IC
Inj Date : 11-JUN-2012 12:25
Operator : MEIERG Inst ID: Z.i
Smp Info : IC,,S30
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\8260B-H2O.m
Meth Date : 11-Jun-2012 23:25 Z.i Quant Type: ISTD
Cal Date : 18-APR-2012 14:27 Cal File: Z4909.D
Als bottle: 2 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 2-supp-.sub
Target Version: 4.14
Processing Host: DENPC293

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
* 62 Fluorobenzene	96	4.762	4.762	(1.000)	1039473	12.5000	
* 86 Chlorobenzene-d5	119	9.199	9.199	(1.000)	214059	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.219	13.219	(1.000)	311366	12.5000	
$ 51 Dibromofluoromethane (Surr)	111	3.944	3.944	(0.828)	1681507	30.0000	29.3048
$ 56 1,2-Dichloroethane-d4	65	4.327	4.327	(0.909)	788842	30.0000	29.0680
$ 75 Toluene-d8	98	6.955	6.955	(0.756)	2994299	30.0000	27.9763
$ 98 4-Bromofluorobenzene (Surr)	95	11.200	11.200	(0.847)	1793196	30.0000	31.9999
11 Ethylene Oxide	43	1.561	1.561	(0.328)	1881866	3750.00	3386.17
14 Dichlorofluoromethane	67	1.735	1.735	(0.364)	2322303	30.0000	27.6422
19 1,2-dichloro-1,1,2-trifluoro	117	1.909	1.909	(0.401)	1346821	30.0000	27.0354
17 Ethyl Ether	59	1.891	1.891	(0.397)	554195	30.0000	27.2992
20 2,2-dichloro-1,1,1-trifluoro	83	1.943	1.943	(0.408)	2360922	30.0000	27.2188
24 Trichlorotrifluoroethane	151	2.100	2.100	(0.441)	1248458	30.0000	27.6050
18 2-propanol	45	1.891	1.891	(0.397)	374145	600.000	547.283
27 Methyl Acetate	43	2.274	2.274	(0.478)	1270258	150.000	140.128
39 Allyl Chloride	41	2.274	2.274	(0.478)	1798815	30.0000	28.2419
26 Carbon Disulfide	76	2.222	2.222	(0.467)	3452505	30.0000	27.3205
33 Methyl t-butyl ether	73	2.587	2.587	(0.543)	1430326	30.0000	28.4167
34 Hexane	57	2.779	2.779	(0.302)	1658418	30.0000	29.8969
35 Vinyl acetate	43	2.918	2.918	(0.613)	2470940	60.0000	56.8196
40 ETBE	59	3.335	3.335	(0.700)	14307474	150.000	141.341
44 Ethyl Acetate	43	3.509	3.509	(0.737)	1123247	60.0000	56.1720

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
48 Tetrahydrofuran	42	3.770	3.770	(0.792)	195092	60.0000	64.4480
49 2-Butanol	45	3.666	3.666	(0.770)	888757	900.000	988.489
53 Cyclohexane	56	4.101	4.101	(0.861)	2011898	30.0000	29.2497
60 TAME	73	4.606	4.606	(0.967)	10290690	150.000	149.250
64 2-Pentanone	43	5.476	5.476	(1.150)	1943196	120.000	138.830
65 Methyl Cyclohexane	55	5.528	5.528	(1.161)	1826712	30.0000	28.9247
68 Methyl Methacrylate	100	5.737	5.737	(1.205)	247020	60.0000	59.9535
71 2-nitropropane	41	6.207	6.207	(1.303)	66379	30.0000	28.2692
72 2-Chloroethyl vinyl ether	63	6.381	6.381	(1.340)	288715	30.0000	31.3461
78 Ethyl methacrylate	69	7.616	7.616	(0.828)	1464894	60.0000	64.2359
83 Tetrahydrothiophene	60	8.242	8.242	(0.896)	240456	30.0000	30.7416
96 cis-1,4-dichloro-2-butene	53	11.079	11.079	(0.838)	186314	30.0000	32.8928(Q)
102 t-1,4-Dichloro-2-butene	53	11.618	11.618	(0.879)	137296	30.0000	30.8661
114 1,2,3-Trimethylbenzene	105	13.376	13.376	(1.012)	2986181	30.0000	30.4679

QC Flag Legend

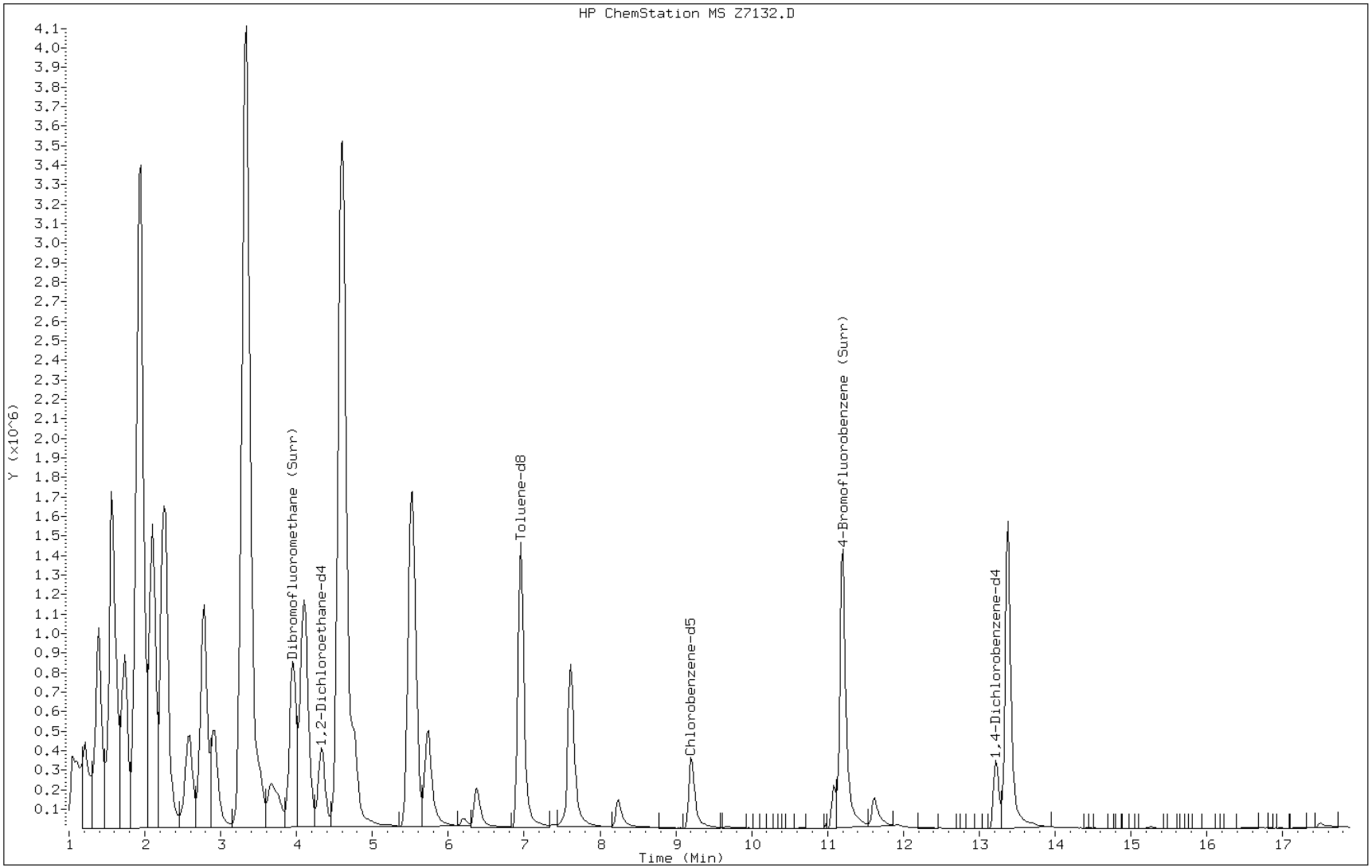
Q - Qualifier signal failed the ratio test.

Data File: Z7132.D

Date: 11-JUN-2012 12:25

Client ID: Instrument: Z.i

Sample Info: IC,,S30 Operator: MEIERG



TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\Z7133.D
Lab Smp Id: IC
Inj Date : 11-JUN-2012 12:46
Operator : MEIERG Inst ID: Z.i
Smp Info : IC,,S60
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\8260B-H2O.m
Meth Date : 11-Jun-2012 23:27 Z.i Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 2-supp-.sub
Target Version: 4.14
Processing Host: DENPC293

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
* 62 Fluorobenzene	96	4.765	4.765	(1.000)	1007059	12.5000	
* 86 Chlorobenzene-d5	119	9.202	9.202	(1.000)	220923	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.222	13.222	(1.000)	329973	12.5000	
$ 51 Dibromofluoromethane (Surr)	111	3.947	3.947	(0.828)	3086260	60.0000	55.5176
$ 56 1,2-Dichloroethane-d4	65	4.330	4.330	(0.909)	1407494	60.0000	53.5341
$ 75 Toluene-d8	98	6.958	6.958	(0.756)	6394352	60.0000	57.8874
$ 98 4-Bromofluorobenzene (Surr)	95	11.186	11.186	(0.846)	3300345	60.0000	55.5742
11 Ethylene Oxide	43	1.563	1.563	(0.328)	3578205	7500.00	6645.74
14 Dichlorofluoromethane	67	1.737	1.737	(0.365)	4589173	60.0000	56.3828
19 1,2-dichloro-1,1,2-trifluoro	117	1.911	1.911	(0.401)	2679313	60.0000	55.5142
17 Ethyl Ether	59	1.894	1.894	(0.398)	1075643	60.0000	54.6907
20 2,2-dichloro-1,1,1-trifluoro	83	1.929	1.929	(0.405)	4639876	60.0000	55.2144
24 Trichlorotrifluoroethane	151	2.103	2.103	(0.441)	2499939	60.0000	57.0560
18 2-propanol	45	1.894	1.894	(0.398)	716430	1200.00	1081.69
27 Methyl Acetate	43	2.259	2.259	(0.474)	2569574	300.000	292.586
39 Allyl Chloride	41	2.277	2.277	(0.478)	3556196	60.0000	57.6304
26 Carbon Disulfide	76	2.225	2.225	(0.467)	6954443	60.0000	56.8036
33 Methyl t-butyl ether	73	2.573	2.573	(0.540)	2867360	60.0000	58.8002
34 Hexane	57	2.781	2.781	(0.302)	3371333	60.0000	58.8880
35 Vinyl acetate	43	2.921	2.921	(0.613)	5263808	120.000	124.938(A)
40 ETBE	59	3.338	3.338	(0.701)	28514214	300.000	290.754
44 Ethyl Acetate	43	3.512	3.512	(0.737)	2198162	120.000	111.873

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
48 Tetrahydrofuran	42	3.756	3.756	(0.788)	375259	120.000	127.956(A)
49 2-Butanol	45	3.669	3.669	(0.770)	1720202	1800.00	1974.82(A)
53 Cyclohexane	56	4.104	4.104	(0.861)	3821863	60.0000	57.3520
60 TAME	73	4.609	4.609	(0.967)	18775999	300.000	281.082
64 2-Pentanone	43	5.479	5.479	(1.150)	2845490	240.000	209.837
65 Methyl Cyclohexane	55	5.531	5.531	(1.161)	3439090	60.0000	56.2083
68 Methyl Methacrylate	100	5.722	5.722	(1.201)	490041	120.000	122.765(A)
71 2-nitropropane	41	6.209	6.209	(1.303)	145922	60.0000	62.7930(AM)
72 2-Chloroethyl vinyl ether	63	6.366	6.366	(1.336)	618628	60.0000	69.3270(A)
78 Ethyl methacrylate	69	7.601	7.601	(0.826)	3190987	120.000	135.578(A)
83 Tetrahydrothiophene	60	8.228	8.228	(0.894)	540778	60.0000	64.7537(A)
96 cis-1,4-dichloro-2-butene	53	11.082	11.082	(0.838)	362146	60.0000	58.9932
102 t-1,4-Dichloro-2-butene	53	11.604	11.604	(0.878)	297691	60.0000	62.3426(A)
114 1,2,3-Trimethylbenzene	105	13.378	13.378	(1.012)	6199744	60.0000	59.6889

QC Flag Legend

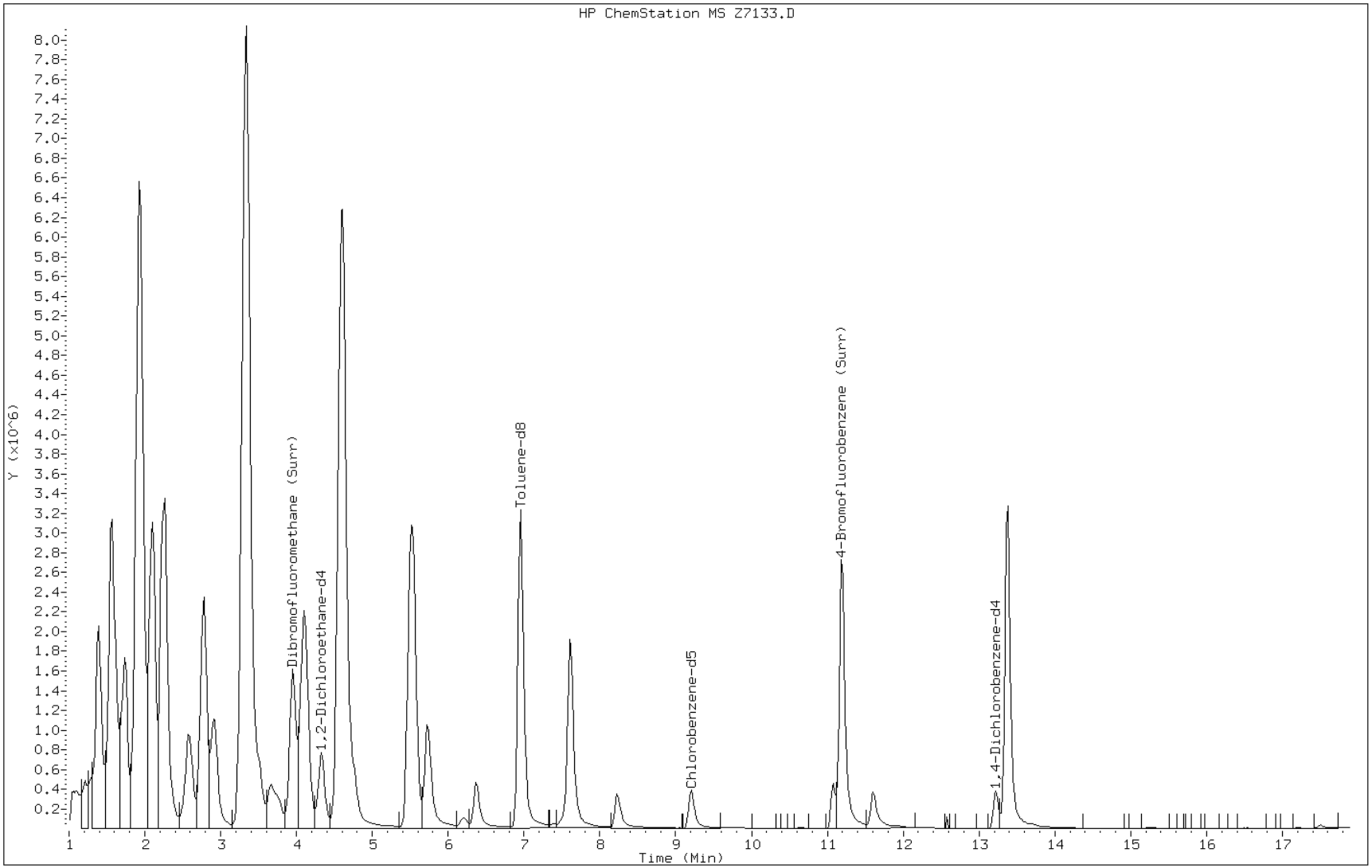
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

Data File: Z7133.D

Date: 11-JUN-2012 12:46

Client ID: Instrument: Z.i

Sample Info: IC,,S60 Operator: MEIERG



FORM VI
GC/MS VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-30655-1 Analy Batch No.: 123533

SDG No.:

Instrument ID: MSV_Z GC Column: DB-624 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/11/2012 13:29 Calibration End Date: 06/11/2012 15:37 Calibration ID: 9583

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-123533/9	Z7135.D
Level 2	IC 280-123533/10	Z7136.D
Level 3	IC 280-123533/11	Z7137.D
Level 4	IC 280-123533/12	Z7138.D
Level 5	IC 280-123533/13	Z7139.D
Level 6	IC 280-123533/14	Z7140.D
Level 7	IC 280-123533/15	Z7141.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
1,2-Dichloroethene, Total	+++++ 0.4551	0.4133 0.4508	0.4099	0.4134	0.4772	Ave		0.4366				6.5		15.0			
Xylenes, Total	+++++ 2.9523	2.7987 2.9902	2.6869	2.6845	3.0134	Ave		2.8543				5.3		15.0			
Dichlorodifluoromethane	+++++ 0.6981	0.4947 0.6871	0.4853	0.5991	0.6982	Lin2	0.0276	0.6863							0.9924		0.9900
Chloromethane	+++++ 0.5032	0.4132 0.4895	0.4141	0.4450	0.5076	Ave		0.4621			0.1000	9.4		15.0			
Vinyl chloride	+++++ 0.4030	0.3530 0.3935	0.3643	0.3697	0.4217	Ave		0.3842				6.8		30.0			
Bromomethane	+++++ 0.3642	0.3446 0.3502	0.3565	0.3408	0.3859	Ave		0.3570				4.6		15.0			
Chloroethane	+++++ 0.2573	0.2483 0.2388	0.2451	0.2386	0.2710	Ave		0.2498				5.0		15.0			
Trichlorofluoromethane	+++++ 0.9484	0.8385 0.9064	0.8561	0.8642	0.9844	Ave		0.8997				6.4		15.0			
Acrolein	+++++ 0.0174	0.0175 0.0174	0.0167	0.0159	0.0185	Ave		0.0172				5.2		15.0			
1,1-Dichloroethene	+++++ 0.4177	0.3659 0.3964	0.3726	0.3671	0.4218	Ave		0.3903				6.5		30.0			
Acetone	+++++ 0.0317	0.0474 0.0292	0.0376	0.0307	0.0342	Lin2	-0.176	0.0301							0.9944		0.9900
Iodomethane	+++++ 0.9433	0.7906 0.8981	0.8133	0.7946	0.9368	Ave		0.8628				8.3		15.0			
Acetonitrile	+++++ 0.0071	+++++ 0.0063	0.0070	0.0062	0.0072	Ave		0.0068				7.3		15.0			
Methylene Chloride	+++++ 0.3648	+++++ 0.3496	0.4624	0.3537	0.3838	Ave		0.3828				12.1		15.0			

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-30655-1 Analy Batch No.: 123533

SDG No.:

Instrument ID: MSV_Z GC Column: DB-624 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/11/2012 13:29 Calibration End Date: 06/11/2012 15:37 Calibration ID: 9583

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Acrylonitrile	+++++ 0.0354	0.0322 0.0352	0.0319	0.0308	0.0369	Ave		0.0337				7.2		15.0			
trans-1,2-Dichloroethene	0.4037 0.4712	0.4088 0.4605	0.4243	0.4137	0.4735	Ave		0.4365				7.0		15.0			
1,1-Dichloroethane	0.8251 0.9113	0.8018 0.8984	0.8507	0.7872	0.9185	Ave		0.8562			0.1000	6.3		15.0			
2-Butanone (MEK)	+++++ 0.0697	0.0814 0.0708	0.0652	0.0696	0.0813	Ave		0.0730				9.2		15.0			
2-Chloro-1,3-butadiene	+++++ 0.8353	0.7665 0.8166	0.7940	0.7458	0.8653	Ave		0.8039				5.5		15.0			
cis-1,2-Dichloroethene	0.4126 0.4390	0.4177 0.4412	0.3954	0.4131	0.4808	Ave		0.4285				6.5		15.0			
2,2-Dichloropropane	+++++ 0.6901	0.7328 0.6777	0.6614	0.6776	0.7726	Ave		0.7021				6.0		15.0			
Propionitrile	+++++ 0.0124	+++++ 0.0125	0.0103	0.0115	0.0138	Ave		0.0121				10.9		15.0			
Methacrylonitrile	+++++ 0.0999	0.0906 0.0989	0.0808	0.0899	0.1119	Ave		0.0953				11.2		15.0			
Chlorobromomethane	0.1509 0.1985	0.1816 0.1957	0.1690	0.1812	0.2147	Ave		0.1845				11.3		15.0			
Isobutyl alcohol	+++++ 0.0033	+++++ 0.0038	0.0017	0.0025	0.0035	Lin2	1.8431	0.0037							0.9913		0.9900
Chloroform	0.7856 0.8406	0.7931 0.8256	0.7458	0.7926	0.9114	Ave		0.8135				6.5		30.0			
1,1,1-Trichloroethane	0.7930 0.8506	0.8123 0.8361	0.7610	0.8136	0.9214	Ave		0.8269				6.1		15.0			
1,4-Dioxane	+++++ 0.0011	+++++ 0.0011	0.0002	0.0006	0.0009	Lin1	7.3154	0.0011							0.9976		0.9900
1,1-Dichloropropene	0.7348 0.7294	0.7088 0.7399	0.6629	0.6874	0.7731	Ave		0.7195				5.1		15.0			
Carbon tetrachloride	0.7187 0.7944	0.7564 0.8110	0.6956	0.7359	0.8450	Ave		0.7653				7.0		15.0			
1,2-Dichloroethane	0.2868 0.3678	0.3543 0.3676	0.3260	0.3509	0.3968	Ave		0.3500				10.0		15.0			
Benzene	1.1706 1.3001	1.1950 1.2919	1.1462	1.1877	1.3580	Ave		1.2357				6.5		15.0			
Trichloroethene	0.5127 0.5689	0.5556 0.5606	0.5130	0.5286	0.5646	Ave		0.5434				4.5		15.0			
1,2-Dichloropropane	0.3896 0.4884	0.4522 0.5119	0.4356	0.4506	0.4789	Ave		0.4582				8.7		30.0			

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-30655-1 Analy Batch No.: 123533

SDG No.:

Instrument ID: MSV_Z GC Column: DB-624 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/11/2012 13:29 Calibration End Date: 06/11/2012 15:37 Calibration ID: 9583

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Dibromomethane	0.1874 0.2549	0.2413 0.2653	0.2141	0.2314	0.2574	Ave		0.2360				11.7		15.0			
Dichlorobromomethane	+++++ 0.7366	0.6703 0.7272	0.6330	0.6769	0.7303	Ave		0.6957				6.0		15.0			
cis-1,3-Dichloropropene	0.4622 0.6354	0.5491 0.6226	0.5148	0.5580	0.6169	Ave		0.5656				11.3		15.0			
4-Methyl-2-pentanone (MIBK)	+++++ 0.2092	0.1498 0.2172	0.1530	0.1868	0.2180	Lin2	0.1131	0.2129							0.9937		0.9900
2-Hexanone	+++++ 0.5528	0.2017 0.6180	0.2524	0.4264	0.5559	Lin	0.4558	0.6240							0.9980		
Toluene	1.1519 1.4816	1.3418 1.5886	1.2788	1.3241	1.4530	Ave		1.3743				10.5		30.0			
trans-1,3-Dichloropropene	0.2923 0.4697	0.3982 0.5100	0.3717	0.4081	0.4548	Lin2	0.0093	0.4568							0.9919		0.9900
1,1,2-Trichloroethane	+++++ 0.2625	0.2408 0.2881	0.2331	0.2464	0.2837	Ave		0.2591				8.9		15.0			
Tetrachloroethene	1.5961 2.0887	2.0565 2.2344	1.8161	2.1172	2.2428	Ave		2.0217				11.6		15.0			
1,3-Dichloropropane	1.4961 2.0215	2.0011 2.1206	1.6502	1.9600	2.1448	Ave		1.9135				12.8		15.0			
Chlorodibromomethane	1.6280 2.1225	2.1502 2.1585	1.7875	2.1075	2.2667	Ave		2.0316				11.4		15.0			
Ethylene Dibromide	+++++ 1.6452	1.5000 1.5810	1.2163	1.4928	1.7113	Ave		1.5244				11.3		15.0			
Chlorobenzene	3.4658 4.7298	4.5157 4.7376	4.2427	4.4540	4.7666	Ave		4.4160			0.3000	10.4		15.0			
1-Chlorohexane	+++++ 3.2335	2.8654 3.2246	2.8799	2.9812	3.2019	Ave		3.0644				5.7		15.0			
1,1,1,2-Tetrachloroethane	1.5673 2.1908	2.0486 2.1554	1.9859	1.9659	2.2554	Ave		2.0242				11.3		15.0			
Ethylbenzene	1.7581 2.3393	2.1986 2.3741	2.1112	2.1167	2.3708	Ave		2.1812				10.0		30.0			
m-Xylene & p-Xylene	+++++ 3.0567	2.9179 3.0811	2.7873	2.7820	3.1212	Ave		2.9577				5.1		15.0			
1,2,3-Trichloropropane	+++++ 0.2376	0.2033 0.2344	0.1938	0.2145	0.2428	Ave		0.2211				9.1		15.0			
o-Xylene	2.0883 2.7437	2.5602 2.8084	2.4861	2.4896	2.7978	Ave		2.5677				9.9		15.0			
Styrene	+++++ 4.4955	3.5258 4.6096	3.7692	3.9359	4.5841	Ave		4.1533				11.3		15.0			

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-30655-1 Analy Batch No.: 123533

SDG No.:

Instrument ID: MSV_Z GC Column: DB-624 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/11/2012 13:29 Calibration End Date: 06/11/2012 15:37 Calibration ID: 9583

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Bromoform	+++++ 1.2643	1.0083 1.3022	1.0137	1.0937	1.3099	Ave		1.1653			0.1000	12.3		15.0			
1,2-Dibromo-3-Chloropropane	+++++ 0.1777	+++++ 0.1704	0.1112	0.1450	0.1688	Lin2	0.0610	0.1778							0.9988		0.9900
Isopropylbenzene	4.9053 5.3614	5.2241 5.7650	5.1594	5.2673	5.1211	Ave		5.2576				5.0		15.0			
Bromobenzene	0.8607 1.1696	1.1198 1.2469	1.0528	1.1126	1.1973	Ave		1.1085				11.4		15.0			
1,1,2,2-Tetrachloroethane	0.7794 0.9539	0.9913 0.9909	0.8958	0.9398	1.0351	Ave		0.9409			0.3000	8.9		15.0			
N-Propylbenzene	1.0671 1.3465	1.2750 1.3604	1.2216	1.2871	1.3486	Ave		1.2723				8.1		15.0			
2-Chlorotoluene	0.9453 1.1141	1.0541 1.1382	1.0215	1.0354	1.1112	Ave		1.0600				6.3		15.0			
4-Chlorotoluene	+++++ 1.2268	1.0437 1.2195	0.9770	1.0272	1.2012	Ave		1.1159				10.0		15.0			
1,3,5-Trimethylbenzene	3.7281 4.1240	3.7997 4.0789	3.7111	3.8803	4.1458	Ave		3.9240				4.8		15.0			
tert-Butylbenzene	4.1666 4.5939	4.4604 4.5767	4.2465	4.3801	4.5258	Ave		4.4214				3.7		15.0			
1,2,4-Trimethylbenzene	3.4412 4.0708	3.5530 4.1047	3.5659	3.7643	3.9922	Ave		3.7846				7.2		15.0			
sec-Butylbenzene	0.9464 1.1572	1.1484 1.1888	1.0949	1.1002	1.1431	Ave		1.1113				7.2		15.0			
1,3-Dichlorobenzene	+++++ 2.1335	1.7526 2.2151	1.7376	1.9042	2.0906	Ave		1.9723				10.3		15.0			
1,4-Dichlorobenzene	+++++ 2.4157	2.4289 2.4099	2.2907	2.3065	2.4096	Ave		2.3769				2.6		15.0			
4-Isopropyltoluene	4.7577 5.0859	4.9112 5.1453	4.6745	4.8086	4.9822	Ave		4.9093				3.5		15.0			
1,2-Dichlorobenzene	+++++ 1.8503	1.6805 1.8519	1.5858	1.6993	1.8220	Ave		1.7483				6.3		15.0			
n-Butylbenzene	3.5056 5.1177	4.7864 4.9991	4.4874	4.7131	4.9592	Ave		4.6526				11.8		15.0			
Naphthalene	+++++ 1.5550	1.2397 1.5383	1.1374	1.4588	1.5727	Ave		1.4170				13.0		15.0			
1,2,4-Trichlorobenzene	+++++ 1.5160	1.3767 1.5090	1.2738	1.3944	1.4646	Ave		1.4224				6.5		15.0			
Hexachlorobutadiene	1.1166 1.3246	1.3195 1.2975	1.2479	1.3772	1.2972	Lin2	0.0036	1.3289							0.9988		0.9900

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-30655-1 Analy Batch No.: 123533

SDG No.:

Instrument ID: MSV_Z GC Column: DB-624 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/11/2012 13:29 Calibration End Date: 06/11/2012 15:37 Calibration ID: 9583

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
1,2,3-Trichlorobenzene	+++++ 1.1647	0.9824 1.1558	0.9477	1.1003	1.1148	Ave		1.0776				8.5		15.0			

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-30655-1 Analy Batch No.: 123533

SDG No.:

Instrument ID: MSV_Z GC Column: DB-624 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/11/2012 13:29 Calibration End Date: 06/11/2012 15:37 Calibration ID: 9583

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 280-123533/9	Z7135.D
Level 2	IC 280-123533/10	Z7136.D
Level 3	IC 280-123533/11	Z7137.D
Level 4	IC 280-123533/12	Z7138.D
Level 5	IC 280-123533/13	Z7139.D
Level 6	IC 280-123533/14	Z7140.D
Level 7	IC 280-123533/15	Z7141.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
1,2-Dichloroethene, Total	FB	Ave	+++++ 2122087	70304 4305081	129671	343275	733482	+++++ 60.0	2.00 120	4.00	10.0	20.0
Xylenes, Total	CBZ	Ave	+++++ 4884554	150555 10030415	309060	693454	1511192	+++++ 90.0	3.00 180	6.00	15.0	30.0
Dichlorodifluoromethane	FB	Lin2	+++++ 1627417	42080 3280421	76770	248768	536611	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
Chloromethane	FB	Ave	+++++ 1173012	35143 2337118	65513	184780	390109	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
Vinyl chloride	FB	Ave	+++++ 939559	30021 1878763	57625	153493	324083	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
Bromomethane	FB	Ave	+++++ 849050	29310 1672050	56402	141488	296591	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
Chloroethane	FB	Ave	+++++ 599759	21118 1140216	38765	99079	208256	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
Trichlorofluoromethane	FB	Ave	+++++ 2211023	71323 4327611	135420	358845	756578	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
Acrolein	FB	Ave	+++++ 404877	14912 828450	26393	65919	142401	+++++ 300	10.0 600	20.0	50.0	100
1,1-Dichloroethene	FB	Ave	+++++ 973825	31121 1892885	58942	152421	324163	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
Acetone	FB	Lin2	+++++ 295248	16123 558265	23790	50959	105251	+++++ 120	4.00 240	8.00	20.0	40.0
Iodomethane	FB	Ave	+++++ 2199167	67245 4288214	128656	329909	720011	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
Acetonitrile	FB	Ave	+++++ 164723	+++++ 299563	11143	25676	55669	+++++ 300	+++++ 600	20.0	50.0	100
Methylene Chloride	FB	Ave	+++++ 850425	+++++ 1669384	73142	146849	294935	+++++ 30.0	+++++ 60.0	2.00	5.00	10.0
Acrylonitrile	FB	Ave	+++++ 825529	27361 1679236	50399	127867	283886	+++++ 300	10.0 600	20.0	50.0	100

FORM VI
GC/MS VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-30655-1 Analy Batch No.: 123533

SDG No.:

Instrument ID: MSV_Z GC Column: DB-624 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/11/2012 13:29 Calibration End Date: 06/11/2012 15:37 Calibration ID: 9583

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
trans-1,2-Dichloroethene	FB	Ave	9267 1098617	34774 2198683	67126	171760	363940	0.300 30.0	1.00 60.0	2.00	5.00	10.0
1,1-Dichloroethane	FB	Ave	18939 2124633	68201 4289550	134568	326866	705919	0.300 30.0	1.00 60.0	2.00	5.00	10.0
2-Butanone (MEK)	FB	Ave	+++++ 649836	27680 1352242	41227	115657	249969	+++++ 120	4.00 240	8.00	20.0	40.0
2-Chloro-1,3-butadiene	FB	Ave	+++++ 1947261	65196 3898935	125607	309670	665020	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
cis-1,2-Dichloroethene	FB	Ave	9470 1023470	35530 2106398	62545	171515	369542	0.300 30.0	1.00 60.0	2.00	5.00	10.0
2,2-Dichloropropane	FB	Ave	+++++ 1608929	62334 3235693	104634	281334	593802	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
Propionitrile	FB	Ave	+++++ 288253	+++++ 594863	16254	47627	106391	+++++ 300	+++++ 600	20.0	50.0	100
Methacrylonitrile	FB	Ave	+++++ 2329051	77087 4720780	127881	373428	860049	+++++ 300	10.0 600	20.0	50.0	100
Chlorobromomethane	FB	Ave	3463 462694	15444 934347	26741	75232	164983	0.300 30.0	1.00 60.0	2.00	5.00	10.0
Isobutyl alcohol	FB	Lin2	+++++ 154047	+++++ 367410	5336	20586	53734	+++++ 600	+++++ 1200	40.0	100	200
Chloroform	FB	Ave	18033 1959833	67456 3941984	117974	329096	700456	0.300 30.0	1.00 60.0	2.00	5.00	10.0
1,1,1-Trichloroethane	FB	Ave	18202 1982919	69096 3991838	120389	337809	708153	0.300 30.0	1.00 60.0	2.00	5.00	10.0
1,4-Dioxane	FB	Lin1	+++++ 127529	+++++ 255575	1907	11525	34312	+++++ 1500	+++++ 3000	100	250	500
1,1-Dichloropropene	FB	Ave	16865 1700581	60288 3532662	104863	285429	594200	0.300 30.0	1.00 60.0	2.00	5.00	10.0
Carbon tetrachloride	FB	Ave	16496 1851901	64340 3872106	110037	305539	649419	0.300 30.0	1.00 60.0	2.00	5.00	10.0
1,2-Dichloroethane	FB	Ave	6584 857473	30135 1755111	51574	145699	304932	0.300 30.0	1.00 60.0	2.00	5.00	10.0
Benzene	FB	Ave	26869 3030887	101645 6168578	181318	493158	1043685	0.300 30.0	1.00 60.0	2.00	5.00	10.0
Trichloroethene	FB	Ave	11768 1326271	47257 2676687	81146	219495	433925	0.300 30.0	1.00 60.0	2.00	5.00	10.0
1,2-Dichloropropane	FB	Ave	8943 1138580	38459 2444307	68914	187109	368043	0.300 30.0	1.00 60.0	2.00	5.00	10.0
Dibromomethane	FB	Ave	4301 594365	20525 1266561	33868	96077	197791	0.300 30.0	1.00 60.0	2.00	5.00	10.0
Dichlorobromomethane	FB	Ave	+++++ 1717279	57015 3472175	100135	281064	561242	+++++ 30.0	1.00 60.0	2.00	5.00	10.0

FORM VI
GC/MS VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-30655-1 Analy Batch No.: 123533

SDG No.:

Instrument ID: MSV_Z GC Column: DB-624 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/11/2012 13:29 Calibration End Date: 06/11/2012 15:37 Calibration ID: 9583

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
cis-1,3-Dichloropropene	FB	Ave	10609 1481227	46702 2972686	81438	231670	474131	0.300 30.0	1.00 60.0	2.00	5.00	10.0
4-Methyl-2-pentanone (MIBK)	FB	Lin2	+++++ 1950494	50951 4147792	96793	310270	670103	+++++ 120	4.00 240	8.00	20.0	40.0
2-Hexanone	CBZ	Lin	+++++ 1219453	14467 2764242	38708	146873	371671	+++++ 120	4.00 240	8.00	20.0	40.0
Toluene	FB	Ave	26440 3454159	114127 7585189	202285	549769	1116693	0.300 30.0	1.00 60.0	2.00	5.00	10.0
trans-1,3-Dichloropropene	FB	Lin2	6709 1095042	33870 2435093	58796	169429	349571	0.300 30.0	1.00 60.0	2.00	5.00	10.0
1,1,2-Trichloroethane	FB	Ave	+++++ 611958	20479 1375573	36870	102301	218007	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
Tetrachloroethene	CBZ	Ave	8603 1151894	36877 2498410	69633	182306	374905	0.300 30.0	1.00 60.0	2.00	5.00	10.0
1,3-Dichloropropane	CBZ	Ave	8064 1114813	35883 2371144	63270	168766	358522	0.300 30.0	1.00 60.0	2.00	5.00	10.0
Chlorodibromomethane	CBZ	Ave	8775 1170555	38556 2413501	68536	181470	378906	0.300 30.0	1.00 60.0	2.00	5.00	10.0
Ethylene Dibromide	CBZ	Ave	+++++ 907327	26897 1767748	46633	128535	286058	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
Chlorobenzene	CBZ	Ave	18681 2608405	80975 5297331	162668	383509	796793	0.300 30.0	1.00 60.0	2.00	5.00	10.0
1-Chlorohexane	CBZ	Ave	+++++ 1783241	51381 3605561	110420	256693	535234	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
1,1,1,2-Tetrachloroethane	CBZ	Ave	8448 1208215	36735 2410099	76142	169273	377022	0.300 30.0	1.00 60.0	2.00	5.00	10.0
Ethylbenzene	CBZ	Ave	9476 1290097	39424 2654620	80944	182263	396303	0.300 30.0	1.00 60.0	2.00	5.00	10.0
m-Xylene & p-Xylene	CBZ	Ave	+++++ 3371426	104647 6890220	213740	479086	1043501	+++++ 60.0	2.00 120	4.00	10.0	20.0
1,2,3-Trichloropropane	DCB	Ave	+++++ 224372	5408 430777	12104	28786	73144	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
o-Xylene	CBZ	Ave	11256 1513128	45908 3140195	95320	214368	467691	0.300 30.0	1.00 60.0	2.00	5.00	10.0
Styrene	CBZ	Ave	+++++ 2479229	63224 5154195	144514	338904	766283	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
Bromoform	CBZ	Ave	+++++ 697268	18080 1456025	38867	94169	218974	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
1,2-Dibromo-3-Chloropropane	DCB	Lin2	+++++ 167799	+++++ 313110	6945	19461	50857	+++++ 30.0	+++++ 60.0	2.00	5.00	10.0
Isopropylbenzene	DCB	Ave	40549 5062723	138956 10593301	322204	706850	1542578	0.300 30.0	1.00 60.0	2.00	5.00	10.0

FORM VI
GC/MS VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-30655-1 Analy Batch No.: 123533

SDG No.:

Instrument ID: MSV_Z GC Column: DB-624 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/11/2012 13:29 Calibration End Date: 06/11/2012 15:37 Calibration ID: 9583

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Bromobenzene	DCB	Ave	7115 1104480	29786 2291197	65747	149301	360649	0.300 30.0	1.00 60.0	2.00	5.00	10.0
1,1,2,2-Tetrachloroethane	DCB	Ave	6443 900724	26368 1820747	55945	126123	311804	0.300 30.0	1.00 60.0	2.00	5.00	10.0
N-Propylbenzene	DCB	Ave	8821 1271491	33913 2499774	76292	172726	406220	0.300 30.0	1.00 60.0	2.00	5.00	10.0
2-Chlorotoluene	DCB	Ave	7814 1052072	28037 2091483	63795	138946	334728	0.300 30.0	1.00 60.0	2.00	5.00	10.0
4-Chlorotoluene	DCB	Ave	+++++ 1158482	27761 2240871	61012	137851	361822	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
1,3,5-Trimethylbenzene	DCB	Ave	30818 3894301	101069 7495068	231762	520724	1248795	0.300 30.0	1.00 60.0	2.00	5.00	10.0
tert-Butylbenzene	DCB	Ave	34443 4338048	118643 8409774	265198	587794	1363277	0.300 30.0	1.00 60.0	2.00	5.00	10.0
1,2,4-Trimethylbenzene	DCB	Ave	28446 3844008	94507 7542505	222689	505157	1202526	0.300 30.0	1.00 60.0	2.00	5.00	10.0
sec-Butylbenzene	DCB	Ave	7823 1092742	30547 2184441	68377	147647	344322	0.300 30.0	1.00 60.0	2.00	5.00	10.0
1,3-Dichlorobenzene	DCB	Ave	+++++ 2014654	46619 4070341	108513	255530	629722	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
1,4-Dichlorobenzene	DCB	Ave	+++++ 2281190	64607 4428269	143053	309516	725840	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
4-Isopropyltoluene	DCB	Ave	39329 4802592	130635 9454511	291926	645291	1500764	0.300 30.0	1.00 60.0	2.00	5.00	10.0
1,2-Dichlorobenzene	DCB	Ave	+++++ 1747252	44700 3402898	99035	228041	548832	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
n-Butylbenzene	DCB	Ave	28979 4832656	127315 9185965	280241	632470	1493818	0.300 30.0	1.00 60.0	2.00	5.00	10.0
Naphthalene	DCB	Ave	+++++ 1468370	32976 2826582	71032	195760	473745	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
1,2,4-Trichlorobenzene	DCB	Ave	+++++ 1431560	36620 2772757	79552	187121	441173	+++++ 30.0	1.00 60.0	2.00	5.00	10.0
Hexachlorobutadiene	DCB	Lin2	9230 1250823	35097 2384186	77932	184807	390733	0.300 30.0	1.00 60.0	2.00	5.00	10.0
1,2,3-Trichlorobenzene	DCB	Ave	+++++ 1099786	26131 2123805	59186	147649	335802	+++++ 30.0	1.00 60.0	2.00	5.00	10.0

Curve Type Legend:

Ave = Average ISTD
Lin = Linear ISTD
Lin1 = Linear 1/conc ISTD
Lin2 = Linear 1/conc^2 ISTD

TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\Z7135.D
Lab Smp Id: IC Client Smp ID: IC
Inj Date : 11-JUN-2012 13:29
Operator : MEIERG Inst ID: Z.i
Smp Info : IC,,M0.3
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\8260B-H2O.m
Meth Date : 12-Jun-2012 06:00 meierg Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 1-mainbo.sub
Target Version: 4.14
Processing Host: DENPC186

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
* 62 Fluorobenzene	96	4.780	4.767	(1.000)	956382	12.5000	
* 86 Chlorobenzene-d5	119	9.217	9.204	(1.000)	224585	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.237	13.207	(1.000)	344433	12.5000	(Q)
M 1 1,2-Dichloroethene (total)	96				18737	0.60000	0.566278(a)
M 2 Xylene (total)	106				34838	0.90000	0.687754(a)
M 3 1,3-Dichloropropene (total)	75				17318	0.60000	0.553210(a)
M 4 Trihalomethanes (total)	83				43724	1.20000	0.958740(a)
5 Chlorotrifluoroethene	116	1.300	1.305	(0.272)	1768	0.30000	1.29037(Q)
6 dichlorodifluoromethane	85	1.335	1.322	(0.279)	12214	0.30000	0.577382(a)
7 Chloromethane	50	1.369	1.374	(0.287)	10130	0.30000	0.286522(aQ)
10 2-Chloro-1,1,1-trifluoroethan	118	1.474	1.479	(0.308)	12155	0.30000	0.275176(aQ)
9 Vinyl Chloride	62	1.456	1.461	(0.305)	8102	0.30000	0.275635(aQ)
12 Bromomethane	94	1.613	1.618	(0.338)	9391	0.30000	0.343782(a)
13 Chloroethane	64	1.648	1.635	(0.345)	5682	0.30000	0.297256(a)
16 Trichlorofluoromethane	101	1.804	1.774	(0.378)	19707	0.30000	0.286296(a)
15 Ethanol	45	Compound Not Detected.					
21 Acrolein	56	2.013	1.983	(0.421)	4387	1.50000	3.32916(a)
22 Acetone	43	2.100	2.070	(0.439)	8559	1.20000	1.51245(aQ)
23 1,1-Dichloroethene	96	2.083	2.070	(0.436)	7958	0.30000	0.266523(a)
25 Iodomethane	142	2.187	2.175	(0.458)	18301	0.30000	0.277236(a)
29 Acetonitrile	41	2.274	2.262	(0.476)	1082	3.00000	2.09131(aQ)
30 tert-Butyl alcohol	59	2.466	2.453	(0.516)	6350	6.00000	6.23620(a)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
28 Methylene Chloride	84	2.379	2.366	(0.498)	23324	0.30000	0.796271(a)
31 Acrylonitrile	53	2.553	2.523	(0.534)	6902	3.00000	2.67498(a)
32 trans-1,2-Dichloroethene	96	2.587	2.575	(0.541)	9267	0.30000	0.277450(a)
37 Isopropyl ether	87	3.005	2.992	(0.629)	30278	1.50000	1.37511(a)
36 1,1-Dichloroethane	63	2.918	2.905	(0.611)	18939	0.30000	0.289123(a)
38 Chloroprene	53	3.005	2.992	(0.629)	17900	0.30000	0.291020(aQ)
41 2-Butanone	43	Compound Not Detected.					
42 cis-1,2-Dichloroethene	96	3.475	3.462	(0.727)	9470	0.30000	0.288829(a)
45 Propionitrile	54	3.562	3.497	(0.745)	1411	3.00000	1.52635(aQ)
43 2,2-Dichloropropane	77	3.492	3.480	(0.731)	20508	0.30000	0.381797(a)
46 Methacrylonitrile	41	3.701	3.671	(0.774)	16661	3.00000	2.28386(a)
47 Bromochloromethane	128	3.736	3.706	(0.782)	3463	0.30000	0.245320(a)
50 Chloroform	83	3.805	3.793	(0.796)	18033	0.30000	0.289714(a)
52 1,1,1-Trichloroethane	97	4.032	4.019	(0.843)	18202	0.30000	0.287718(a)
58 Isobutanol	41	Compound Not Detected.					
54 1,1-Dichloropropene	75	4.223	4.193	(0.884)	16865	0.30000	0.306371(a)
55 Carbon Tetrachloride	117	4.240	4.228	(0.887)	16496	0.30000	0.281736(a)
57 1,2-Dichloroethane	62	4.449	4.437	(0.931)	6584	0.30000	0.245845(aQ)
59 Benzene	78	4.449	4.437	(0.931)	26869	0.30000	0.284206(a)
61 n-Butanol	56	4.797	4.611	(1.004)	6095	9.00000	0.000000(aQ)
63 Trichloroethene	95	5.267	5.255	(1.102)	11768	0.30000	0.283035(a)
66 1,2-Dichloropropane	63	5.563	5.516	(1.164)	8943	0.30000	0.255110(a)
69 1,4-Dioxane	88	Compound Not Detected.					
67 Dibromomethane	93	5.720	5.672	(1.197)	4301	0.30000	0.238233(a)
70 Bromodichloromethane	83	5.946	5.916	(1.244)	13091	0.30000	0.245933(aQ)
73 cis-1,3-Dichloropropene	75	6.624	6.560	(1.386)	10609	0.30000	0.245174(a)
74 4-Methyl-2-pentanone	43	6.938	6.803	(1.451)	10295	1.20000	2.04542(aQ)
76 Toluene	91	7.112	7.064	(1.488)	26440	0.30000	0.251463(a)
77 trans-1,3-Dichloropropene	75	7.512	7.395	(1.571)	6709	0.30000	0.308036(a)
79 1,1,2-Trichloroethane	97	7.721	7.656	(1.615)	4123	0.30000	0.207998(a)
82 2-Hexanone	43	Compound Not Detected.					
81 1,3-Dichloropropane	76	7.964	7.917	(0.864)	8064	0.30000	0.234564(a)
80 Tetrachloroethene	164	7.929	7.899	(0.860)	8603	0.30000	0.236844(a)
84 Dibromochloromethane	129	8.295	8.265	(0.900)	8775	0.30000	0.240407(a)
85 1,2-Dibromoethane	107	8.486	8.404	(0.921)	5510	0.30000	0.201178(a)
88 1-Chlorohexane	91	9.321	9.291	(1.011)	13212	0.30000	0.239967(a)
87 Chlorobenzene	112	9.269	9.239	(1.006)	18681	0.30000	0.235450(aQ)
89 1,1,1,2-Tetrachloroethane	131	9.408	9.396	(1.021)	8448	0.30000	0.232289(a)
90 Ethylbenzene	106	9.513	9.466	(1.032)	9476	0.30000	0.241797(a)
91 m and p-Xylene	106	9.722	9.674	(1.055)	23582	0.60000	0.443768(a)
92 o-Xylene	106	10.365	10.318	(1.125)	11256	0.30000	0.243986(a)
93 Styrene	104	10.470	10.353	(1.136)	12588	0.30000	0.168690(aQ)
94 Bromoform	173	10.661	10.597	(1.157)	3825	0.30000	0.182686(a)
95 isopropyl benzene	105	11.027	10.979	(0.833)	40549	0.30000	0.279895(a)
97 Cyclohexanone	55	Compound Not Detected.					
100 1,1,2,2-Tetrachloroethane	83	11.549	11.484	(0.872)	6443	0.30000	0.248515(aQ)
101 1,2,3-Trichloropropane	110	Compound Not Detected.					
99 Bromobenzene	156	11.531	11.414	(0.871)	7115	0.30000	0.232935(a)
103 n-Propylbenzene	120	11.758	11.693	(0.888)	8821	0.30000	0.251608(a)
104 2-Chlorotoluene	126	11.845	11.780	(0.895)	7814	0.30000	0.267536(a)
106 1,3,5-Trimethylbenzene	105	12.071	12.023	(0.912)	30818	0.30000	0.285024(a)
105 4-Chlorotoluene	126	12.088	11.971	(0.913)	5610	0.30000	0.182450(a)
107 tert-Butylbenzene	119	12.593	12.563	(0.951)	34443	0.30000	0.282710(a)
108 1,2,4-Trimethylbenzene	105	12.715	12.667	(0.961)	28446	0.30000	0.272778(a)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
109 sec-Butylbenzene	134	12.993	12.963	(0.982)	7823	0.30000	0.255478(a)
112 4-Isopropyltoluene	119	13.289	13.241	(1.004)	39329	0.30000	0.290733(a)
110 1,3-Dichlorobenzene	146	13.150	13.085	(0.993)	12123	0.30000	0.223075(a)
113 1,4-dichlorobenzene	146	13.271	13.241	(1.003)	21298	0.30000	0.325188(a)
116 n-Butylbenzene	91	14.072	13.972	(1.063)	28979	0.30000	0.226042(aQ)
115 1,2-Dichlorobenzene	146	13.985	13.885	(1.057)	11637	0.30000	0.241561(a)
117 1,2-Dibromo-3-chloropropane	157	Compound Not Detected.					
118 1,2,4-Trichlorobenzene	180	16.717	16.565	(1.263)	8344	0.30000	0.212888(a)
119 Hexachlorobutadiene	225	16.839	16.809	(1.272)	9230	0.30000	0.297649(a)
120 Naphthalene	128	Compound Not Detected.					
121 1,2,3-Trichlorobenzene	180	17.187	17.087	(1.298)	7702	0.30000	0.259387(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.

Data File: Z7135.D

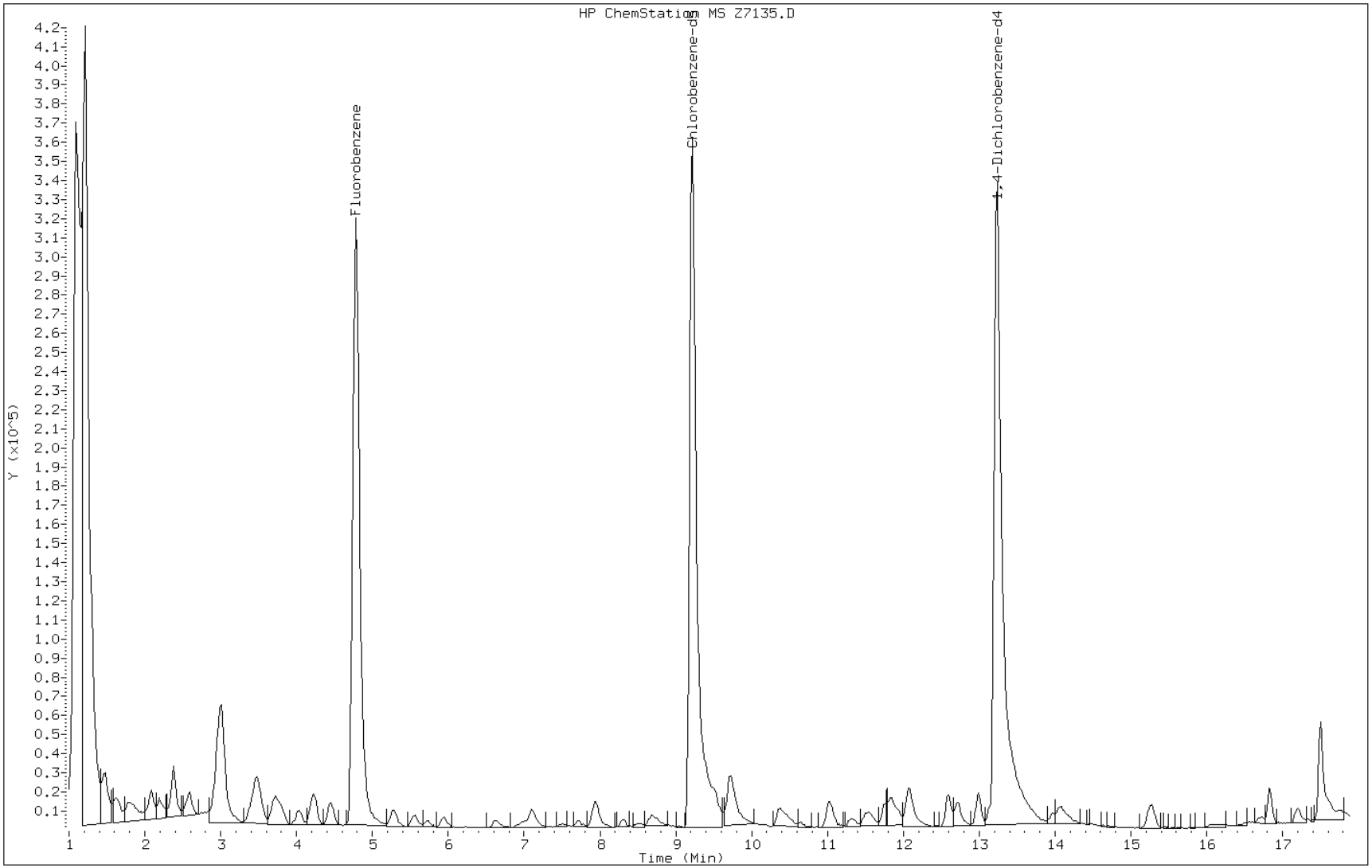
Date: 11-JUN-2012 13:29

Client ID: IC

Instrument: Z.i

Sample Info: IC,,M0.3

Operator: MEIERG



TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\Z7136.D
Lab Smp Id: IC Client Smp ID: IC
Inj Date : 11-JUN-2012 13:50
Operator : MEIERG Inst ID: Z.i
Smp Info : IC,,M1.0
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\8260B-H2O.m
Meth Date : 12-Jun-2012 06:00 meierg Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 1-mainbo.sub
Target Version: 4.14
Processing Host: DENPC186

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
* 62 Fluorobenzene	96	4.797	4.767	(1.000)	1063214	12.5000	
* 86 Chlorobenzene-d5	119	9.217	9.204	(1.000)	224147	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.236	13.207	(1.000)	332491	12.5000	(Q)
M 1 1,2-Dichloroethene (total)	96				70304	2.00000	1.91126
M 2 Xylene (total)	106				150555	3.00000	2.97015
M 3 1,3-Dichloropropene (total)	75				80572	2.00000	1.95863
M 4 Trihalomethanes (total)	83				181107	4.00000	3.86190
5 Chlorotrifluoroethene	116	1.299	1.305	(0.271)	10029	1.00000	1.59714
6 dichlorodifluoromethane	85	1.334	1.322	(0.278)	42080	1.00000	1.06562(a)
7 Chloromethane	50	1.369	1.374	(0.285)	35143	1.00000	0.894123(aQ)
10 2-Chloro-1,1,1-trifluoroethan	118	1.491	1.479	(0.311)	45421	1.00000	0.924962(a)
9 Vinyl Chloride	62	1.456	1.461	(0.304)	30021	1.00000	0.918710(a)
12 Bromomethane	94	1.613	1.618	(0.336)	29310	1.00000	0.965155(a)
13 Chloroethane	64	1.647	1.635	(0.344)	21118	1.00000	0.993785(a)
16 Trichlorofluoromethane	101	1.787	1.774	(0.373)	71323	1.00000	0.932040(a)
15 Ethanol	45	Compound Not Detected.					
21 Acrolein	56	2.013	1.983	(0.420)	14912	10.0000	10.1792(a)
22 Acetone	43	2.100	2.070	(0.438)	16123	4.00000	4.09213(a)
23 1,1-Dichloroethene	96	2.100	2.070	(0.438)	31121	1.00000	0.937552(a)
25 Iodomethane	142	2.204	2.175	(0.460)	67245	1.00000	0.916317(a)
29 Acetonitrile	41	2.291	2.262	(0.478)	5445	10.0000	9.46672(a)
30 tert-Butyl alcohol	59	2.465	2.453	(0.514)	21933	20.0000	19.3756(a)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
28 Methylene Chloride	84	2.378	2.366	(0.496)	46134	1.00000	1.41674(a)
31 Acrylonitrile	53	2.552	2.523	(0.532)	27361	10.0000	9.53867(a)
32 trans-1,2-Dichloroethene	96	2.587	2.575	(0.539)	34774	1.00000	0.936505(a)
37 Isopropyl ether	87	3.005	2.992	(0.626)	114665	5.00000	4.68438(a)
36 1,1-Dichloroethane	63	2.918	2.905	(0.608)	68201	1.00000	0.936541(a)
38 Chloroprene	53	3.022	2.992	(0.630)	65196	1.00000	0.953457(a)
41 2-Butanone	43	3.492	3.462	(0.728)	27680	4.00000	4.45844(a)
42 cis-1,2-Dichloroethene	96	3.475	3.462	(0.724)	35530	1.00000	0.974757(a)
45 Propionitrile	54	3.544	3.497	(0.739)	9670	10.0000	9.40945(a)
43 2,2-Dichloropropane	77	3.492	3.480	(0.728)	62334	1.00000	1.04387(a)
46 Methacrylonitrile	41	3.701	3.671	(0.771)	77087	10.0000	9.50517(a)
47 Bromochloromethane	128	3.718	3.706	(0.775)	15444	1.00000	0.984128(a)
50 Chloroform	83	3.805	3.793	(0.793)	67456	1.00000	0.974841(a)
52 1,1,1-Trichloroethane	97	4.049	4.019	(0.844)	69096	1.00000	0.982453(a)
58 Isobutanol	41	4.484	4.367	(0.935)	2333	20.0000	30.4417(aQ)
54 1,1-Dichloropropene	75	4.205	4.193	(0.877)	60288	1.00000	0.985150(a)
55 Carbon Tetrachloride	117	4.240	4.228	(0.884)	64340	1.00000	0.988450(a)
57 1,2-Dichloroethane	62	4.449	4.437	(0.927)	30135	1.00000	1.01217
59 Benzene	78	4.449	4.437	(0.927)	101645	1.00000	0.967117(a)
61 n-Butanol	56	4.780	4.611	(0.996)	7623	30.0000	0.000000(aQ)
63 Trichloroethene	95	5.284	5.255	(1.102)	47257	1.00000	1.02238
66 1,2-Dichloropropane	63	5.545	5.516	(1.156)	38459	1.00000	0.986853(a)
69 1,4-Dioxane	88	Compound Not Detected.					
67 Dibromomethane	93	5.719	5.672	(1.192)	20525	1.00000	1.02265
70 Bromodichloromethane	83	5.945	5.916	(1.239)	57015	1.00000	0.963482(a)
73 cis-1,3-Dichloropropene	75	6.607	6.560	(1.377)	46702	1.00000	0.970839(a)
74 4-Methyl-2-pentanone	43	6.902	6.803	(1.439)	50951	4.00000	4.22678(a)
76 Toluene	91	7.094	7.064	(1.479)	114127	1.00000	0.976364(a)
77 trans-1,3-Dichloropropene	75	7.477	7.395	(1.559)	33870	1.00000	0.987791(a)
79 1,1,2-Trichloroethane	97	7.703	7.656	(1.606)	20479	1.00000	0.929318(a)
82 2-Hexanone	43	8.347	8.108	(0.906)	14467	4.00000	6.99049
81 1,3-Dichloropropane	76	7.964	7.917	(0.864)	35883	1.00000	1.04580
80 Tetrachloroethene	164	7.929	7.899	(0.860)	36877	1.00000	1.01722
84 Dibromochloromethane	129	8.295	8.265	(0.900)	38556	1.00000	1.05837
85 1,2-Dibromoethane	107	8.469	8.404	(0.919)	26897	1.00000	0.983965(a)
88 1-Chlorohexane	91	9.304	9.291	(1.009)	51381	1.00000	0.935048(a)
87 Chlorobenzene	112	9.269	9.239	(1.006)	80975	1.00000	1.02258
89 1,1,1,2-Tetrachloroethane	131	9.408	9.396	(1.021)	36735	1.00000	1.01205
90 Ethylbenzene	106	9.495	9.466	(1.030)	39424	1.00000	1.00794
91 m and p-Xylene	106	9.704	9.674	(1.053)	104647	2.00000	1.97310(a)
92 o-Xylene	106	10.348	10.318	(1.123)	45908	1.00000	0.997050
93 Styrene	104	10.417	10.353	(1.130)	63224	1.00000	0.848909(a)
94 Bromoform	173	10.644	10.597	(1.155)	18080	1.00000	0.865206(a)
95 isopropyl benzene	105	11.009	10.979	(0.832)	138956	1.00000	0.993612(a)
97 Cyclohexanone	55	11.218	11.049	(1.217)	3861	40.0000	60.6927(aQ)
100 1,1,2,2-Tetrachloroethane	83	11.531	11.484	(0.871)	26368	1.00000	1.05358
101 1,2,3-Trichloropropane	110	11.566	11.519	(0.874)	5408	1.00000	0.919622(a)
99 Bromobenzene	156	11.479	11.414	(0.867)	29786	1.00000	1.01017
103 n-Propylbenzene	120	11.722	11.693	(0.886)	33913	1.00000	1.00207
104 2-Chlorotoluene	126	11.809	11.780	(0.892)	28037	1.00000	0.994410(a)
106 1,3,5-Trimethylbenzene	105	12.053	12.023	(0.911)	101069	1.00000	0.968322(a)
105 4-Chlorotoluene	126	12.036	11.971	(0.909)	27761	1.00000	0.935278(a)
107 tert-Butylbenzene	119	12.592	12.563	(0.951)	118643	1.00000	1.00880
108 1,2,4-Trimethylbenzene	105	12.697	12.667	(0.959)	94507	1.00000	0.938810(a)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
109 sec-Butylbenzene	134	12.993	12.963	(0.982)	30547	1.00000	1.03341
112 4-Isopropyltoluene	119	13.271	13.241	(1.003)	130635	1.00000	1.00038
110 1,3-Dichlorobenzene	146	13.132	13.085	(0.992)	46619	1.00000	0.888645(a)
113 1,4-dichlorobenzene	146	13.271	13.241	(1.003)	64607	1.00000	1.02188
116 n-Butylbenzene	91	14.019	13.972	(1.059)	127315	1.00000	1.02875
115 1,2-Dichlorobenzene	146	13.950	13.885	(1.054)	44700	1.00000	0.961211(a)
117 1,2-Dibromo-3-chloropropane	157	Compound Not Detected.					
118 1,2,4-Trichlorobenzene	180	16.647	16.565	(1.258)	36620	1.00000	0.967875(a)
119 Hexachlorobutadiene	225	16.821	16.809	(1.271)	35097	1.00000	1.03849
120 Naphthalene	128	16.925	16.826	(1.279)	32976	1.00000	0.874909(a)
121 1,2,3-Trichlorobenzene	180	17.151	17.087	(1.296)	26131	1.00000	0.911646(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.

Data File: Z7136.D

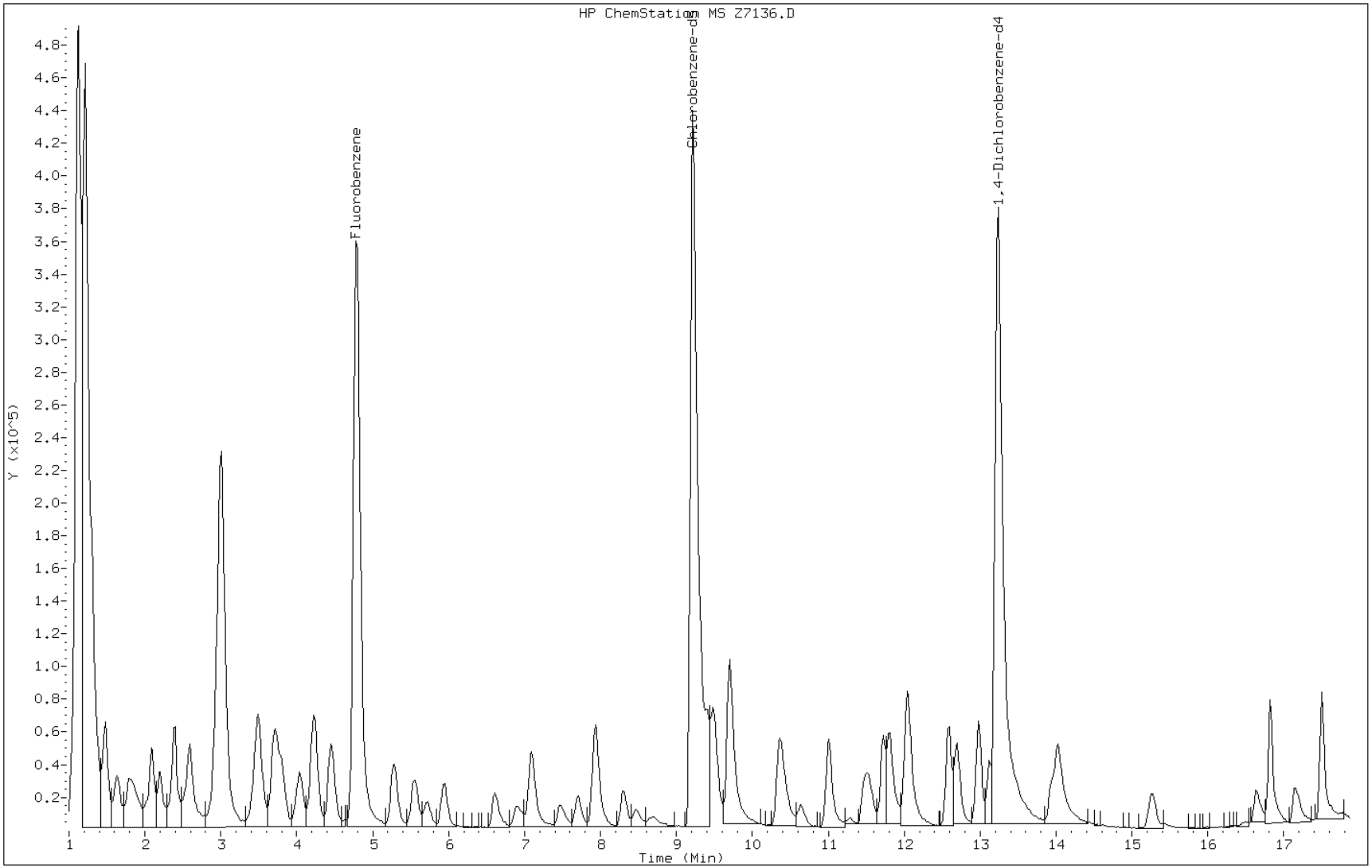
Date: 11-JUN-2012 13:50

Client ID: IC

Instrument: Z.i

Sample Info: IC,,M1.0

Operator: MEIERG



TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\Z7137.D
Lab Smp Id: IC Client Smp ID: IC
Inj Date : 11-JUN-2012 14:11
Operator : MEIERG Inst ID: Z.i
Smp Info : IC,,M2.0
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\8260B-H2O.m
Meth Date : 12-Jun-2012 06:00 meierg Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 1-mainbo.sub
Target Version: 4.14
Processing Host: DENPC186

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
* 62 Fluorobenzene	96	4.764	4.767	(1.000)	988684	12.5000	
* 86 Chlorobenzene-d5	119	9.201	9.204	(1.000)	239632	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.220	13.207	(1.000)	390315	12.5000	(Q)
M 1 1,2-Dichloroethene (total)	96				129671	4.00000	3.78932
M 2 Xylene (total)	106				309060	6.00000	5.70604
M 3 1,3-Dichloropropene (total)	75				140234	4.00000	3.56393
M 4 Trihalomethanes (total)	83				325512	8.00000	7.15266
5 Chlorotrifluoroethene	116	1.301	1.305	(0.273)	20401	2.00000	2.05025
6 dichlorodifluoromethane	85	1.336	1.322	(0.280)	76770	2.00000	1.75900(a)
7 Chloromethane	50	1.371	1.374	(0.288)	65513	2.00000	1.79246(aQ)
10 2-Chloro-1,1,1-trifluoroethan	118	1.475	1.479	(0.310)	88897	2.00000	1.94678
9 Vinyl Chloride	62	1.440	1.461	(0.302)	57625	2.00000	1.89639
12 Bromomethane	94	1.614	1.618	(0.339)	56402	2.00000	1.99728(a)
13 Chloroethane	64	1.649	1.635	(0.346)	38765	2.00000	1.96174(a)
16 Trichlorofluoromethane	101	1.788	1.774	(0.375)	135420	2.00000	1.90305(a)
15 Ethanol	45	1.875	1.861	(0.394)	11231	100.000	159.730(aQ)
21 Acrolein	56	1.997	1.983	(0.419)	26393	20.0000	19.3745(a)
22 Acetone	43	2.084	2.070	(0.438)	23790	8.00000	7.78538(a)
23 1,1-Dichloroethene	96	2.084	2.070	(0.438)	58942	2.00000	1.90955
25 Iodomethane	142	2.188	2.175	(0.459)	128656	2.00000	1.88529
29 Acetonitrile	41	2.258	2.262	(0.474)	11143	20.0000	20.8337(a)
30 tert-Butyl alcohol	59	2.449	2.453	(0.514)	40474	40.0000	38.4500(a)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
28 Methylene Chloride	84	2.362	2.366	(0.496)	73142	2.00000	2.41545(a)
31 Acrylonitrile	53	2.536	2.523	(0.532)	50399	20.0000	18.8947(a)
32 trans-1,2-Dichloroethene	96	2.571	2.575	(0.540)	67126	2.00000	1.94406
37 Isopropyl ether	87	2.989	2.992	(0.627)	216446	10.0000	9.50898(a)
36 1,1-Dichloroethane	63	2.902	2.905	(0.609)	134568	2.00000	1.98720
38 Chloroprene	53	3.006	2.992	(0.631)	125607	2.00000	1.97541
41 2-Butanone	43	3.476	3.462	(0.730)	41227	8.00000	7.14104
42 cis-1,2-Dichloroethene	96	3.459	3.462	(0.726)	62545	2.00000	1.84526
45 Propionitrile	54	3.528	3.497	(0.741)	16254	20.0000	17.0083(a)
43 2,2-Dichloropropane	77	3.476	3.480	(0.730)	104634	2.00000	1.88433(a)
46 Methacrylonitrile	41	3.667	3.671	(0.770)	127881	20.0000	16.9570
47 Bromochloromethane	128	3.702	3.706	(0.777)	26741	2.00000	1.83245
50 Chloroform	83	3.789	3.793	(0.795)	117974	2.00000	1.83342
52 1,1,1-Trichloroethane	97	4.033	4.019	(0.847)	120389	2.00000	1.84081
58 Isobutanol	41	4.433	4.367	(0.931)	5336	40.0000	41.2475(aQ)
54 1,1-Dichloropropene	75	4.207	4.193	(0.883)	104863	2.00000	1.84271
55 Carbon Tetrachloride	117	4.224	4.228	(0.887)	110037	2.00000	1.81792
57 1,2-Dichloroethane	62	4.433	4.437	(0.931)	51574	2.00000	1.86284
59 Benzene	78	4.433	4.437	(0.931)	181318	2.00000	1.85523
61 n-Butanol	56	4.764	4.611	(1.000)	7099	60.0000	0.000000(aQ)
63 Trichloroethene	95	5.268	5.255	(1.106)	81146	2.00000	1.88790
66 1,2-Dichloropropane	63	5.529	5.516	(1.161)	68914	2.00000	1.90163
69 1,4-Dioxane	88	5.825	5.742	(1.223)	1907	100.000	112.999(a)
67 Dibromomethane	93	5.703	5.672	(1.197)	33868	2.00000	1.81466
70 Bromodichloromethane	83	5.930	5.916	(1.245)	100135	2.00000	1.81972
73 cis-1,3-Dichloropropene	75	6.591	6.560	(1.383)	81438	2.00000	1.82055
74 4-Methyl-2-pentanone	43	6.869	6.803	(1.442)	96793	8.00000	7.16087
76 Toluene	91	7.078	7.064	(1.486)	202285	2.00000	1.86102
77 trans-1,3-Dichloropropene	75	7.443	7.395	(1.562)	58796	2.00000	1.74338(a)
79 1,1,2-Trichloroethane	97	7.687	7.656	(1.614)	36870	2.00000	1.79925
82 2-Hexanone	43	8.261	8.108	(0.898)	38708	8.00000	8.93322(Q)
81 1,3-Dichloropropane	76	7.931	7.917	(0.862)	63270	2.00000	1.72482
80 Tetrachloroethene	164	7.913	7.899	(0.860)	69633	2.00000	1.79665
84 Dibromochloromethane	129	8.279	8.265	(0.900)	68536	2.00000	1.75976
85 1,2-Dibromoethane	107	8.453	8.404	(0.919)	46633	2.00000	1.59572
88 1-Chlorohexane	91	9.305	9.291	(1.011)	110420	2.00000	1.87961
87 Chlorobenzene	112	9.253	9.239	(1.006)	162668	2.00000	1.92148
89 1,1,1,2-Tetrachloroethane	131	9.410	9.396	(1.023)	76142	2.00000	1.96216
90 Ethylbenzene	106	9.479	9.466	(1.030)	80944	2.00000	1.93573
91 m and p-Xylene	106	9.688	9.674	(1.053)	213740	4.00000	3.76961
92 o-Xylene	106	10.332	10.318	(1.123)	95320	2.00000	1.93642
93 Styrene	104	10.384	10.353	(1.129)	144514	2.00000	1.81500
94 Bromoform	173	10.628	10.597	(1.155)	38867	2.00000	1.73976
95 isopropyl benzene	105	10.993	10.979	(0.832)	322204	2.00000	1.96262
97 Cyclohexanone	55	11.202	11.049	(1.217)	15638	80.0000	83.5320(aQ)
100 1,1,2,2-Tetrachloroethane	83	11.515	11.484	(0.871)	55945	2.00000	1.90421
101 1,2,3-Trichloropropane	110	11.550	11.519	(0.874)	12104	2.00000	1.75334
99 Bromobenzene	156	11.463	11.414	(0.867)	65747	2.00000	1.89944
103 n-Propylbenzene	120	11.707	11.693	(0.885)	76292	2.00000	1.92033
104 2-Chlorotoluene	126	11.794	11.780	(0.892)	63795	2.00000	1.92746
106 1,3,5-Trimethylbenzene	105	12.037	12.023	(0.911)	231762	2.00000	1.89151
105 4-Chlorotoluene	126	12.020	11.971	(0.909)	61012	2.00000	1.75100
107 tert-Butylbenzene	119	12.577	12.563	(0.951)	265198	2.00000	1.92088
108 1,2,4-Trimethylbenzene	105	12.681	12.667	(0.959)	222689	2.00000	1.88442

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
109 sec-Butylbenzene	134	12.977	12.963	(0.982)	68377	2.00000	1.97051
112 4-Isopropyltoluene	119	13.255	13.241	(1.003)	291926	2.00000	1.90434
110 1,3-Dichlorobenzene	146	13.116	13.085	(0.992)	108513	2.00000	1.76202
113 1,4-dichlorobenzene	146	13.255	13.241	(1.003)	143053	2.00000	1.92745
116 n-Butylbenzene	91	14.003	13.972	(1.059)	280241	2.00000	1.92897
115 1,2-Dichlorobenzene	146	13.916	13.885	(1.053)	99035	2.00000	1.81411
117 1,2-Dibromo-3-chloropropane	157	15.396	15.277	(1.165)	6945	2.00000	2.01372(Q)
118 1,2,4-Trichlorobenzene	180	16.614	16.565	(1.257)	79552	2.00000	1.79109
119 Hexachlorobutadiene	225	16.822	16.809	(1.272)	77932	2.00000	1.92369
120 Naphthalene	128	16.892	16.826	(1.278)	71032	2.00000	1.60540
121 1,2,3-Trichlorobenzene	180	17.136	17.087	(1.296)	59186	2.00000	1.75895

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.

Data File: Z7137.D

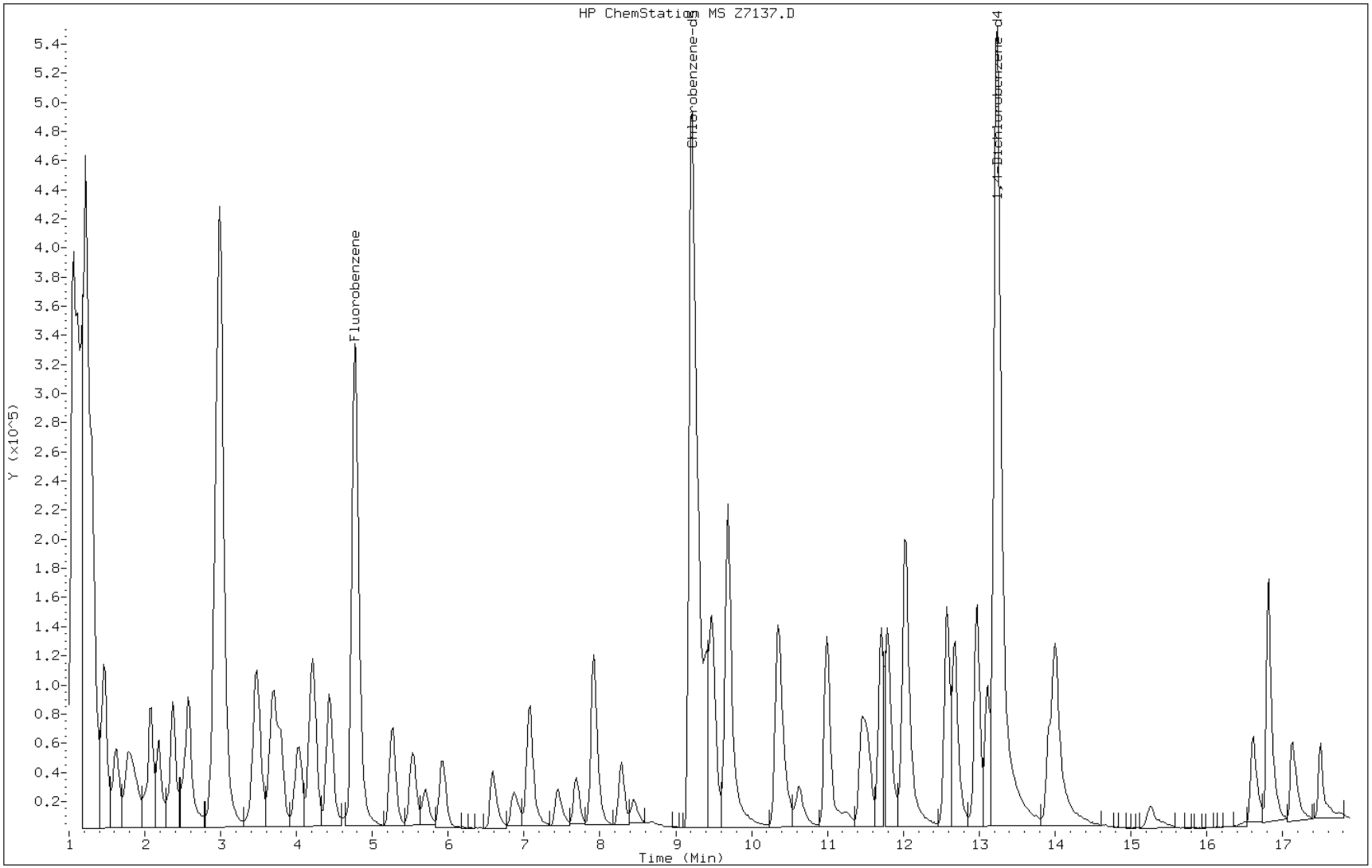
Date: 11-JUN-2012 14:11

Client ID: IC

Instrument: Z.i

Sample Info: IC,,M2.0

Operator: MEIERG



TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\Z7138.D
Lab Smp Id: IC Client Smp ID: IC
Inj Date : 11-JUN-2012 14:33
Operator : MEIERG Inst ID: Z.i
Smp Info : IC,,M5.0
Misc Info :
Comment :
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Meth Date : 12-Jun-2012 06:00 meierg Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 1-mainbo.sub
Target Version: 4.14
Processing Host: DENPC186

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
* 62 Fluorobenzene	96	4.767	4.767	(1.000)	1038033	12.5000	
* 86 Chlorobenzene-d5	119	9.205	9.204	(1.000)	215263	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.224	13.207	(1.000)	335488	12.5000	(Q)
M 1 1,2-Dichloroethene (total)	96				343275	10.0000	9.55753
M 2 Xylene (total)	106				693454	15.0000	14.2538
M 3 1,3-Dichloropropene (total)	75				401099	10.0000	9.51523
M 4 Trihalomethanes (total)	83				885799	20.0000	19.6155
5 Chlorotrifluoroethene	116	1.305	1.305	(0.274)	89168	5.00000	4.69027
6 dichlorodifluoromethane	85	1.322	1.322	(0.277)	248768	5.00000	4.70959
7 Chloromethane	50	1.374	1.374	(0.288)	184780	5.00000	4.81530
10 2-Chloro-1,1,1-trifluoroethan	118	1.461	1.479	(0.307)	231242	5.00000	4.82329
9 Vinyl Chloride	62	1.444	1.461	(0.303)	153493	5.00000	4.81118
12 Bromomethane	94	1.618	1.618	(0.339)	141488	5.00000	4.77211
13 Chloroethane	64	1.635	1.635	(0.343)	99079	5.00000	4.77563
16 Trichlorofluoromethane	101	1.775	1.774	(0.372)	358845	5.00000	4.80310
15 Ethanol	45	1.879	1.861	(0.394)	17308	250.000	234.456(a)
21 Acrolein	56	2.001	1.983	(0.420)	65919	50.0000	46.0891
22 Acetone	43	2.088	2.070	(0.438)	50959	20.0000	18.1744
23 1,1-Dichloroethene	96	2.070	2.070	(0.434)	152421	5.00000	4.70323
25 Iodomethane	142	2.175	2.175	(0.456)	329909	5.00000	4.60457
29 Acetonitrile	41	2.262	2.262	(0.474)	25676	50.0000	45.7234
30 tert-Butyl alcohol	59	2.453	2.453	(0.515)	101779	100.000	92.0927

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
28 Methylene Chloride	84	2.366	2.366	(0.496)	146849	5.00000	4.61901(a)
31 Acrylonitrile	53	2.540	2.523	(0.533)	127867	50.0000	45.6587
32 trans-1,2-Dichloroethene	96	2.575	2.575	(0.540)	171760	5.00000	4.73791
37 Isopropyl ether	87	2.993	2.992	(0.628)	547869	25.0000	22.9249
36 1,1-Dichloroethane	63	2.906	2.905	(0.610)	326866	5.00000	4.59743
38 Chloroprene	53	2.993	2.992	(0.628)	309670	5.00000	4.63862
41 2-Butanone	43	3.462	3.462	(0.726)	115657	20.0000	19.0809
42 cis-1,2-Dichloroethene	96	3.462	3.462	(0.726)	171515	5.00000	4.81962
45 Propionitrile	54	3.515	3.497	(0.737)	47627	50.0000	47.4679
43 2,2-Dichloropropane	77	3.480	3.480	(0.730)	281334	5.00000	4.82561(a)
46 Methacrylonitrile	41	3.671	3.671	(0.770)	373428	50.0000	47.1623
47 Bromochloromethane	128	3.706	3.706	(0.777)	75232	5.00000	4.91025
50 Chloroform	83	3.793	3.793	(0.796)	329096	5.00000	4.87130
52 1,1,1-Trichloroethane	97	4.037	4.019	(0.847)	337809	5.00000	4.91971
58 Isobutanol	41	4.402	4.367	(0.923)	20586	100.000	89.9486(a)
54 1,1-Dichloropropene	75	4.193	4.193	(0.880)	285429	5.00000	4.77726
55 Carbon Tetrachloride	117	4.228	4.228	(0.887)	305539	5.00000	4.80784
57 1,2-Dichloroethane	62	4.437	4.437	(0.931)	145699	5.00000	5.01242
59 Benzene	78	4.437	4.437	(0.931)	493158	5.00000	4.80605
61 n-Butanol	56	4.750	4.611	(0.996)	7921	150.000	0.000000(aQ)
63 Trichloroethene	95	5.255	5.255	(1.102)	219495	5.00000	4.86388
66 1,2-Dichloropropane	63	5.533	5.516	(1.161)	187109	5.00000	4.91766
69 1,4-Dioxane	88	5.812	5.742	(1.219)	11525	250.000	215.524
67 Dibromomethane	93	5.690	5.672	(1.193)	96077	5.00000	4.90311
70 Bromodichloromethane	83	5.916	5.916	(1.241)	281064	5.00000	4.86485
73 cis-1,3-Dichloropropene	75	6.577	6.560	(1.380)	231670	5.00000	4.93277
74 4-Methyl-2-pentanone	43	6.838	6.803	(1.434)	310270	20.0000	18.9609
76 Toluene	91	7.064	7.064	(1.482)	549769	5.00000	4.81740
77 trans-1,3-Dichloropropene	75	7.430	7.395	(1.558)	169429	5.00000	4.58246
79 1,1,2-Trichloroethane	97	7.673	7.656	(1.609)	102301	5.00000	4.75494
82 2-Hexanone	43	8.195	8.108	(0.890)	146873	20.0000	19.3644
81 1,3-Dichloropropane	76	7.917	7.917	(0.860)	168766	5.00000	5.12162
80 Tetrachloroethene	164	7.917	7.899	(0.860)	182306	5.00000	5.23631
84 Dibromochloromethane	129	8.282	8.265	(0.900)	181470	5.00000	5.18699
85 1,2-Dibromoethane	107	8.439	8.404	(0.917)	128535	5.00000	4.89622
88 1-Chlorohexane	91	9.292	9.291	(1.009)	256693	5.00000	4.86417
87 Chlorobenzene	112	9.257	9.239	(1.006)	383509	5.00000	5.04296
89 1,1,1,2-Tetrachloroethane	131	9.396	9.396	(1.021)	169273	5.00000	4.85595
90 Ethylbenzene	106	9.466	9.466	(1.028)	182263	5.00000	4.85216
91 m and p-Xylene	106	9.674	9.674	(1.051)	479086	10.0000	9.40589
92 o-Xylene	106	10.336	10.318	(1.123)	214368	5.00000	4.84788
93 Styrene	104	10.370	10.353	(1.127)	338904	5.00000	4.73827
94 Bromoform	173	10.614	10.597	(1.153)	94169	5.00000	4.69238
95 isopropyl benzene	105	10.980	10.979	(0.830)	706850	5.00000	5.00922
97 Cyclohexanone	55	11.119	11.049	(1.208)	56509	200.000	177.324
100 1,1,2,2-Tetrachloroethane	83	11.502	11.484	(0.870)	126123	5.00000	4.99444
101 1,2,3-Trichloropropane	110	11.536	11.519	(0.872)	28786	5.00000	4.85128
99 Bromobenzene	156	11.432	11.414	(0.864)	149301	5.00000	5.01822
103 n-Propylbenzene	120	11.693	11.693	(0.884)	172726	5.00000	5.05815
104 2-Chlorotoluene	126	11.797	11.780	(0.892)	138946	5.00000	4.88408
106 1,3,5-Trimethylbenzene	105	12.024	12.023	(0.909)	520724	5.00000	4.94438
105 4-Chlorotoluene	126	11.989	11.971	(0.907)	137851	5.00000	4.60276
107 tert-Butylbenzene	119	12.563	12.563	(0.950)	587794	5.00000	4.95329
108 1,2,4-Trimethylbenzene	105	12.667	12.667	(0.958)	505157	5.00000	4.97328

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
109 sec-Butylbenzene	134	12.963	12.963	(0.980)	147647	5.00000	4.95030
112 4-Isopropyltoluene	119	13.259	13.241	(1.003)	645291	5.00000	4.89739
110 1,3-Dichlorobenzene	146	13.102	13.085	(0.991)	255530	5.00000	4.82737
113 1,4-dichlorobenzene	146	13.259	13.241	(1.003)	309516	5.00000	4.85184
116 n-Butylbenzene	91	13.990	13.972	(1.058)	632470	5.00000	5.06492
115 1,2-Dichlorobenzene	146	13.903	13.885	(1.051)	228041	5.00000	4.85990
117 1,2-Dibromo-3-chloropropane	157	15.364	15.277	(1.162)	19461	5.00000	4.84094
118 1,2,4-Trichlorobenzene	180	16.583	16.565	(1.254)	187121	5.00000	4.90147
119 Hexachlorobutadiene	225	16.809	16.809	(1.271)	184807	5.00000	5.22715
120 Naphthalene	128	16.861	16.826	(1.275)	195760	5.00000	5.14745
121 1,2,3-Trichlorobenzene	180	17.122	17.087	(1.295)	147649	5.00000	5.10509

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.

Data File: Z7138.D

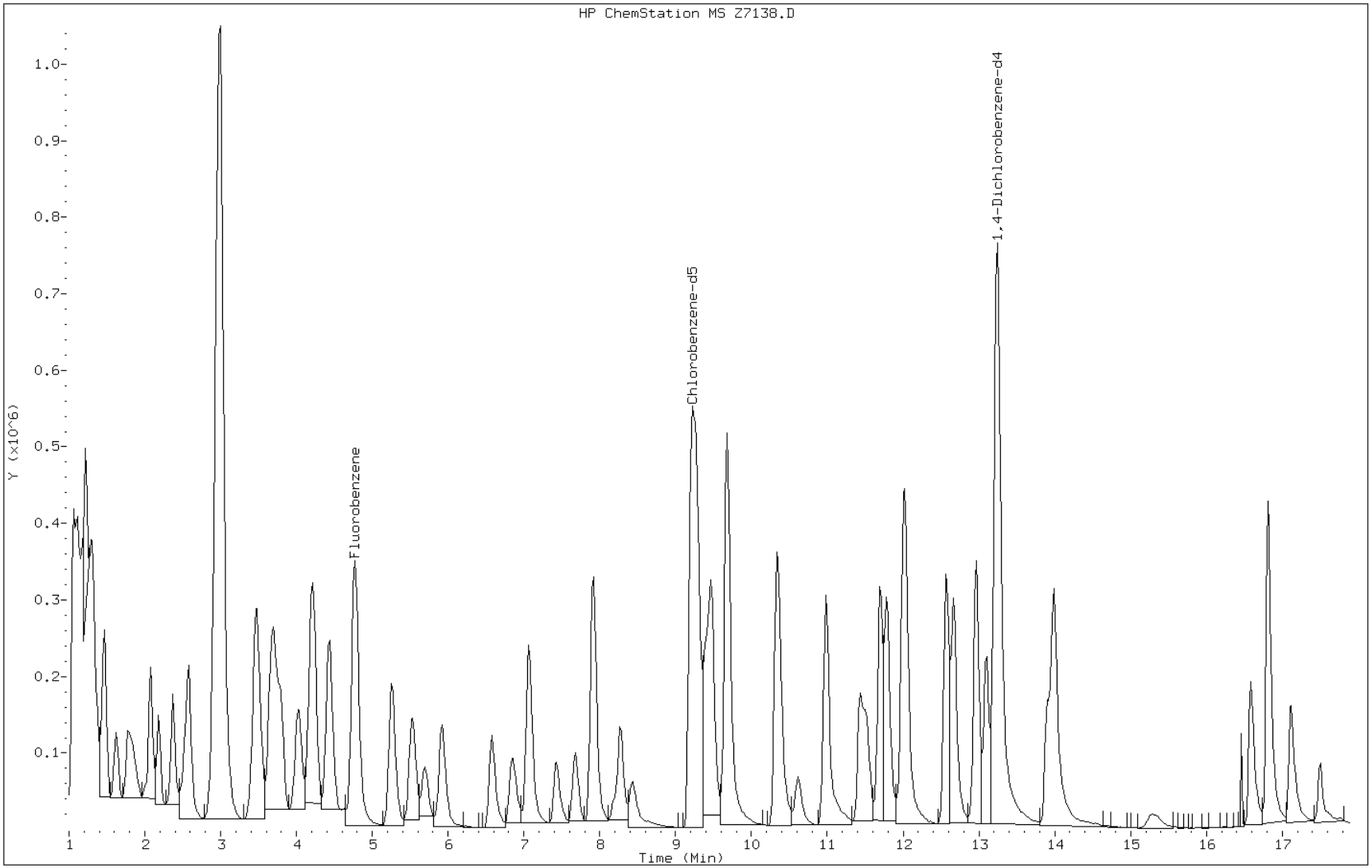
Date: 11-JUN-2012 14:33

Client ID: IC

Instrument: Z.i

Sample Info: IC,,M5.0

Operator: MEIERG



TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\Z7139.D
Lab Smp Id: IC Client Smp ID: IC
Inj Date : 11-JUN-2012 14:54
Operator : MEIERG Inst ID: Z.i
Smp Info : IC,,M10
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\8260B-H2O.m
Meth Date : 12-Jun-2012 06:00 meierg Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 1-mainbo.sub
Target Version: 4.14
Processing Host: DENPC186

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
* 62 Fluorobenzene	96	4.780	4.767	(1.000)	960682	12.5000	
* 86 Chlorobenzene-d5	119	9.199	9.204	(1.000)	208953	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.219	13.207	(1.000)	376528	12.5000	(Q)
M 1 1,2-Dichloroethene (total)	96				733482	20.0000	22.0678
M 2 Xylene (total)	106				1511192	30.0000	32.0018
M 3 1,3-Dichloropropene (total)	75				823702	20.0000	20.9814
M 4 Trihalomethanes (total)	83				1859578	40.0000	44.0978
5 Chlorotrifluoroethene	116	1.299	1.305	(0.272)	206461	10.0000	9.90871
6 dichlorodifluoromethane	85	1.317	1.322	(0.276)	536611	10.0000	10.5181
7 Chloromethane	50	1.369	1.374	(0.287)	390109	10.0000	10.9846
10 2-Chloro-1,1,1-trifluoroethan	118	1.473	1.479	(0.308)	472901	10.0000	10.6581
9 Vinyl Chloride	62	1.456	1.461	(0.305)	324083	10.0000	10.9762
12 Bromomethane	94	1.613	1.618	(0.337)	296591	10.0000	10.8089
13 Chloroethane	64	1.630	1.635	(0.341)	208256	10.0000	10.8462
16 Trichlorofluoromethane	101	1.769	1.774	(0.370)	756578	10.0000	10.9421
15 Ethanol	45	Compound Not Detected.					
21 Acrolein	56	1.995	1.983	(0.418)	142401	100.000	107.580
22 Acetone	43	2.082	2.070	(0.436)	105251	40.0000	43.2724
23 1,1-Dichloroethene	96	2.065	2.070	(0.432)	324163	10.0000	10.8080
25 Iodomethane	142	2.169	2.175	(0.454)	720011	10.0000	10.8584
29 Acetonitrile	41	2.256	2.262	(0.472)	55669	100.000	107.116
30 tert-Butyl alcohol	59	2.448	2.453	(0.512)	225823	200.000	220.783

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
28 Methylene Chloride	84	2.361	2.366	(0.494)	294935	10.0000	10.0239
31 Acrylonitrile	53	2.517	2.523	(0.527)	283886	100.000	109.532
32 trans-1,2-Dichloroethene	96	2.570	2.575	(0.538)	363940	10.0000	10.8474
37 Isopropyl ether	87	2.987	2.992	(0.625)	1202556	50.0000	54.3710
36 1,1-Dichloroethane	63	2.900	2.905	(0.607)	705919	10.0000	10.7283
38 Chloroprene	53	2.987	2.992	(0.625)	665020	10.0000	10.7636
41 2-Butanone	43	3.457	3.462	(0.723)	249969	40.0000	44.5598
42 cis-1,2-Dichloroethene	96	3.457	3.462	(0.723)	369542	10.0000	11.2203
45 Propionitrile	54	3.509	3.497	(0.734)	106391	100.000	114.573
43 2,2-Dichloropropane	77	3.474	3.480	(0.727)	593802	10.0000	11.0053
46 Methacrylonitrile	41	3.666	3.671	(0.767)	860049	100.000	117.366
47 Bromochloromethane	128	3.701	3.706	(0.774)	164983	10.0000	11.6351
50 Chloroform	83	3.788	3.793	(0.793)	700456	10.0000	11.2030
52 1,1,1-Trichloroethane	97	4.014	4.019	(0.840)	708153	10.0000	11.1436
58 Isobutanol	41	4.397	4.367	(0.920)	53734	200.000	211.751
54 1,1-Dichloropropene	75	4.188	4.193	(0.876)	594200	10.0000	10.7460
55 Carbon Tetrachloride	117	4.223	4.228	(0.884)	649419	10.0000	11.0418
57 1,2-Dichloroethane	62	4.432	4.437	(0.927)	304932	10.0000	11.3351
59 Benzene	78	4.432	4.437	(0.927)	1043685	10.0000	10.9901
61 n-Butanol	56	4.623	4.611	(0.967)	7503	300.000	0.000000(a)
63 Trichloroethene	95	5.249	5.255	(1.098)	433925	10.0000	10.3897
66 1,2-Dichloropropane	63	5.528	5.516	(1.157)	368043	10.0000	10.4519
69 1,4-Dioxane	88	5.789	5.742	(1.211)	34312	500.000	490.598
67 Dibromomethane	93	5.684	5.672	(1.189)	197791	10.0000	10.9066
70 Bromodichloromethane	83	5.911	5.916	(1.237)	561242	10.0000	10.4965
73 cis-1,3-Dichloropropene	75	6.572	6.560	(1.375)	474131	10.0000	10.9081
74 4-Methyl-2-pentanone	43	6.833	6.803	(1.430)	670103	40.0000	42.3628
76 Toluene	91	7.059	7.064	(1.477)	1116693	10.0000	10.5730
77 trans-1,3-Dichloropropene	75	7.407	7.395	(1.550)	349571	10.0000	10.0732
79 1,1,2-Trichloroethane	97	7.668	7.656	(1.604)	218007	10.0000	10.9488
82 2-Hexanone	43	8.155	8.108	(0.887)	371671	40.0000	41.3267
81 1,3-Dichloropropane	76	7.912	7.917	(0.860)	358522	10.0000	11.2088
80 Tetrachloroethene	164	7.912	7.899	(0.860)	374905	10.0000	11.0934
84 Dibromochloromethane	129	8.260	8.265	(0.898)	378906	10.0000	11.1574
85 1,2-Dibromoethane	107	8.416	8.404	(0.915)	286058	10.0000	11.2257
88 1-Chlorohexane	91	9.286	9.291	(1.009)	535234	10.0000	10.4486
87 Chlorobenzene	112	9.251	9.239	(1.006)	796793	10.0000	10.7938
89 1,1,1,2-Tetrachloroethane	131	9.391	9.396	(1.021)	377022	10.0000	11.1423
90 Ethylbenzene	106	9.460	9.466	(1.028)	396303	10.0000	10.8689
91 m and p-Xylene	106	9.669	9.674	(1.051)	1043501	20.0000	21.1057
92 o-Xylene	106	10.313	10.318	(1.121)	467691	10.0000	10.8961
93 Styrene	104	10.348	10.353	(1.125)	766283	10.0000	11.0370
94 Bromoform	173	10.609	10.597	(1.153)	218974	10.0000	11.2408
95 isopropyl benzene	105	10.974	10.979	(0.830)	1542578	10.0000	9.74024
97 Cyclohexanone	55	11.079	11.049	(1.204)	152585	400.000	399.724
100 1,1,2,2-Tetrachloroethane	83	11.496	11.484	(0.870)	311804	10.0000	11.0015
101 1,2,3-Trichloropropane	110	11.531	11.519	(0.872)	73144	10.0000	10.9833
99 Bromobenzene	156	11.427	11.414	(0.864)	360649	10.0000	10.8007
103 n-Propylbenzene	120	11.688	11.693	(0.884)	406220	10.0000	10.5992
104 2-Chlorotoluene	126	11.775	11.780	(0.891)	334728	10.0000	10.4836
106 1,3,5-Trimethylbenzene	105	12.018	12.023	(0.909)	1248795	10.0000	10.5651
105 4-Chlorotoluene	126	11.983	11.971	(0.907)	361822	10.0000	10.7642
107 tert-Butylbenzene	119	12.575	12.563	(0.951)	1363277	10.0000	10.2360
108 1,2,4-Trimethylbenzene	105	12.662	12.667	(0.958)	1202526	10.0000	10.5485

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
109 sec-Butylbenzene	134	12.958	12.963	(0.980)	344322	10.0000	10.2861
112 4-Isopropyltoluene	119	13.254	13.241	(1.003)	1500764	10.0000	10.1485
110 1,3-Dichlorobenzene	146	13.097	13.085	(0.991)	629722	10.0000	10.5998
113 1,4-dichlorobenzene	146	13.254	13.241	(1.003)	725840	10.0000	10.1378
116 n-Butylbenzene	91	13.984	13.972	(1.058)	1493818	10.0000	10.6588
115 1,2-Dichlorobenzene	146	13.897	13.885	(1.051)	548832	10.0000	10.4216
117 1,2-Dibromo-3-chloropropane	157	15.324	15.277	(1.159)	50857	10.0000	10.2585
118 1,2,4-Trichlorobenzene	180	16.577	16.565	(1.254)	441173	10.0000	10.2966
119 Hexachlorobutadiene	225	16.821	16.809	(1.272)	390733	10.0000	9.80678
120 Naphthalene	128	16.838	16.826	(1.274)	473745	10.0000	11.0992
121 1,2,3-Trichlorobenzene	180	17.099	17.087	(1.294)	335802	10.0000	10.3451

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.

Data File: Z7139.D

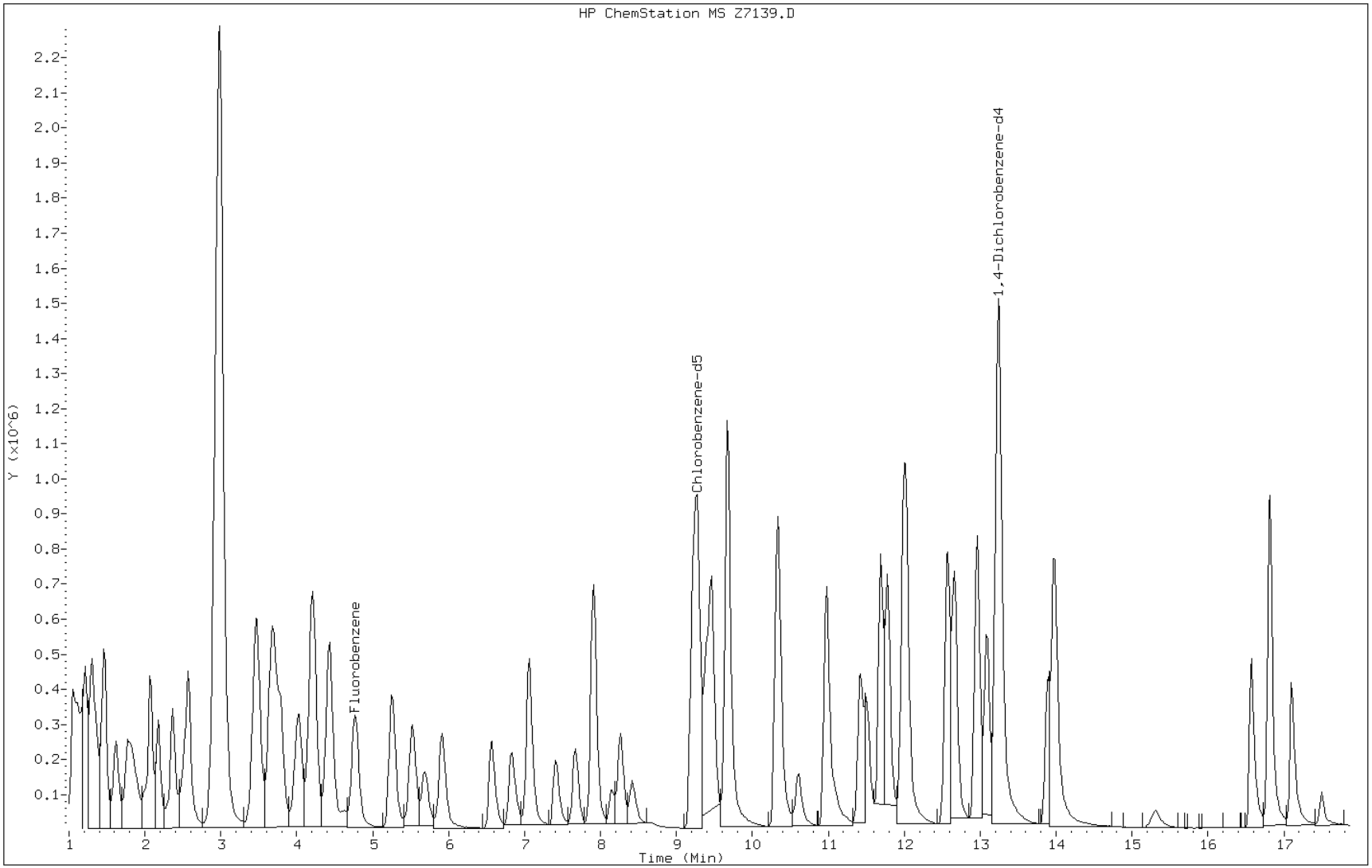
Date: 11-JUN-2012 14:54

Client ID: IC

Instrument: Z.i

Sample Info: IC,,M10

Operator: MEIERG



TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\Z7140.D
Lab Smp Id: IC Client Smp ID: IC
Inj Date : 11-JUN-2012 15:15
Operator : MEIERG Inst ID: Z.i
Smp Info : IC,,M30
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\8260B-H2O.m
Meth Date : 12-Jun-2012 06:00 meierg Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 1-mainbo.sub
Target Version: 4.14
Processing Host: DENPC186

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
* 62 Fluorobenzene	96	4.767	4.767	(1.000)	971390	12.5000	
* 86 Chlorobenzene-d5	119	9.205	9.204	(1.000)	229787	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.207	13.207	(1.000)	393458	12.5000	
M 1 1,2-Dichloroethene (total)	96				2122087	60.0000	63.1168
M 2 Xylene (total)	106				4884554	90.0000	94.0636
M 3 1,3-Dichloropropene (total)	75				2576269	60.0000	64.6657
M 4 Trihalomethanes (total)	83				5544935	120.000	126.655
5 Chlorotrifluoroethene	116	1.305	1.305	(0.274)	694306	30.0000	30.1273
6 dichlorodifluoromethane	85	1.322	1.322	(0.277)	1627417	30.0000	30.8579
7 Chloromethane	50	1.374	1.374	(0.288)	1173012	30.0000	32.6654
10 2-Chloro-1,1,1-trifluoroethan	118	1.479	1.479	(0.310)	1399459	30.0000	31.1928
9 Vinyl Chloride	62	1.461	1.461	(0.307)	939559	30.0000	31.4705
12 Bromomethane	94	1.618	1.618	(0.339)	849050	30.0000	30.6014
13 Chloroethane	64	1.653	1.635	(0.347)	599759	30.0000	30.8918
16 Trichlorofluoromethane	101	1.775	1.774	(0.372)	2211023	30.0000	31.6246
15 Ethanol	45	1.862	1.861	(0.391)	78279	1500.00	1133.12
21 Acrolein	56	2.001	1.983	(0.420)	404877	300.000	302.502
22 Acetone	43	2.088	2.070	(0.438)	295248	120.000	123.956
23 1,1-Dichloroethene	96	2.070	2.070	(0.434)	973825	30.0000	32.1107
25 Iodomethane	142	2.175	2.175	(0.456)	2199167	30.0000	32.7998
29 Acetonitrile	41	2.262	2.262	(0.474)	164723	300.000	313.460
30 tert-Butyl alcohol	59	2.453	2.453	(0.515)	633712	600.000	612.740

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
28 Methylene Chloride	84	2.366	2.366	(0.496)	850425	30.0000	28.5846
31 Acrylonitrile	53	2.523	2.523	(0.529)	825529	300.000	315.003
32 trans-1,2-Dichloroethene	96	2.575	2.575	(0.540)	1098617	30.0000	32.3839
37 Isopropyl ether	87	2.993	2.992	(0.628)	3553113	150.000	158.876
36 1,1-Dichloroethane	63	2.906	2.905	(0.610)	2124633	30.0000	31.9335
38 Chloroprene	53	2.993	2.992	(0.628)	1947261	30.0000	31.1696
41 2-Butanone	43	3.462	3.462	(0.726)	649836	120.000	114.564
42 cis-1,2-Dichloroethene	96	3.462	3.462	(0.726)	1023470	30.0000	30.7329
45 Propionitrile	54	3.515	3.497	(0.737)	288253	300.000	307.000
43 2,2-Dichloropropane	77	3.480	3.480	(0.730)	1608929	30.0000	29.4906
46 Methacrylonitrile	41	3.671	3.671	(0.770)	2329051	300.000	314.329
47 Bromochloromethane	128	3.706	3.706	(0.777)	462694	30.0000	32.2710
50 Chloroform	83	3.793	3.793	(0.796)	1959833	30.0000	30.9998
52 1,1,1-Trichloroethane	97	4.037	4.019	(0.847)	1982919	30.0000	30.8596
58 Isobutanol	41	4.367	4.367	(0.916)	154047	600.000	558.085
54 1,1-Dichloropropene	75	4.193	4.193	(0.880)	1700581	30.0000	30.4156
55 Carbon Tetrachloride	117	4.228	4.228	(0.887)	1851901	30.0000	31.1400
57 1,2-Dichloroethane	62	4.437	4.437	(0.931)	857473	30.0000	31.5231
59 Benzene	78	4.437	4.437	(0.931)	3030887	30.0000	31.5638
61 n-Butanol	56	4.628	4.611	(0.971)	27371	900.000	0.000000(a)
63 Trichloroethene	95	5.255	5.255	(1.102)	1326271	30.0000	31.4056
66 1,2-Dichloropropane	63	5.516	5.516	(1.157)	1138580	30.0000	31.9776
69 1,4-Dioxane	88	5.759	5.742	(1.208)	127529	1500.00	1558.65
67 Dibromomethane	93	5.690	5.672	(1.193)	594365	30.0000	32.4133
70 Bromodichloromethane	83	5.916	5.916	(1.241)	1717279	30.0000	31.7631
73 cis-1,3-Dichloropropene	75	6.560	6.560	(1.376)	1481227	30.0000	33.7024
74 4-Methyl-2-pentanone	43	6.821	6.803	(1.431)	1950494	120.000	119.292
76 Toluene	91	7.064	7.064	(1.482)	3454159	30.0000	32.3439
77 trans-1,3-Dichloropropene	75	7.395	7.395	(1.551)	1095042	30.0000	30.9633
79 1,1,2-Trichloroethane	97	7.673	7.656	(1.609)	611958	30.0000	30.3952
82 2-Hexanone	43	8.126	8.108	(0.883)	1219453	120.000	111.998
81 1,3-Dichloropropane	76	7.917	7.917	(0.860)	1114813	30.0000	31.6934
80 Tetrachloroethene	164	7.900	7.899	(0.858)	1151894	30.0000	30.9942
84 Dibromochloromethane	129	8.265	8.265	(0.898)	1170555	30.0000	31.3434
85 1,2-Dibromoethane	107	8.422	8.404	(0.915)	907327	30.0000	32.3778
88 1-Chlorohexane	91	9.292	9.291	(1.009)	1783241	30.0000	31.6555
87 Chlorobenzene	112	9.239	9.239	(1.004)	2608405	30.0000	32.1314
89 1,1,1,2-Tetrachloroethane	131	9.396	9.396	(1.021)	1208215	30.0000	32.4694
90 Ethylbenzene	106	9.466	9.466	(1.028)	1290097	30.0000	32.1738
91 m and p-Xylene	106	9.674	9.674	(1.051)	3371426	60.0000	62.0074
92 o-Xylene	106	10.318	10.318	(1.121)	1513128	30.0000	32.0562
93 Styrene	104	10.353	10.353	(1.125)	2479229	30.0000	32.4716
94 Bromoform	173	10.597	10.597	(1.151)	697268	30.0000	32.5483
95 isopropyl benzene	105	10.979	10.979	(0.831)	5062723	30.0000	30.5918
97 Cyclohexanone	55	11.066	11.049	(1.202)	548185	1200.00	1186.85
100 1,1,2,2-Tetrachloroethane	83	11.484	11.484	(0.870)	900724	30.0000	30.4132
101 1,2,3-Trichloropropane	110	11.519	11.519	(0.872)	224372	30.0000	32.2420
99 Bromobenzene	156	11.414	11.414	(0.864)	1104480	30.0000	31.6536
103 n-Propylbenzene	120	11.693	11.693	(0.885)	1271491	30.0000	31.7487
104 2-Chlorotoluene	126	11.780	11.780	(0.892)	1052072	30.0000	31.5327(Q)
106 1,3,5-Trimethylbenzene	105	12.024	12.023	(0.910)	3894301	30.0000	31.5292
105 4-Chlorotoluene	126	11.971	11.971	(0.906)	1158482	30.0000	32.9819
107 tert-Butylbenzene	119	12.563	12.563	(0.951)	4338048	30.0000	31.1703
108 1,2,4-Trimethylbenzene	105	12.667	12.667	(0.959)	3844008	30.0000	32.2686

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
109 sec-Butylbenzene	134	12.963	12.963	(0.982)	1092742	30.0000	31.2395
112 4-Isopropyltoluene	119	13.242	13.241	(1.003)	4802592	30.0000	31.0787
110 1,3-Dichlorobenzene	146	13.085	13.085	(0.991)	2014654	30.0000	32.4524
113 1,4-dichlorobenzene	146	13.242	13.241	(1.003)	2281190	30.0000	30.4904
116 n-Butylbenzene	91	13.972	13.972	(1.058)	4832656	30.0000	32.9987
115 1,2-Dichlorobenzene	146	13.885	13.885	(1.051)	1747252	30.0000	31.7503
117 1,2-Dibromo-3-chloropropane	157	15.295	15.277	(1.158)	167799	30.0000	30.7452
118 1,2,4-Trichlorobenzene	180	16.565	16.565	(1.254)	1431560	30.0000	31.9736
119 Hexachlorobutadiene	225	16.809	16.809	(1.273)	1250823	30.0000	29.9488
120 Naphthalene	128	16.826	16.826	(1.274)	1468370	30.0000	32.9217
121 1,2,3-Trichlorobenzene	180	17.105	17.087	(1.295)	1099786	30.0000	32.4235

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.

Data File: Z7140.D

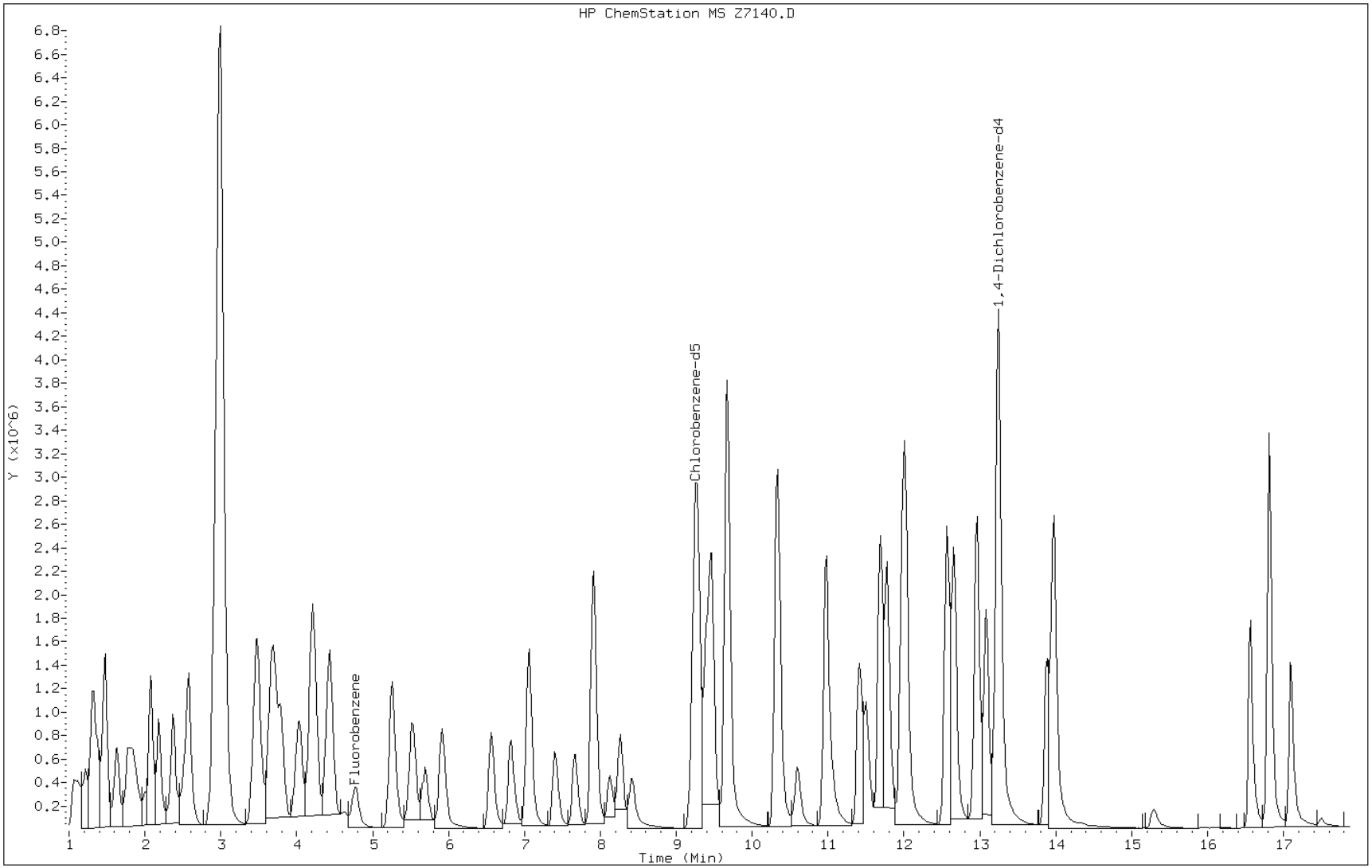
Date: 11-JUN-2012 15:15

Client ID: IC

Instrument: Z.i

Sample Info: IC,,M30

Operator: MEIERG



TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\Z7141.D
Lab Smp Id: IC Client Smp ID: IC
Inj Date : 11-JUN-2012 15:37
Operator : MEIERG Inst ID: Z.i
Smp Info : IC,,M60
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\8260B-H2O.m
Meth Date : 12-Jun-2012 06:00 meierg Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 1-mainbo.sub
Target Version: 4.14
Processing Host: DENPC186

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
* 62 Fluorobenzene	96	4.767	4.767	(1.000)	994715	12.5000	
* 86 Chlorobenzene-d5	119	9.204	9.204	(1.000)	232948	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.207	13.207	(1.000)	382816	12.5000	
M 1 1,2-Dichloroethene (total)	96				4305081	120.000	125.059
M 2 Xylene (total)	106				10030415	180.000	190.629
M 3 1,3-Dichloropropene (total)	75				5407779	120.000	133.155
M 4 Trihalomethanes (total)	83				11283685	240.000	254.399
5 Chlorotrifluoroethene	116	1.305	1.305	(0.274)	1498479	60.0000	62.1509(A)
6 dichlorodifluoromethane	85	1.322	1.322	(0.277)	3280421	60.0000	60.4086(A)
7 Chloromethane	50	1.374	1.374	(0.288)	2337118	60.0000	63.5567(A)
10 2-Chloro-1,1,1-trifluoroethan	118	1.479	1.479	(0.310)	2843145	60.0000	61.8854(A)
9 Vinyl Chloride	62	1.461	1.461	(0.307)	1878763	60.0000	61.4536(A)
12 Bromomethane	94	1.618	1.618	(0.339)	1672050	60.0000	58.8508
13 Chloroethane	64	1.635	1.635	(0.343)	1140216	60.0000	57.3520
16 Trichlorofluoromethane	101	1.774	1.774	(0.372)	4327611	60.0000	60.4471(A)
15 Ethanol	45	1.861	1.861	(0.391)	150564	3000.00	2128.38
21 Acrolein	56	1.983	1.983	(0.416)	828450	600.000	604.458(A)
22 Acetone	43	2.070	2.070	(0.434)	558265	240.000	230.748
23 1,1-Dichloroethene	96	2.070	2.070	(0.434)	1892885	60.0000	60.9520(A)
25 Iodomethane	142	2.175	2.175	(0.456)	4288214	60.0000	62.4574(A)
29 Acetonitrile	41	2.262	2.262	(0.474)	299563	600.000	556.688
30 tert-Butyl alcohol	59	2.453	2.453	(0.515)	1301234	1200.00	1228.67(A)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
28 Methylene Chloride	84	2.366	2.366	(0.496)	1669384	60.0000	54.7958
31 Acrylonitrile	53	2.523	2.523	(0.529)	1679236	600.000	625.734(A)
32 trans-1,2-Dichloroethene	96	2.575	2.575	(0.540)	2198683	60.0000	63.2907(A)
37 Isopropyl ether	87	2.992	2.992	(0.628)	7204514	300.000	314.592(A)
36 1,1-Dichloroethane	63	2.905	2.905	(0.609)	4289550	60.0000	62.9608(A)
38 Chloroprene	53	2.992	2.992	(0.628)	3898935	60.0000	60.9464(A)
41 2-Butanone	43	3.462	3.462	(0.726)	1352242	240.000	232.805
42 cis-1,2-Dichloroethene	96	3.462	3.462	(0.726)	2106398	60.0000	61.7680(A)
45 Propionitrile	54	3.497	3.497	(0.734)	594863	600.000	618.695(A)
43 2,2-Dichloropropane	77	3.480	3.480	(0.730)	3235693	60.0000	57.9175
46 Methacrylonitrile	41	3.671	3.671	(0.770)	4720780	600.000	622.178(A)
47 Bromochloromethane	128	3.706	3.706	(0.777)	934347	60.0000	63.6388(A)
50 Chloroform	83	3.793	3.793	(0.796)	3941984	60.0000	60.8906(A)
52 1,1,1-Trichloroethane	97	4.019	4.019	(0.843)	3991838	60.0000	60.6672(A)
58 Isobutanol	41	4.367	4.367	(0.916)	367410	1200.00	1269.23(A)
54 1,1-Dichloropropene	75	4.193	4.193	(0.880)	3532662	60.0000	61.7015(A)
55 Carbon Tetrachloride	117	4.228	4.228	(0.887)	3872106	60.0000	63.5833(A)
57 1,2-Dichloroethane	62	4.437	4.437	(0.931)	1755111	60.0000	63.0098(A)
59 Benzene	78	4.437	4.437	(0.931)	6168578	60.0000	62.7336(A)
61 n-Butanol	56	4.611	4.611	(0.967)	45125	1800.00	0.000000(a)
63 Trichloroethene	95	5.255	5.255	(1.102)	2676687	60.0000	61.8968(A)
66 1,2-Dichloropropane	63	5.516	5.516	(1.157)	2444307	60.0000	67.0397(A)
69 1,4-Dioxane	88	5.742	5.742	(1.204)	255575	3000.00	2962.86
67 Dibromomethane	93	5.672	5.672	(1.190)	1266561	60.0000	67.4513(A)
70 Bromodichloromethane	83	5.916	5.916	(1.241)	3472175	60.0000	62.7160(A)
73 cis-1,3-Dichloropropene	75	6.560	6.560	(1.376)	2972686	60.0000	66.0515(A)
74 4-Methyl-2-pentanone	43	6.803	6.803	(1.427)	4147792	240.000	246.209(A)
76 Toluene	91	7.064	7.064	(1.482)	7585189	60.0000	69.3604(A)
77 trans-1,3-Dichloropropene	75	7.395	7.395	(1.551)	2435093	60.0000	67.1039(A)
79 1,1,2-Trichloroethane	97	7.656	7.656	(1.606)	1375573	60.0000	66.7208(A)
82 2-Hexanone	43	8.108	8.108	(0.881)	2764242	240.000	243.388(A)
81 1,3-Dichloropropane	76	7.917	7.917	(0.860)	2371144	60.0000	66.4953(A)
80 Tetrachloroethene	164	7.899	7.899	(0.858)	2498410	60.0000	66.3130(A)
84 Dibromochloromethane	129	8.265	8.265	(0.898)	2413501	60.0000	63.7483(A)
85 1,2-Dibromoethane	107	8.404	8.404	(0.913)	1767748	60.0000	62.2258(A)
88 1-Chlorohexane	91	9.291	9.291	(1.009)	3605561	60.0000	63.1361(A)
87 Chlorobenzene	112	9.239	9.239	(1.004)	5297331	60.0000	64.3691(A)
89 1,1,1,2-Tetrachloroethane	131	9.396	9.396	(1.021)	2410099	60.0000	63.8899(A)
90 Ethylbenzene	106	9.466	9.466	(1.028)	2654620	60.0000	65.3054(A)
91 m and p-Xylene	106	9.674	9.674	(1.051)	6890220	120.000	125.006(A)
92 o-Xylene	106	10.318	10.318	(1.121)	3140195	60.0000	65.6234(A)
93 Styrene	104	10.353	10.353	(1.125)	5154195	60.0000	66.5908(A)
94 Bromoform	173	10.597	10.597	(1.151)	1456025	60.0000	67.0446(A)
95 isopropyl benzene	105	10.979	10.979	(0.831)	10593301	60.0000	65.7901(A)
97 Cyclohexanone	55	11.049	11.049	(1.200)	1223076	2400.00	2549.04(A)
100 1,1,2,2-Tetrachloroethane	83	11.484	11.484	(0.870)	1820747	60.0000	63.1871(A)
101 1,2,3-Trichloropropane	110	11.519	11.519	(0.872)	430777	60.0000	63.6231(A)
99 Bromobenzene	156	11.414	11.414	(0.864)	2291197	60.0000	67.4895(A)
103 n-Propylbenzene	120	11.693	11.693	(0.885)	2499774	60.0000	64.1537(A)
104 2-Chlorotoluene	126	11.780	11.780	(0.892)	2091483	60.0000	64.4285(A)
106 1,3,5-Trimethylbenzene	105	12.023	12.023	(0.910)	7495068	60.0000	62.3688(A)
105 4-Chlorotoluene	126	11.971	11.971	(0.906)	2240871	60.0000	65.5710(A)
107 tert-Butylbenzene	119	12.563	12.563	(0.951)	8409774	60.0000	62.1068(A)
108 1,2,4-Trimethylbenzene	105	12.667	12.667	(0.959)	7542505	60.0000	65.0757(A)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
109 sec-Butylbenzene	134	12.963	12.963	(0.982)	2184441	60.0000	64.1851(A)
112 4-Isopropyltoluene	119	13.241	13.241	(1.003)	9454511	60.0000	62.8833(A)
110 1,3-Dichlorobenzene	146	13.085	13.085	(0.991)	4070341	60.0000	67.3885(A)
113 1,4-dichlorobenzene	146	13.241	13.241	(1.003)	4428269	60.0000	60.8338(A)
116 n-Butylbenzene	91	13.972	13.972	(1.058)	9185965	60.0000	64.4680(A)
115 1,2-Dichlorobenzene	146	13.885	13.885	(1.051)	3402898	60.0000	63.5550(A)
117 1,2-Dibromo-3-chloropropane	157	15.277	15.277	(1.157)	313110	60.0000	58.2646
118 1,2,4-Trichlorobenzene	180	16.565	16.565	(1.254)	2772757	60.0000	63.6506(A)
119 Hexachlorobutadiene	225	16.809	16.809	(1.273)	2384186	60.0000	58.6284
120 Naphthalene	128	16.826	16.826	(1.274)	2826582	60.0000	65.1353(A)
121 1,2,3-Trichlorobenzene	180	17.087	17.087	(1.294)	2123805	60.0000	64.3538(A)

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: Z7141.D

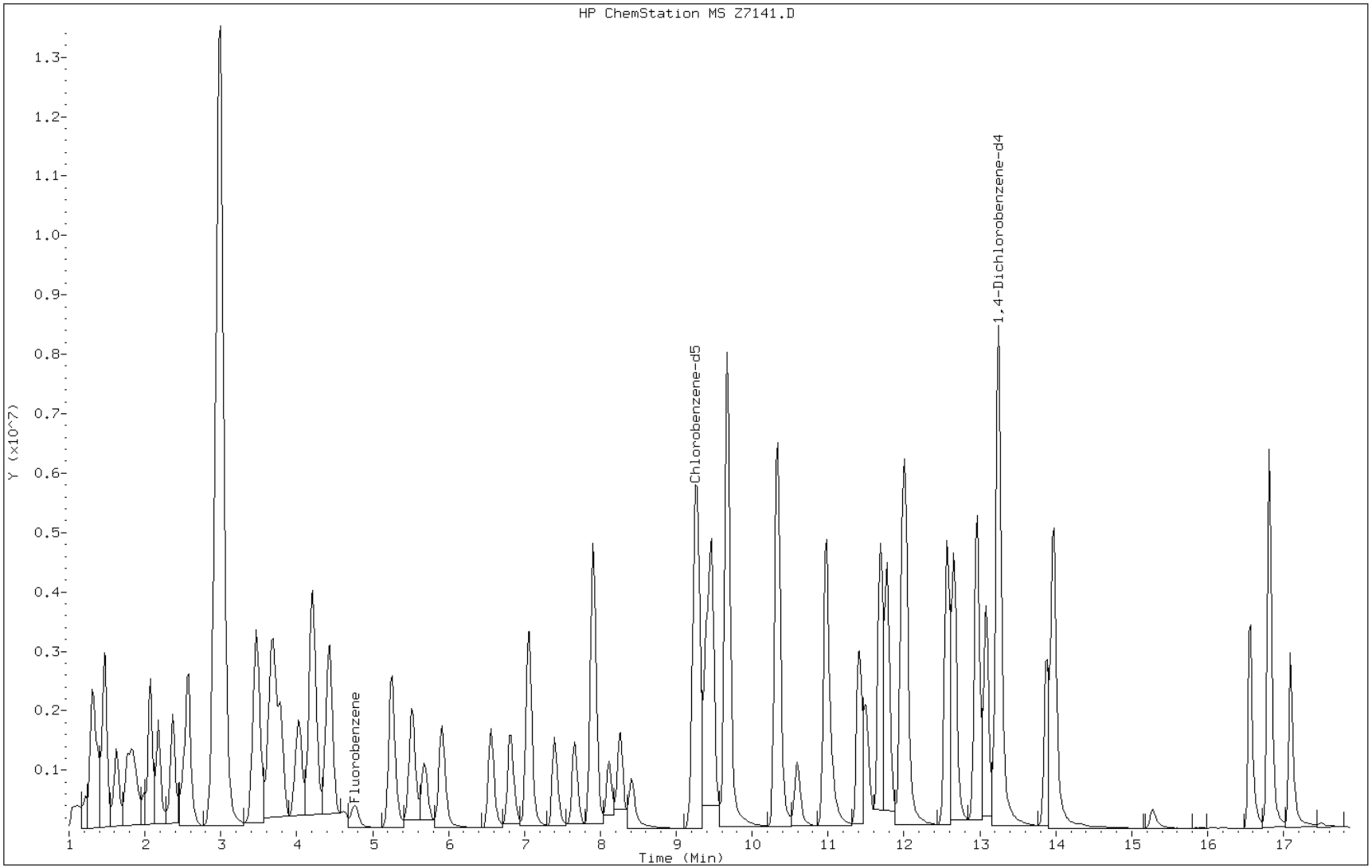
Date: 11-JUN-2012 15:37

Client ID: IC

Instrument: Z.i

Sample Info: IC,,M60

Operator: MEIERG



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Lab Sample ID: ICV 280-123533/8 Calibration Date: 06/11/2012 13:07

Instrument ID: MSV_Z Calib Start Date: 06/11/2012 10:59

GC Column: DB-624 (75.53) ID: 0.53(mm) Calib End Date: 06/11/2012 12:46

Lab File ID: Z7134.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	0.5439	0.5435		9.99	10.0	-0.0	25.0
Carbon disulfide	Ave	1.520	1.460		9.61	10.0	-3.9	25.0
Allyl chloride	Ave	0.7659	0.7642		9.98	10.0	-0.2	25.0
Methyl tert-butyl ether	Ave	0.6053	0.5673		9.37	10.0	-6.3	25.0
Vinyl acetate	Ave	0.5230	0.4533		17.3	20.0	-13.3	25.0
Tetrahydrofuran	Ave	0.0364	0.0363		19.9	20.0	-0.3	25.0
Methylcyclohexane	Ave	0.7594	0.7833		10.3	10.0	3.1	35.0
Methyl methacrylate	Ave	0.0495	0.0499		20.2	20.0	0.8	25.0
2-Chloroethyl vinyl ether	Ave	0.1108	0.1139		10.3	10.0	2.9	25.0
Ethyl methacrylate	Ave	1.332	1.314		19.7	20.0	-1.3	25.0
trans-1,4-Dichloro-2-butene	Lin2	0.1585	0.1592		9.46	10.0	-5.4	25.0
Dibromofluoromethane (Surr)	Ave	0.6900	0.7284		9.50	9.00	5.6	25.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3263	0.3356		9.25	9.00	2.8	25.0
Toluene-d8 (Surr)	Ave	6.250	6.340		9.13	9.00	1.4	25.0
4-Bromofluorobenzene (Surr)	Ave	2.250	2.481		9.93	9.00	10.3	25.0

TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\Z7134.D
Lab Smp Id: ICV
Inj Date : 11-JUN-2012 13:07
Operator : MEIERG Inst ID: Z.i
Smp Info : ICV,,S
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\8260B-H2O.m
Meth Date : 11-Jun-2012 23:25 Z.i Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 2-supp-.sub
Target Version: 4.14
Processing Host: DENPC293

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
* 62 Fluorobenzene	96	4.768	4.765	(1.000)	1050715	12.5000	
* 86 Chlorobenzene-d5	119	9.205	9.202	(1.000)	238465	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.224	13.222	(1.000)	327233	12.5000	
$ 51 Dibromofluoromethane (Surr)	111	3.967	3.947	(0.832)	551046	9.50072	9.50072(R)
$ 56 1,2-Dichloroethane-d4	65	4.350	4.330	(0.912)	253863	9.25451	9.25451(R)
$ 75 Toluene-d8	98	6.960	6.958	(0.756)	1088535	9.12949	9.12949(R)
$ 98 4-Bromofluorobenzene (Surr)	95	11.206	11.186	(0.847)	584535	9.92534	9.92534(R)
11 Ethylene Oxide	43	1.583	1.563	(0.332)	694636	1236.53	1236.53
14 Dichlorofluoromethane	67	1.757	1.737	(0.369)	818071	9.63326	9.63326
19 1,2-dichloro-1,1,2-trifluoro	117	1.931	1.911	(0.405)	491287	9.75632	9.75632
17 Ethyl Ether	59	1.914	1.894	(0.402)	192122	9.36251	9.36251
20 2,2-dichloro-1,1,1-trifluoro	83	1.949	1.929	(0.409)	851366	9.71029	9.71029
24 Trichlorotrifluoroethane	151	2.123	2.103	(0.445)	456806	9.99249	9.99249
18 2-propanol	45	1.914	1.894	(0.402)	132887	192.301	192.301
27 Methyl Acetate	43	2.279	2.259	(0.478)	433958	47.3598	47.3598
39 Allyl Chloride	41	2.279	2.277	(0.478)	642328	9.97684	9.97684
26 Carbon Disulfide	76	2.245	2.225	(0.471)	1227642	9.61070	9.61070
33 Methyl t-butyl ether	73	2.593	2.573	(0.544)	476860	9.37255	9.37255
34 Hexane	57	2.784	2.781	(0.302)	596136	9.64688	9.64688
35 Vinyl acetate	43	2.941	2.921	(0.617)	762126	17.3377	17.3377
40 ETBE	59	3.341	3.338	(0.701)	4900607	47.8943	47.8943
44 Ethyl Acetate	43	3.532	3.512	(0.741)	375033	19.5993	19.5993(Q)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
48 Tetrahydrofuran	42	3.793	3.756	(0.796)	60987	19.9313	19.9313
49 2-Butanol	45	3.689	3.669	(0.774)	281753	310.017	310.017
53 Cyclohexane	56	4.106	4.104	(0.861)	722860	10.3968	10.3968
60 TAME	73	4.611	4.609	(0.967)	3422367	49.1050	49.1050
64 2-Pentanone	43	5.516	5.479	(1.157)	606971	42.9006	42.9006
65 Methyl Cyclohexane	55	5.533	5.531	(1.161)	658423	10.3141	10.3141
68 Methyl Methacrylate	100	5.759	5.722	(1.208)	83934	20.1534	20.1534
71 2-nitropropane	41	6.229	6.209	(1.307)	25074	11.2313	11.2313
72 2-Chloroethyl vinyl ether	63	6.403	6.366	(1.343)	95778	10.2875	10.2875
78 Ethyl methacrylate	69	7.639	7.601	(0.830)	501427	19.7373	19.7373
83 Tetrahydrothiophene	60	8.283	8.228	(0.900)	63891	8.77573	8.77573
96 cis-1,4-dichloro-2-butene	53	11.119	11.082	(0.841)	53144	10.0948	10.0948
102 t-1,4-Dichloro-2-butene	53	11.658	11.604	(0.882)	41668	9.46325	9.46325
114 1,2,3-Trimethylbenzene	105	13.381	13.378	(1.012)	1075187	10.4382	10.4382

QC Flag Legend

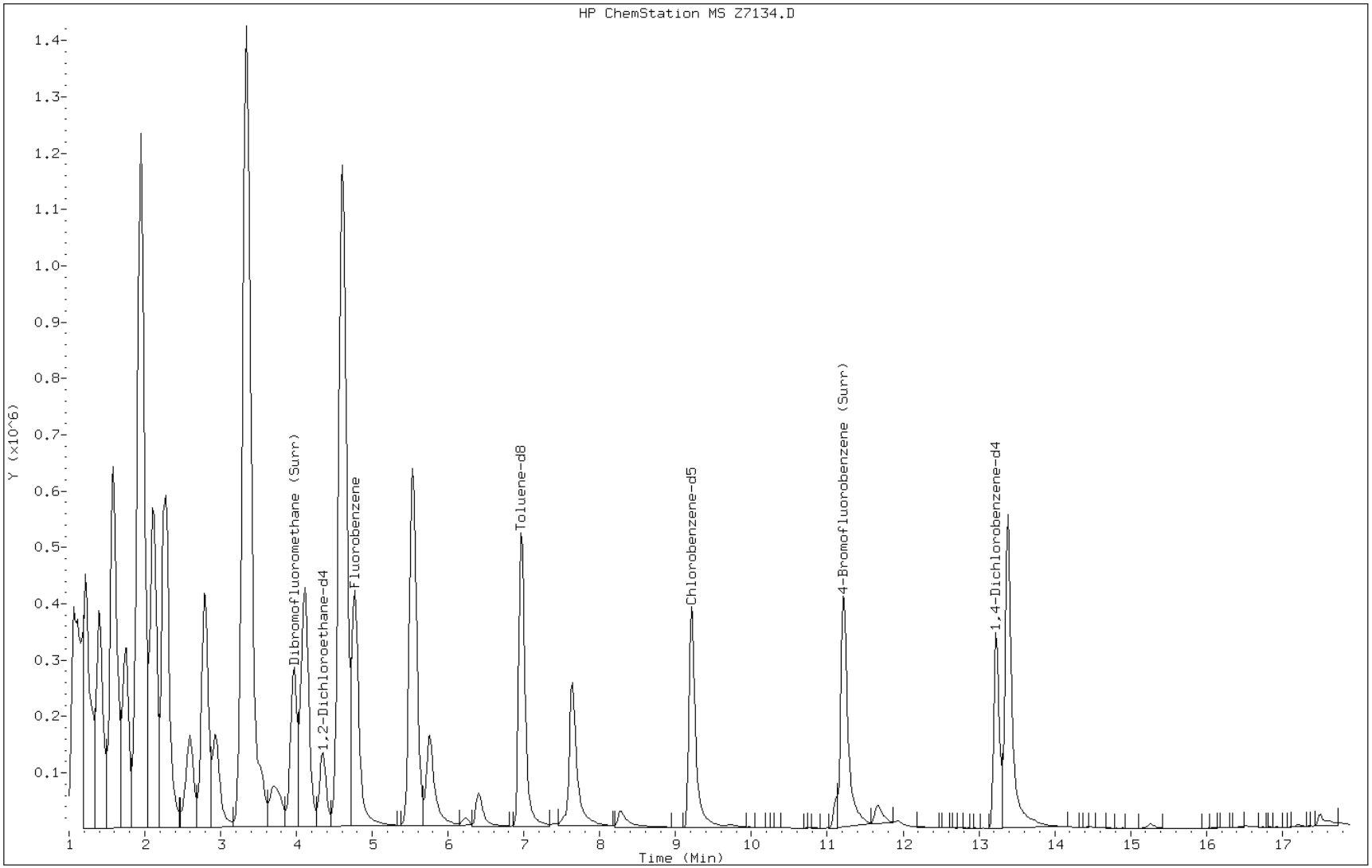
Q - Qualifier signal failed the ratio test.
R - Spike/Surrogate failed recovery limits.

Data File: Z7134.D

Date: 11-JUN-2012 13:07

Client ID: Instrument: Z.i

Sample Info: ICV,,S Operator: MEIERG



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Lab Sample ID: ICV 280-123534/2 Calibration Date: 06/12/2012 00:11

Instrument ID: MSV_Z Calib Start Date: 06/11/2012 13:29

GC Column: DB-624 (75.53) ID: 0.53(mm) Calib End Date: 06/11/2012 15:37

Lab File ID: Z7146.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dichloroethene, Total	Ave	0.4366	0.4368		20.2	20.0	0.0	25.0
Xylenes, Total	Ave	2.854	2.955		31.4	30.0	3.5	25.0
Acrolein	Ave	0.0172	0.0175		102	100	1.5	25.0
1,1-Dichloroethene	Ave	0.3903	0.4049		10.4	10.0	3.8	25.0
Iodomethane	Ave	0.8628	0.8556		9.92	10.0	-0.8	25.0
Methylene Chloride	Ave	0.3828	0.3732		9.75	10.0	-2.5	25.0
Acrylonitrile	Ave	0.0337	0.0357		106	100	5.7	25.0
trans-1,2-Dichloroethene	Ave	0.4365	0.4479		10.3	10.0	2.6	25.0
1,1-Dichloroethane	Ave	0.8562	0.8645	0.1000	10.1	10.0	1.0	25.0
cis-1,2-Dichloroethene	Ave	0.4285	0.4257		9.93	10.0	-0.7	25.0
2,2-Dichloropropane	Ave	0.7021	0.6890		9.81	10.0	-1.9	25.0
Chlorobromomethane	Ave	0.1845	0.1917		10.4	10.0	3.9	25.0
Chloroform	Ave	0.8135	0.7910		9.72	10.0	-2.8	25.0
1,1,1-Trichloroethane	Ave	0.8269	0.7561		9.14	10.0	-8.6	25.0
1,1-Dichloropropene	Ave	0.7195	0.6647		9.24	10.0	-7.6	25.0
Carbon tetrachloride	Ave	0.7653	0.7259		9.49	10.0	-5.1	25.0
Benzene	Ave	1.236	1.215		9.83	10.0	-1.7	25.0
1,2-Dichloroethane	Ave	0.3500	0.3572		10.2	10.0	2.0	25.0
Trichloroethene	Ave	0.5434	0.5063		9.32	10.0	-6.8	25.0
1,2-Dichloropropane	Ave	0.4582	0.4545		9.92	10.0	-0.8	25.0
Dibromomethane	Ave	0.2360	0.2414		10.2	10.0	2.3	25.0
Dichlorobromomethane	Ave	0.6957	0.6983		10.0	10.0	0.4	25.0
cis-1,3-Dichloropropene	Ave	0.5656	0.6008		10.6	10.0	6.2	25.0
Toluene	Ave	1.374	1.368		9.95	10.0	-0.5	25.0
trans-1,3-Dichloropropene	Lin2	0.4150	0.4543		10.1	10.0	0.6	25.0
1,1,2-Trichloroethane	Ave	0.2591	0.2516		9.71	10.0	-2.9	25.0
1,3-Dichloropropane	Ave	1.913	2.044		10.7	10.0	6.8	25.0
Tetrachloroethene	Ave	2.022	2.046		10.1	10.0	1.2	25.0
Chlorodibromomethane	Ave	2.032	2.175		10.7	10.0	7.1	25.0
Ethylene Dibromide	Ave	1.524	1.620		10.6	10.0	6.3	25.0
Chlorobenzene	Ave	4.416	4.596	0.3000	10.4	10.0	4.1	25.0
1-Chlorohexane	Ave	3.064	2.954		9.64	10.0	-3.6	25.0
1,1,1,2-Tetrachloroethane	Ave	2.024	2.173		10.7	10.0	7.4	25.0
Ethylbenzene	Ave	2.181	2.253		10.3	10.0	3.3	25.0
m-Xylene & p-Xylene	Ave	2.958	3.066		20.7	20.0	3.7	25.0
o-Xylene	Ave	2.568	2.732		10.6	10.0	6.4	25.0
Styrene	Ave	4.153	4.415		10.6	10.0	6.3	25.0
Bromoform	Ave	1.165	1.273	0.1000	10.9	10.0	9.2	25.0
Isopropylbenzene	Ave	5.258	5.439		10.3	10.0	3.5	25.0
Bromobenzene	Ave	1.109	1.206		10.9	10.0	8.8	25.0
1,1,2,2-Tetrachloroethane	Ave	0.9409	1.018	0.3000	10.8	10.0	8.2	25.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Lab Sample ID: ICV 280-123534/2 Calibration Date: 06/12/2012 00:11

Instrument ID: MSV_Z Calib Start Date: 06/11/2012 13:29

GC Column: DB-624 (75.53) ID: 0.53(mm) Calib End Date: 06/11/2012 15:37

Lab File ID: Z7146.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2,3-Trichloropropane	Ave	0.2211	0.2461		11.1	10.0	11.3	25.0
N-Propylbenzene	Ave	1.272	1.298		10.2	10.0	2.0	25.0
2-Chlorotoluene	Ave	1.060	1.089		10.3	10.0	2.7	25.0
4-Chlorotoluene	Ave	1.116	1.212		10.9	10.0	8.6	25.0
1,3,5-Trimethylbenzene	Ave	3.924	4.198		10.7	10.0	7.0	25.0
tert-Butylbenzene	Ave	4.421	4.483		10.1	10.0	1.4	25.0
1,2,4-Trimethylbenzene	Ave	3.785	3.885		10.3	10.0	2.6	25.0
sec-Butylbenzene	Ave	1.111	1.125		10.1	10.0	1.2	25.0
1,3-Dichlorobenzene	Ave	1.972	2.010		10.2	10.0	1.9	25.0
1,4-Dichlorobenzene	Ave	2.377	2.468		10.4	10.0	3.8	25.0
4-Isopropyltoluene	Ave	4.909	4.848		9.88	10.0	-1.2	25.0
1,2-Dichlorobenzene	Ave	1.748	1.957		11.2	10.0	12.0	25.0
n-Butylbenzene	Ave	4.653	5.070		10.9	10.0	9.0	25.0
1,2-Dibromo-3-Chloropropane	Lin2	0.1546	0.1753		10.6	10.0	6.2	25.0
1,2,4-Trichlorobenzene	Ave	1.422	1.488		10.5	10.0	4.6	25.0
Hexachlorobutadiene	Lin2	1.283	1.304		9.85	10.0	-1.5	25.0
Naphthalene	Ave	1.417	1.477		10.4	10.0	4.3	25.0
1,2,3-Trichlorobenzene	Ave	1.078	1.128		10.5	10.0	4.6	25.0

TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\061112MA.B\Z7146.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 12-JUN-2012 00:11
Operator : TINKHAMS Inst ID: Z.i
Smp Info : ICV,,MA
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\061112MA.B\8260B-H2O.m
Meth Date : 12-Jun-2012 06:06 meierg Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: icvam-.sub
Target Version: 4.14
Processing Host: DENPC186

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)	
* 62 Fluorobenzene	96	4.750	4.767	(1.000)	1060586	12.5000		
* 86 Chlorobenzene-d5	119	9.187	9.204	(1.000)	229359	12.5000		
* 111 1,4-Dichlorobenzene-d4	152	13.206	13.207	(1.000)	369521	12.5000		(Q)
M 1 1,2-Dichloroethene (total)	96				741198	20.1931	20.1931	
M 2 Xylene (total)	106				1626424	31.3718	31.3718	
M 3 1,3-Dichloropropene (total)	75				895191	20.6837	20.6837	
M 4 Trihalomethanes (total)	83				1896335	41.3916	41.3916	
21 Acrolein	56	1.966	1.983	(0.414)	148388	101.543	101.543	
23 1,1-Dichloroethene	96	2.053	2.070	(0.432)	343556	10.3756	10.3756	
25 Iodomethane	142	2.157	2.175	(0.454)	725963	9.91688	9.91688	
28 Methylene Chloride	84	2.348	2.366	(0.494)	316647	9.74808	9.74808	
31 Acrylonitrile	53	2.505	2.523	(0.527)	302538	105.733	105.733	
32 trans-1,2-Dichloroethene	96	2.557	2.575	(0.538)	380022	10.2598	10.2598	
36 1,1-Dichloroethane	63	2.888	2.905	(0.608)	733529	10.0978	10.0978	
42 cis-1,2-Dichloroethene	96	3.445	3.462	(0.725)	361176	9.93333	9.93332	
43 2,2-Dichloropropane	77	3.462	3.480	(0.729)	584589	9.81400	9.81400	
47 Bromochloromethane	128	3.688	3.706	(0.777)	162682	10.3922	10.3922	
50 Chloroform	83	3.758	3.793	(0.791)	671128	9.72284	9.72284	
52 1,1,1-Trichloroethane	97	4.001	4.019	(0.842)	641543	9.14449	9.14449	
54 1,1-Dichloropropene	75	4.175	4.193	(0.879)	563999	9.23899	9.23899	
55 Carbon Tetrachloride	117	4.210	4.228	(0.886)	615886	9.48525	9.48525	
57 1,2-Dichloroethane	62	4.419	4.437	(0.930)	303056	10.2042	10.2042	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
59 Benzene	78	4.402	4.437	(0.927)	1031042	9.83432	9.83432
63 Trichloroethene	95	5.237	5.255	(1.103)	429615	9.31757	9.31757
66 1,2-Dichloropropane	63	5.498	5.516	(1.158)	385621	9.91951	9.91951
67 Dibromomethane	93	5.672	5.672	(1.194)	204841	10.2314	10.2314
70 Bromodichloromethane	83	5.898	5.916	(1.242)	592495	10.0372	10.0372
73 cis-1,3-Dichloropropene	75	6.559	6.560	(1.381)	509751	10.6229	10.6229
76 Toluene	91	7.047	7.064	(1.484)	1160287	9.95093	9.95093
77 trans-1,3-Dichloropropene	75	7.395	7.395	(1.557)	385440	10.0607	10.0607
79 1,1,2-Trichloroethane	97	7.656	7.656	(1.612)	213489	9.71194	9.71194
81 1,3-Dichloropropane	76	7.899	7.917	(0.860)	375065	10.6827	10.6827
80 Tetrachloroethene	164	7.899	7.899	(0.860)	375428	10.1206	10.1206
84 Dibromochloromethane	129	8.247	8.265	(0.898)	399113	10.7068	10.7068
85 1,2-Dibromoethane	107	8.404	8.404	(0.915)	297230	10.6264	10.6264
88 1-Chlorohexane	91	9.274	9.291	(1.009)	541969	9.63880	9.63880
87 Chlorobenzene	112	9.239	9.239	(1.006)	843365	10.4083	10.4083
89 1,1,1,2-Tetrachloroethane	131	9.378	9.396	(1.021)	398807	10.7375	10.7375
90 Ethylbenzene	106	9.465	9.466	(1.030)	413426	10.3297	10.3297
91 m and p-Xylene	106	9.657	9.674	(1.051)	1125197	20.7333	20.7333
92 o-Xylene	106	10.318	10.318	(1.123)	501227	10.6385	10.6385
93 Styrene	104	10.335	10.353	(1.125)	810095	10.6300	10.6300
94 Bromoform	173	10.596	10.597	(1.153)	233599	10.9247	10.9247
95 isopropyl benzene	105	10.962	10.979	(0.830)	1607909	10.3453	10.3453
100 1,1,2,2-Tetrachloroethane	83	11.484	11.484	(0.870)	301047	10.8234	10.8234
101 1,2,3-Trichloropropane	110	11.519	11.519	(0.872)	72750	11.1313	11.1313
99 Bromobenzene	156	11.414	11.414	(0.864)	356403	10.8759	10.8759
103 n-Propylbenzene	120	11.693	11.693	(0.885)	383566	10.1979	10.1979
104 2-Chlorotoluene	126	11.780	11.780	(0.892)	321883	10.2724	10.2724
106 1,3,5-Trimethylbenzene	105	12.023	12.023	(0.910)	1241070	10.6989	10.6989
105 4-Chlorotoluene	126	11.971	11.971	(0.906)	358256	10.8602	10.8602
107 tert-Butylbenzene	119	12.563	12.563	(0.951)	1325391	10.1403	10.1403
108 1,2,4-Trimethylbenzene	105	12.650	12.667	(0.958)	1148378	10.2645	10.2645
109 sec-Butylbenzene	134	12.963	12.963	(0.982)	332554	10.1230	10.1230
112 4-Isopropyltoluene	119	13.241	13.241	(1.003)	1433232	9.87560	9.87560
110 1,3-Dichlorobenzene	146	13.085	13.085	(0.991)	594300	10.1932	10.1932
113 1,4-dichlorobenzene	146	13.241	13.241	(1.003)	729495	10.3821	10.3821
116 n-Butylbenzene	91	13.972	13.972	(1.058)	1498921	10.8981	10.8981
115 1,2-Dichlorobenzene	146	13.885	13.885	(1.051)	578598	11.1951	11.1951
117 1,2-Dibromo-3-chloropropane	157	15.312	15.277	(1.159)	51806	10.6191	10.6191(Q)
118 1,2,4-Trichlorobenzene	180	16.565	16.565	(1.254)	439774	10.4585	10.4585
119 Hexachlorobutadiene	225	16.808	16.809	(1.273)	385337	9.85451	9.85451
120 Naphthalene	128	16.843	16.826	(1.275)	436738	10.4262	10.4262
121 1,2,3-Trichlorobenzene	180	17.104	17.087	(1.295)	333340	10.4640	10.4640

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Data File: Z7146.D

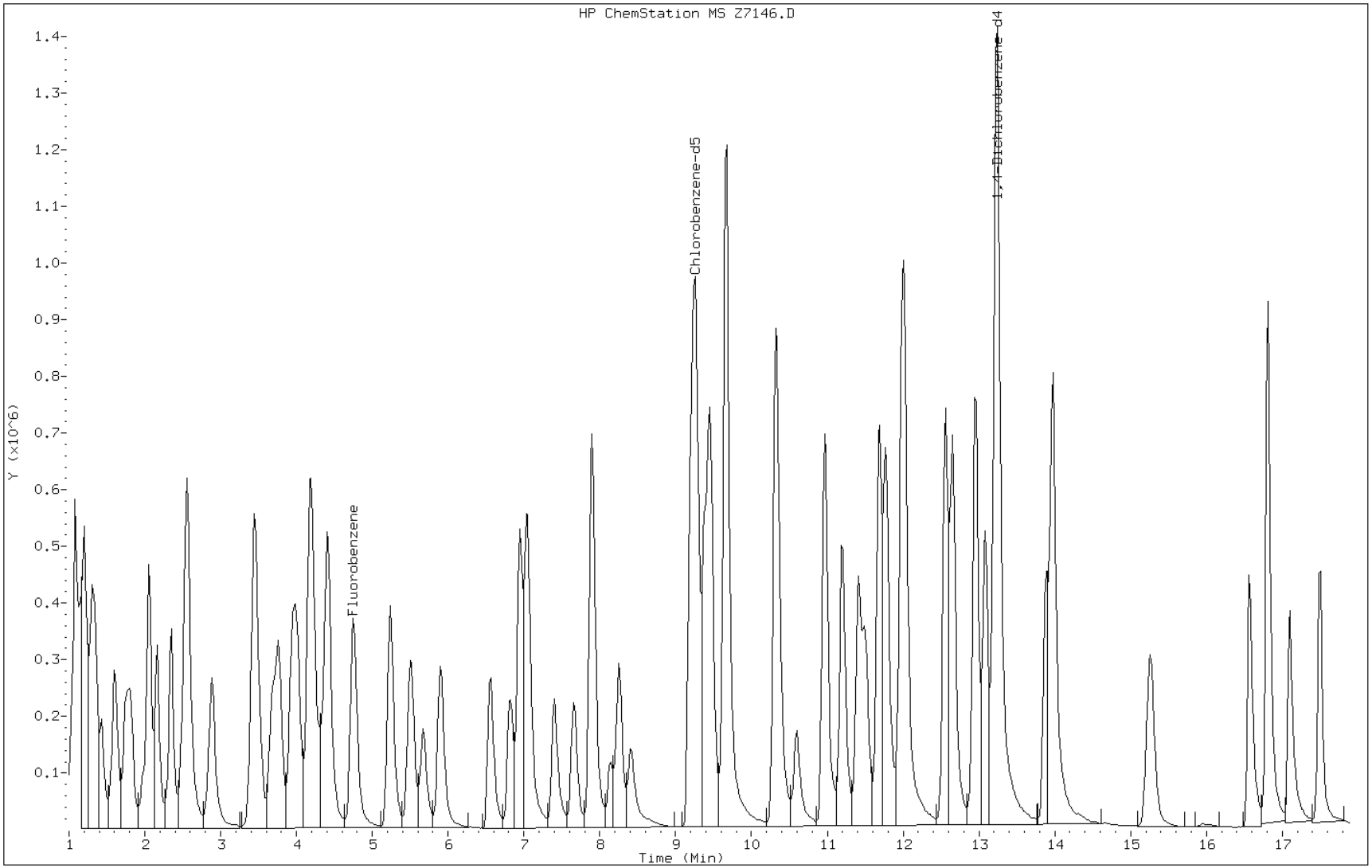
Date: 12-JUN-2012 00:11

Client ID: ICV

Instrument: Z.i

Sample Info: ICV,,MA

Operator: TINKHAMS



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Lab Sample ID: CCV 280-126759/2 Calibration Date: 07/05/2012 06:53

Instrument ID: MSV_Z Calib Start Date: 06/11/2012 13:29

GC Column: DB-624 (75.53) ID: 0.53(mm) Calib End Date: 06/11/2012 15:37

Lab File ID: Z8039.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dichloroethene, Total	Ave	0.4366	0.4362		20.2	20.0	-0.1	20.0
Xylenes, Total	Ave	2.854	3.132		33.3	30.0	9.7	20.0
Dichlorodifluoromethane	Lin2	0.6104	0.5050		7.70	10.0	-23.0*	20.0
Chloromethane	Ave	0.4621	0.3706	0.1000	8.02	10.0	-19.8	20.0
Vinyl chloride	Ave	0.3842	0.3479		9.06	10.0	-9.4	20.0
Bromomethane	Ave	0.3570	0.3161		8.85	10.0	-11.5	20.0
Chloroethane	Ave	0.2498	0.2271		9.09	10.0	-9.1	20.0
Trichlorofluoromethane	Ave	0.8997	0.8630		9.59	10.0	-4.1	20.0
Acrolein	Ave	0.0172	0.0143		82.7	99.5	-16.9	20.0
1,1-Dichloroethene	Ave	0.3903	0.3864		9.90	10.0	-1.0	20.0
Acetone	Lin2	0.0351	0.0301		37.7	40.0	-5.7	20.0
Iodomethane	Ave	0.8628	0.8057		9.34	10.0	-6.6	20.0
Acetonitrile	Ave	0.0068	0.0057		83.5	100	-16.5	20.0
Methylene Chloride	Ave	0.3828	0.3194		8.34	10.0	-16.6	20.0
Acrylonitrile	Ave	0.0337	0.0303		89.7	100	-10.3	20.0
trans-1,2-Dichloroethene	Ave	0.4365	0.4290		9.83	10.0	-1.7	20.0
1,1-Dichloroethane	Ave	0.8562	0.8053	0.1000	9.41	10.0	-5.9	20.0
2-Chloro-1,3-butadiene	Ave	0.8039	0.6776		8.43	10.0	-15.7	20.0
2-Butanone (MEK)	Ave	0.0730	0.0710		38.9	40.0	-2.8	20.0
cis-1,2-Dichloroethene	Ave	0.4285	0.4433		10.3	10.0	3.5	20.0
2,2-Dichloropropane	Ave	0.7021	0.7748		11.0	10.0	10.4	20.0
Propionitrile	Ave	0.0121	0.0117		96.6	100	-3.4	20.0
Methacrylonitrile	Ave	0.0953	0.0960		101	100	0.6	20.0
Chlorobromomethane	Ave	0.1845	0.1846		10.0	10.0	0.0	20.0
Chloroform	Ave	0.8135	0.8515		10.5	10.0	4.7	20.0
1,1,1-Trichloroethane	Ave	0.8269	0.8823		10.7	10.0	6.7	20.0
1,1-Dichloropropene	Ave	0.7195	0.7654		10.6	10.0	6.4	20.0
Carbon tetrachloride	Ave	0.7653	0.8051		10.5	10.0	5.2	20.0
Isobutyl alcohol	Lin2	0.0030	0.0030		185	200	-7.4	20.0
1,2-Dichloroethane	Ave	0.3500	0.3701		10.6	10.0	5.7	20.0
Benzene	Ave	1.236	1.275		10.3	10.0	3.1	20.0
Trichloroethene	Ave	0.5434	0.5714		10.5	10.0	5.1	20.0
1,2-Dichloropropane	Ave	0.4582	0.4645		10.1	10.0	1.4	20.0
Dibromomethane	Ave	0.2360	0.2489		10.5	10.0	5.5	20.0
1,4-Dioxane	Lin1	0.0008	0.0009		505	500	0.9	20.0
Dichlorobromomethane	Ave	0.6957	0.7329		10.5	10.0	5.3	20.0
cis-1,3-Dichloropropene	Ave	0.5656	0.6074		10.7	10.0	7.4	20.0
4-Methyl-2-pentanone (MIBK)	Lin2	0.1890	0.1943		37.9	40.0	-5.2	20.0
Toluene	Ave	1.374	1.468		10.7	10.0	6.8	20.0
trans-1,3-Dichloropropene	Lin2	0.4150	0.4380		9.70	10.0	-3.0	20.0
1,1,2-Trichloroethane	Ave	0.2591	0.2504		9.67	10.0	-3.3	20.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Lab Sample ID: CCV 280-126759/2 Calibration Date: 07/05/2012 06:53

Instrument ID: MSV_Z Calib Start Date: 06/11/2012 13:29

GC Column: DB-624 (75.53) ID: 0.53(mm) Calib End Date: 06/11/2012 15:37

Lab File ID: Z8039.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Tetrachloroethene	Ave	2.022	2.403		11.9	10.0	18.9	20.0
1,3-Dichloropropane	Ave	1.913	2.119		11.1	10.0	10.7	20.0
2-Hexanone	Lin	0.4345	0.5109		38.4	40.0	-3.9	20.0
Chlorodibromomethane	Ave	2.032	2.229		11.0	10.0	9.7	20.0
Ethylene Dibromide	Ave	1.524	1.635		10.7	10.0	7.2	20.0
Chlorobenzene	Ave	4.416	4.788	0.3000	10.8	10.0	8.4	20.0
1-Chlorohexane	Ave	3.064	3.660		12.2	10.2	19.4	20.0
1,1,1,2-Tetrachloroethane	Ave	2.024	2.226		11.0	10.0	10.0	20.0
Ethylbenzene	Ave	2.181	2.470		11.3	10.0	13.2	20.0
m-Xylene & p-Xylene	Ave	2.958	3.246		21.9	20.0	9.7	20.0
o-Xylene	Ave	2.568	2.904		11.3	10.0	13.1	20.0
Styrene	Ave	4.153	4.614		11.1	10.0	11.1	20.0
Bromoform	Ave	1.165	1.292	0.1000	11.1	10.0	10.9	20.0
Isopropylbenzene	Ave	5.258	5.578		10.6	10.0	6.1	20.0
Bromobenzene	Ave	1.109	1.253		11.3	10.0	13.0	20.0
1,1,2,2-Tetrachloroethane	Ave	0.9409	1.008	0.3000	10.7	10.0	7.2	20.0
1,2,3-Trichloropropane	Ave	0.2211	0.2271		10.3	10.0	2.7	20.0
N-Propylbenzene	Ave	1.272	1.354		10.6	10.0	6.4	20.0
2-Chlorotoluene	Ave	1.060	1.090		10.3	10.0	2.9	20.0
4-Chlorotoluene	Ave	1.116	1.142		10.2	10.0	2.3	20.0
1,3,5-Trimethylbenzene	Ave	3.924	4.124		10.5	10.0	5.1	20.0
tert-Butylbenzene	Ave	4.421	4.520		10.2	10.0	2.2	20.0
1,2,4-Trimethylbenzene	Ave	3.785	4.015		10.6	10.0	6.1	20.0
sec-Butylbenzene	Ave	1.111	1.169		10.5	10.0	5.2	20.0
1,3-Dichlorobenzene	Ave	1.972	2.077		10.5	10.0	5.3	20.0
1,4-Dichlorobenzene	Ave	2.377	2.443		10.3	10.0	2.8	20.0
4-Isopropyltoluene	Ave	4.909	5.008		10.2	10.0	2.0	20.0
1,2-Dichlorobenzene	Ave	1.748	1.809		10.3	10.0	3.5	20.0
n-Butylbenzene	Ave	4.653	5.283		11.4	10.0	13.5	20.0
1,2-Dibromo-3-Chloropropane	Lin2	0.1546	0.1653		10.1	10.0	0.6	20.0
1,2,4-Trichlorobenzene	Ave	1.422	1.438		10.1	10.0	1.1	20.0
Hexachlorobutadiene	Lin2	1.283	1.341		10.1	10.0	1.3	20.0
Naphthalene	Ave	1.417	1.400		9.88	10.0	-1.2	20.0
1,2,3-Trichlorobenzene	Ave	1.078	1.081		10.0	10.0	0.3	20.0

TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\Z8039.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 05-JUL-2012 06:53
Operator : MEIERG Inst ID: Z.i
Smp Info : CCV,,M
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\8260B-H2O.m
Meth Date : 06-Jul-2012 05:09 Z.i Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 1-main.sub
Target Version: 4.14
Processing Host: DENPC186

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
* 62 Fluorobenzene	96	4.766	4.766	(1.000)	834445	12.5000	
* 86 Chlorobenzene-d5	119	9.203	9.203	(1.000)	171774	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.205	13.205	(1.000)	297585	12.5000	(Q)
M 1 1,2-Dichloroethene (total)	96				582354	20.0000	20.1731
M 2 Xylene (total)	106				1291066	30.0000	33.2560
M 3 1,3-Dichloropropene (total)	75				697858	20.0000	20.4441
M 4 Trihalomethanes (total)	83				1541519	40.0000	43.0594
6 dichlorodifluoromethane	85	1.320	1.320	(0.277)	337119	10.0000	7.70291
7 Chloromethane	50	1.373	1.373	(0.288)	247395	10.0000	8.01996(Q)
9 Vinyl Chloride	62	1.460	1.460	(0.306)	232242	10.0000	9.05559
12 Bromomethane	94	1.599	1.599	(0.336)	211041	10.0000	8.85464
13 Chloroethane	64	1.634	1.634	(0.343)	151583	10.0000	9.08894
16 Trichlorofluoromethane	101	1.773	1.773	(0.372)	576066	10.0000	9.59180
15 Ethanol	45	Compound Not Detected.					
21 Acrolein	56	1.982	1.982	(0.416)	95038	100.000	82.6606
22 Acetone	43	2.069	2.069	(0.434)	80252	40.0000	37.7168
23 1,1-Dichloroethene	96	2.069	2.069	(0.434)	257934	10.0000	9.90088
25 Iodomethane	142	2.173	2.173	(0.456)	537838	10.0000	9.33813
29 Acetonitrile	41	2.243	2.243	(0.471)	37713	100.000	83.5441
30 tert-Butyl alcohol	59	2.434	2.434	(0.511)	159845	200.000	179.920
28 Methylene Chloride	84	2.364	2.364	(0.496)	213232	10.0000	8.34342
31 Acrylonitrile	53	2.521	2.521	(0.529)	201994	100.000	89.7258

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
32 trans-1,2-Dichloroethene	96	2.573	2.573	(0.540)	286403	10.0000	9.82780
37 Isopropyl ether	87	2.974	2.974	(0.624)	886629	50.0000	46.1515
36 1,1-Dichloroethane	63	2.904	2.904	(0.609)	537578	10.0000	9.40590
38 Chloroprene	53	2.991	2.991	(0.628)	452351	10.0000	8.42905
41 2-Butanone	43	3.443	3.443	(0.723)	189461	40.0000	38.8830
42 cis-1,2-Dichloroethene	96	3.443	3.443	(0.723)	295951	10.0000	10.3453
45 Propionitrile	54	3.496	3.496	(0.733)	77952	100.000	96.6469
43 2,2-Dichloropropane	77	3.478	3.478	(0.730)	517237	10.0000	11.0365
46 Methacrylonitrile	41	3.652	3.652	(0.766)	640608	100.000	100.645
47 Bromochloromethane	128	3.704	3.704	(0.777)	123229	10.0000	10.0052
50 Chloroform	83	3.774	3.774	(0.792)	568388	10.0000	10.4660
52 1,1,1-Trichloroethane	97	4.018	4.018	(0.843)	588963	10.0000	10.6701
58 Isobutanol	41	4.366	4.366	(0.916)	40129	200.000	185.291
54 1,1-Dichloropropene	75	4.192	4.192	(0.880)	510911	10.0000	10.6375
55 Carbon Tetrachloride	117	4.209	4.209	(0.883)	537441	10.0000	10.5203
57 1,2-Dichloroethane	62	4.418	4.418	(0.927)	247081	10.0000	10.5741
59 Benzene	78	4.418	4.418	(0.927)	850831	10.0000	10.3148
63 Trichloroethene	95	5.253	5.253	(1.102)	381442	10.0000	10.5148
66 1,2-Dichloropropane	63	5.514	5.514	(1.157)	310086	10.0000	10.1382
69 1,4-Dioxane	88	5.775	5.775	(1.212)	30854	500.000	504.671
67 Dibromomethane	93	5.688	5.688	(1.193)	166162	10.0000	10.5486
70 Bromodichloromethane	83	5.914	5.914	(1.241)	489252	10.0000	10.5344
73 cis-1,3-Dichloropropene	75	6.558	6.558	(1.376)	405464	10.0000	10.7396
74 4-Methyl-2-pentanone	43	6.819	6.819	(1.431)	518785	40.0000	37.9119
76 Toluene	91	7.045	7.045	(1.478)	980015	10.0000	10.6826
77 trans-1,3-Dichloropropene	75	7.411	7.411	(1.555)	292394	10.0000	9.70456
79 1,1,2-Trichloroethane	97	7.672	7.672	(1.610)	167186	10.0000	9.66671
82 2-Hexanone	43	8.142	8.142	(0.885)	280821	40.0000	38.4442
81 1,3-Dichloropropane	76	7.915	7.915	(0.860)	291155	10.0000	11.0728
80 Tetrachloroethene	164	7.898	7.898	(0.858)	330221	10.0000	11.8862
84 Dibromochloromethane	129	8.263	8.263	(0.898)	306357	10.0000	10.9736
85 1,2-Dibromoethane	107	8.420	8.420	(0.915)	224647	10.0000	10.7239
88 1-Chlorohexane	91	9.273	9.273	(1.008)	515475	10.0000	12.2409
87 Chlorobenzene	112	9.238	9.238	(1.004)	657948	10.0000	10.8421
89 1,1,1,2-Tetrachloroethane	131	9.394	9.394	(1.021)	305913	10.0000	10.9976
90 Ethylbenzene	106	9.464	9.464	(1.028)	339372	10.0000	11.3220
91 m and p-Xylene	106	9.673	9.673	(1.051)	892001	20.0000	21.9464
92 o-Xylene	106	10.317	10.317	(1.121)	399065	10.0000	11.3096
93 Styrene	104	10.351	10.351	(1.125)	634046	10.0000	11.1090
94 Bromoform	173	10.595	10.595	(1.151)	177522	10.0000	11.0853
95 isopropyl benzene	105	10.978	10.978	(0.831)	1327985	10.0000	10.6097
97 Cyclohexanone	55	11.082	11.082	(1.204)	115918	400.000	373.378
100 1,1,2,2-Tetrachloroethane	83	11.482	11.482	(0.870)	240067	10.0000	10.7174
101 1,2,3-Trichloropropane	110	11.517	11.517	(0.872)	54063	10.0000	10.2717
99 Bromobenzene	156	11.413	11.413	(0.864)	298243	10.0000	11.3012
103 n-Propylbenzene	120	11.691	11.691	(0.885)	322341	10.0000	10.6418
104 2-Chlorotoluene	126	11.778	11.778	(0.892)	259571	10.0000	10.2863(Q)
106 1,3,5-Trimethylbenzene	105	12.022	12.022	(0.910)	981882	10.0000	10.5106
105 4-Chlorotoluene	126	11.987	11.987	(0.908)	271839	10.0000	10.2326
107 tert-Butylbenzene	119	12.561	12.561	(0.951)	1076102	10.0000	10.2232
108 1,2,4-Trimethylbenzene	105	12.648	12.648	(0.958)	955766	10.0000	10.6080
109 sec-Butylbenzene	134	12.961	12.961	(0.982)	278270	10.0000	10.5182
112 4-Isopropyltoluene	119	13.240	13.240	(1.003)	1192274	10.0000	10.2012
110 1,3-Dichlorobenzene	146	13.083	13.083	(0.991)	494398	10.0000	10.5296

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
113 1,4-dichlorobenzene	146	13.240	13.240	(1.003)	581711	10.0000	10.2801
116 n-Butylbenzene	91	13.971	13.971	(1.058)	1257729	10.0000	11.3550
115 1,2-Dichlorobenzene	146	13.884	13.884	(1.051)	430657	10.0000	10.3469
117 1,2-Dibromo-3-chloropropane	157	15.311	15.311	(1.159)	39363	10.0000	10.0621
118 1,2,4-Trichlorobenzene	180	16.563	16.563	(1.254)	342335	10.0000	10.1093
119 Hexachlorobutadiene	225	16.807	16.807	(1.273)	319191	10.0000	10.1348
120 Naphthalene	128	16.842	16.842	(1.275)	333384	10.0000	9.88277
121 1,2,3-Trichlorobenzene	180	17.103	17.103	(1.295)	257419	10.0000	10.0341

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Data File: Z8039.D

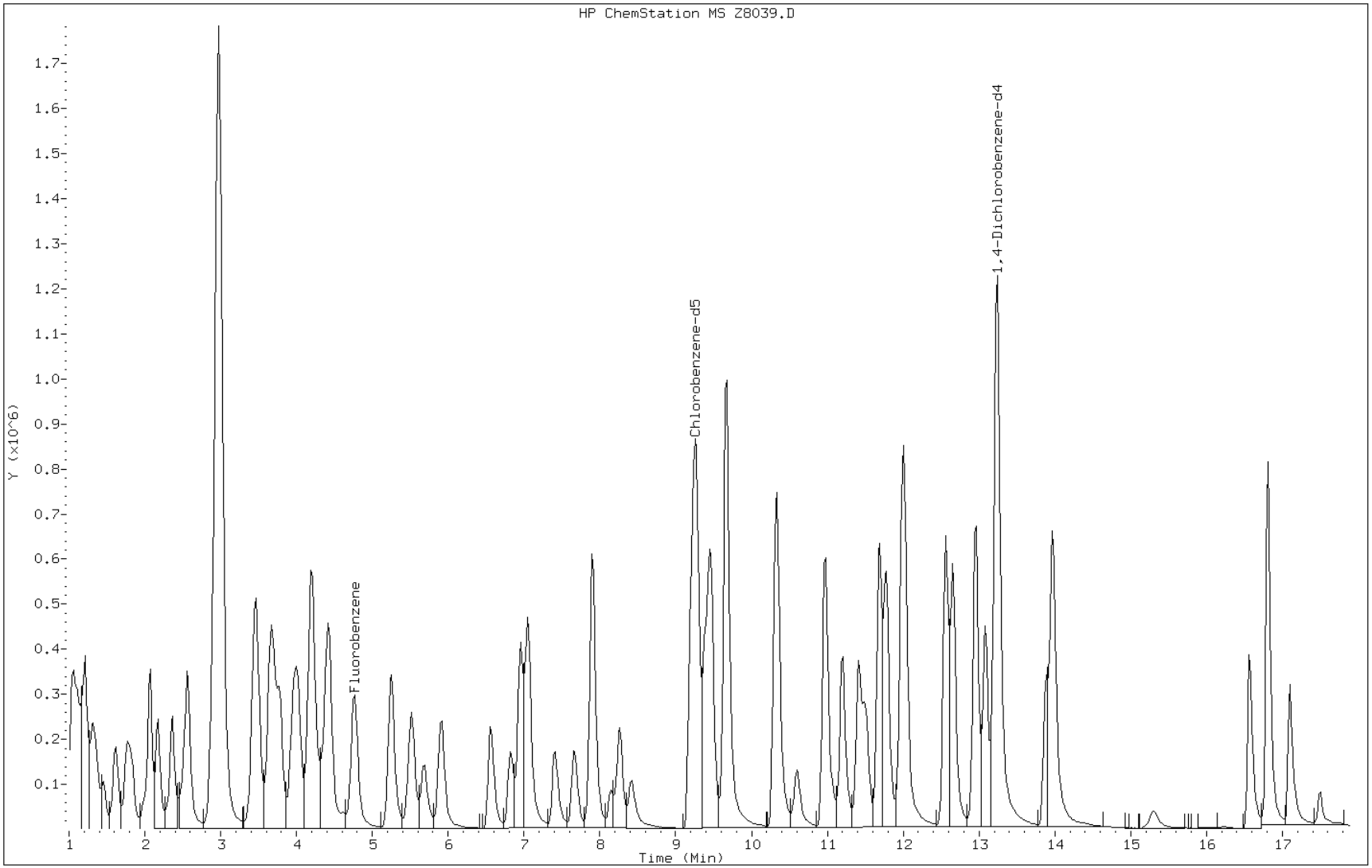
Date: 05-JUL-2012 06:53

Client ID: CCV

Instrument: Z.i

Sample Info: CCV,,M

Operator: MEIERG



FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Lab Sample ID: CCV 280-126759/3 Calibration Date: 07/05/2012 07:14

Instrument ID: MSV_Z Calib Start Date: 06/11/2012 10:59

GC Column: DB-624 (75.53) ID: 0.53(mm) Calib End Date: 06/11/2012 12:46

Lab File ID: Z8040.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	0.5439	0.4131		7.60	10.0	-24.0*	20.0
Carbon disulfide	Ave	1.520	1.010		6.65	10.0	-33.5*	20.0
Allyl chloride	Ave	0.7659	0.5892		7.69	10.0	-23.1*	20.0
Methyl tert-butyl ether	Ave	0.6053	0.5590		9.24	10.0	-7.6	20.0
Vinyl acetate	Ave	0.5230	0.3640		13.9	20.0	-30.4*	20.0
Tetrahydrofuran	Ave	0.0364	0.0363		19.9	20.0	-0.4	20.0
Methylcyclohexane	Ave	0.7594	0.6837		9.00	10.0	-10.0	35.0
Methyl methacrylate	Ave	0.0495	0.0514		20.7	20.0	3.7	20.0
2-Chloroethyl vinyl ether	Ave	0.1108	0.1245		11.2	10.0	12.4	20.0
Ethyl methacrylate	Ave	1.332	1.440		21.6	20.0	8.1	20.0
trans-1,4-Dichloro-2-butene	Lin2	0.1585	0.1773		10.5	10.0	4.5	20.0
Dibromofluoromethane (Surr)	Ave	0.6900	0.6201		8.09	9.00	-10.1	20.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3263	0.2997		8.27	9.00	-8.2	20.0
Toluene-d8 (Surr)	Ave	6.250	5.656		8.14	9.00	-9.5	20.0
4-Bromofluorobenzene (Surr)	Ave	2.250	2.093		8.37	9.00	-7.0	20.0

TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\Z8040.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 05-JUL-2012 07:14
Operator : MEIERG Inst ID: Z.i
Smp Info : CCV,,S
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\8260B-H2O.m
Meth Date : 06-Jul-2012 05:09 Z.i Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 2-supp.sub
Target Version: 4.14
Processing Host: DENPC186

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)	
* 62 Fluorobenzene	96	4.763	4.763	(1.000)	869645	12.5000		
* 86 Chlorobenzene-d5	119	9.200	9.200	(1.000)	192878	12.5000		
* 111 1,4-Dichlorobenzene-d4	152	13.219	13.219	(1.000)	301794	12.5000		(Q)
$ 51 Dibromofluoromethane (Surr)	111	3.962	3.962	(0.832)	388268	10.0000	8.08803	
$ 56 1,2-Dichloroethane-d4	65	4.345	4.345	(0.912)	187671	10.0000	8.26598	
$ 75 Toluene-d8	98	6.955	6.955	(0.756)	785394	10.0000	8.14392	
$ 98 4-Bromofluorobenzene (Surr)	95	11.201	11.201	(0.847)	454834	10.0000	8.37403	
8 1,2-Dichlorotetrafluoroethane	85	1.404	1.404	(0.295)	342877	10.0000	5.65820	
11 Ethylene Oxide	43	1.578	1.578	(0.331)	381081	1250.00	819.612	
14 Dichlorofluoromethane	67	1.752	1.752	(0.368)	542460	10.0000	7.71778	
19 1,2-dichloro-1,1,2-trifluoro	117	1.926	1.926	(0.405)	341519	10.0000	8.19424	
17 Ethyl Ether	59	1.909	1.909	(0.401)	133289	10.0000	7.84788	
20 2,2-dichloro-1,1,1-trifluoro	83	1.944	1.944	(0.408)	601731	10.0000	8.29204	
24 Trichlorotrifluoroethane	151	2.100	2.100	(0.441)	287426	10.0000	7.59645	
18 2-propanol	45	1.909	1.909	(0.401)	94434	200.000	165.109	
27 Methyl Acetate	43	2.274	2.274	(0.478)	383862	50.0000	50.6151	
39 Allyl Chloride	41	2.274	2.274	(0.478)	409905	10.0000	7.69241	
26 Carbon Disulfide	76	2.240	2.240	(0.470)	702793	10.0000	6.64742	
33 Methyl t-butyl ether	73	2.588	2.588	(0.543)	388932	10.0000	9.23599	
34 Hexane	57	2.796	2.796	(0.304)	365986	10.0000	7.32231	
35 Vinyl acetate	43	2.918	2.918	(0.613)	506509	20.0000	13.9218	
40 ETBE	59	3.336	3.336	(0.700)	3870743	50.0000	45.7058	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
44 Ethyl Acetate	43	3.510	3.510	(0.737)	319279	20.0000	20.1150(Q)
48 Tetrahydrofuran	42	3.788	3.788	(0.795)	50439	20.0000	19.9163
49 2-Butanol	45	3.684	3.684	(0.774)	248445	300.000	330.286
53 Cyclohexane	56	4.101	4.101	(0.861)	493221	10.0000	8.57093
60 TAME	73	4.606	4.606	(0.967)	2851537	50.0000	49.4335
64 2-Pentanone	43	5.511	5.511	(1.157)	439550	40.0000	37.5359
65 Methyl Cyclohexane	55	5.528	5.528	(1.161)	475666	10.0000	9.00269
68 Methyl Methacrylate	100	5.737	5.737	(1.205)	71484	20.0000	20.7378
71 2-nitropropane	41	6.224	6.224	(1.307)	21925	10.0000	11.8054
72 2-Chloroethyl vinyl ether	63	6.398	6.398	(1.343)	86587	10.0000	11.2367
78 Ethyl methacrylate	69	7.634	7.634	(0.830)	444269	20.0000	21.6206
83 Tetrahydrothiophene	60	8.260	8.260	(0.898)	54525	10.0000	9.15490
96 cis-1,4-dichloro-2-butene	53	11.114	11.114	(0.841)	30899	10.0000	6.95627(Q)
102 t-1,4-Dichloro-2-butene	53	11.653	11.653	(0.882)	42810	10.0000	10.4540
114 1,2,3-Trimethylbenzene	105	13.376	13.376	(1.012)	888526	10.0000	9.35314

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Data File: Z8040.D

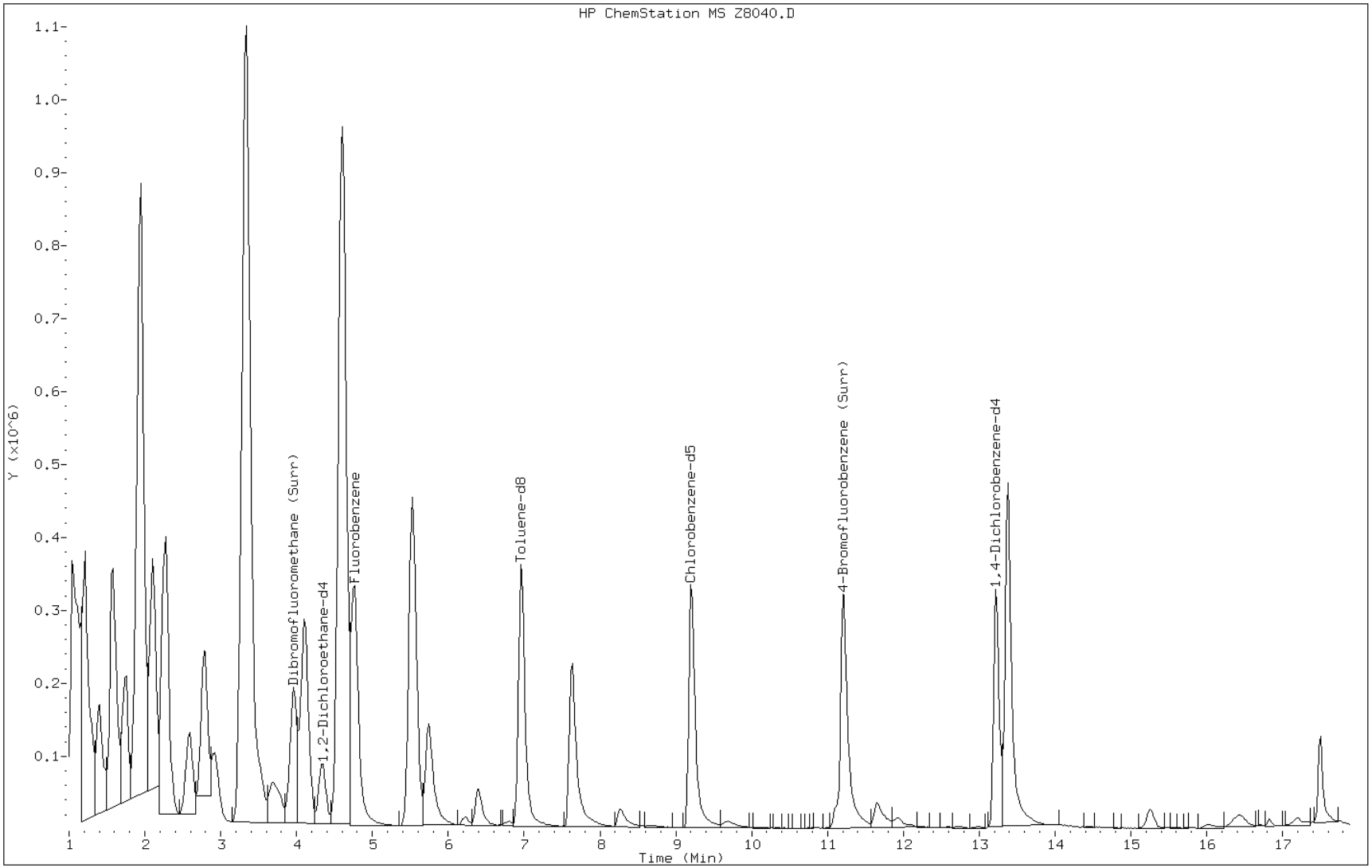
Date: 05-JUL-2012 07:14

Client ID: CCV

Instrument: Z.i

Sample Info: CCV,,S

Operator: MEIERG



TestAmerica

Data file : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\Z7127.D
Lab Smp Id: BFB Client Smp ID: BFB
Inj Date : 11-JUN-2012 10:51
Operator : MEIERG Inst ID: Z.i
Smp Info : BFB,,
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\bfb390.m
Meth Date : 13-May-2011 06:15 meierg Quant Type: ISTD
Cal Date : Cal File:
Als bottle: 2 QC Sample: BFB
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: all.sub
Target Version: 4.14 Sample Matrix: WATER
Processing Host: DENPC186

Concentration Formula: Amt * DF * Uf * Vf * VI * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vf	1.000	Volumetric correction factor
VI	1.000	Injection Volume
Cpnd Variable		Local Compound Variable

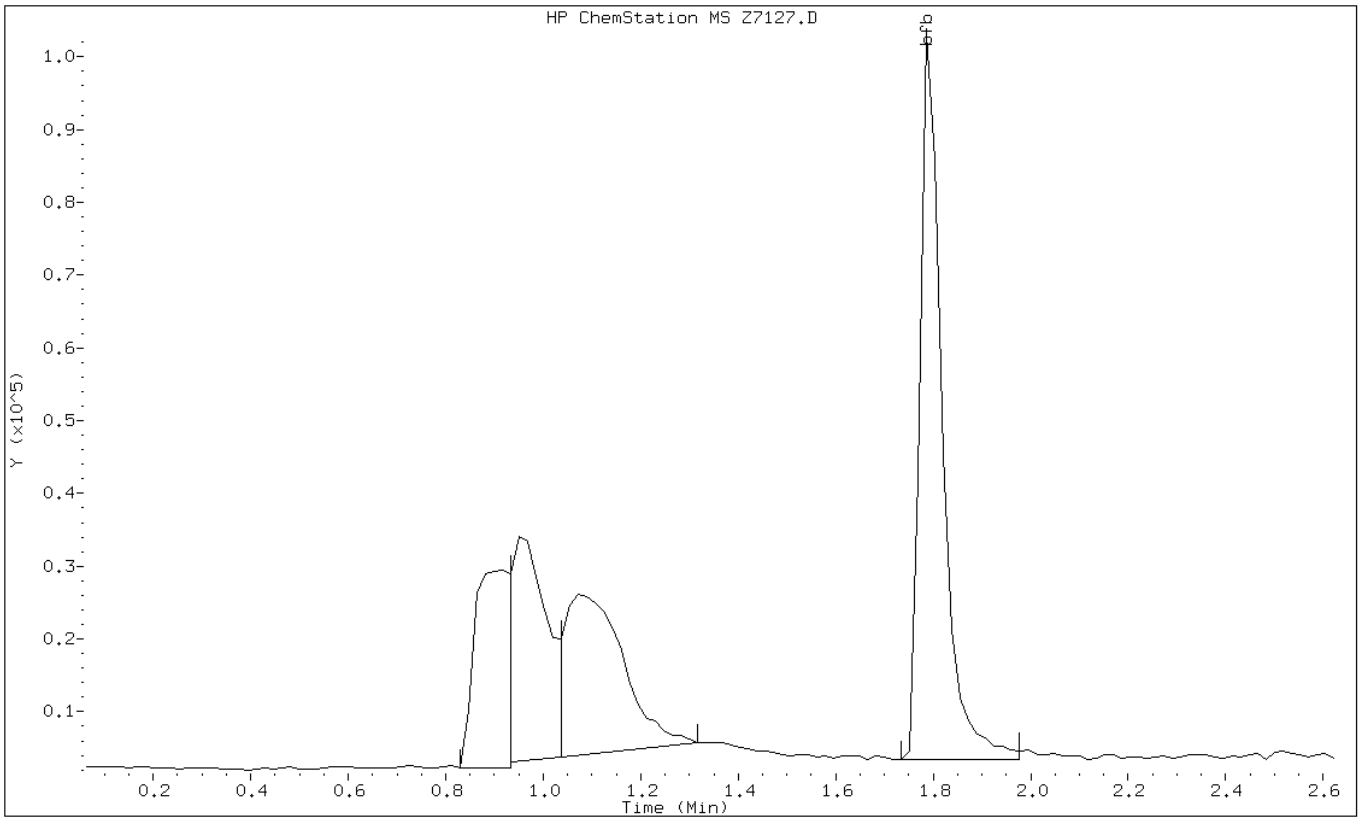
RT	EXP RT	REL RT	MASS	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	CONCENTRATIONS FINAL (ug/L)	TARGET RANGE	RATIO
1 bfb						CAS #: 460-00-4		
1.786	1.903	(0.000)	95	16199			0.00- 100.00	100.00
1.786	1.903	(0.000)	50	3884			15.00- 40.00	23.98
1.786	1.903	(0.000)	75	7856			30.00- 60.00	48.50
1.786	1.903	(0.000)	96	1290			5.00- 9.00	7.96
1.786	1.903	(0.000)	173	0	0.0	0.0	0.00- 2.00	0.00
1.786	1.903	(0.000)	174	9970			50.00- 0.00	61.55
1.786	1.903	(0.000)	175	737			5.00- 9.00	7.39
1.786	1.903	(0.000)	176	9794			95.00- 101.00	98.23
1.786	1.903	(0.000)	177	672			5.00- 9.00	6.86

Data File: Z7127.D

Date: 11-JUN-2012 10:51

Client ID: BFB | Instrument: Z.i

Sample Info: BFB,, | Operator: MEIERG



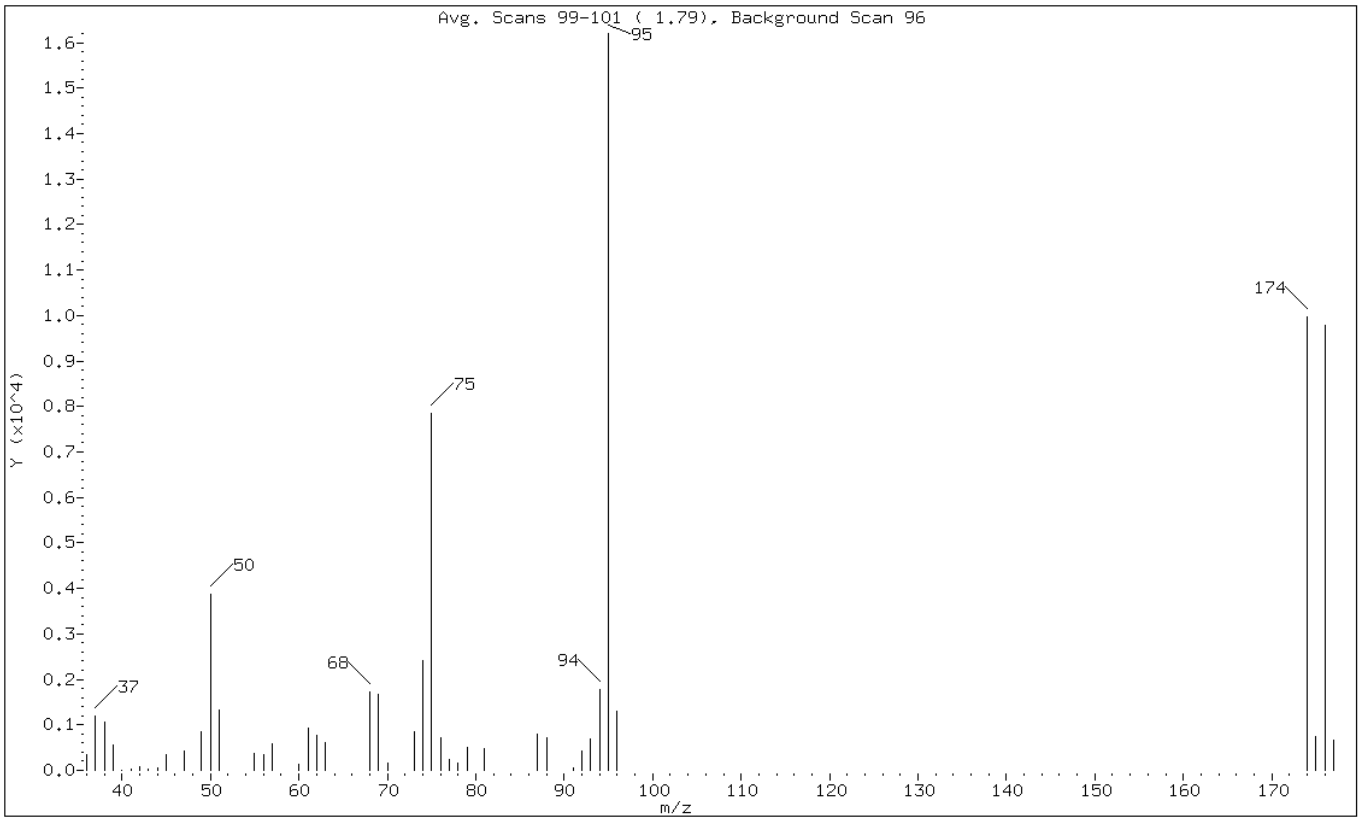
Data File: Z7127.D

Date: 11-JUN-2012 10:51

Client ID: BFB Instrument: Z.i

Sample Info: BFB,, Operator: MEIERG

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	23.98
75	30.00 - 60.00% of mass 95	48.50
96	5.00 - 9.00% of mass 95	7.96
173	Less than 2.00% of mass 174	0.00 (0.00)
174	Greater than 50.00% of mass 95	61.55
175	5.00 - 9.00% of mass 174	4.55 (7.39)
176	95.00 - 101.00% of mass 174	60.46 (98.23)
177	5.00 - 9.00% of mass 176	4.15 (6.86)

Data File: Z7127.D

Date: 11-JUN-2012 10:51

Client ID: BFB Instrument: Z.i

Sample Info: BFB,, Operator: MEIERG

Data File: \\DenSvr03\Public\chem\MSV\Z.i\061112I.B\Z7127.D
Spectrum: Avg. Scans 99-101 (1.79), Background Scan 96
Location of Maximum: 95.00
Number of points: 44

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	332	50.00	3884	73.00	837	93.00	677
37.00	1197	51.00	1314	74.00	2422	94.00	1767
38.00	1055	55.00	359	75.00	7856	95.00	16199
39.00	552	56.00	357	76.00	704	96.00	1290
40.00	10	57.00	571	77.00	230	174.00	9970
41.00	24	60.00	145	78.00	161	175.00	737
42.00	67	61.00	923	79.00	512	176.00	9794
43.00	29	62.00	782	81.00	489	177.00	672
44.00	51	63.00	601	87.00	787		
45.00	354	68.00	1717	88.00	715		
47.00	422	69.00	1660	91.00	65		
49.00	851	70.00	163	92.00	430		

TestAmerica

Data file : \\DenSvr03\Public\chem\MSV\Z.i\061112MA.B\Z7145.D
Lab Smp Id: BFB Client Smp ID: BFB
Inj Date : 11-JUN-2012 23:51
Operator : TINKHAMS Inst ID: Z.i
Smp Info : BFB,,
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\061112MA.B\bfb390.m
Meth Date : 13-May-2011 06:15 meierg Quant Type: ISTD
Cal Date : Cal File:
Als bottle: 2 QC Sample: BFB
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: all.sub
Target Version: 4.14 Sample Matrix: WATER
Processing Host: DENPC088

Concentration Formula: Amt * DF * Uf * Vf * VI * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vf	1.000	Volumetric correction factor
VI	1.000	Injection Volume
Cpnd Variable		Local Compound Variable

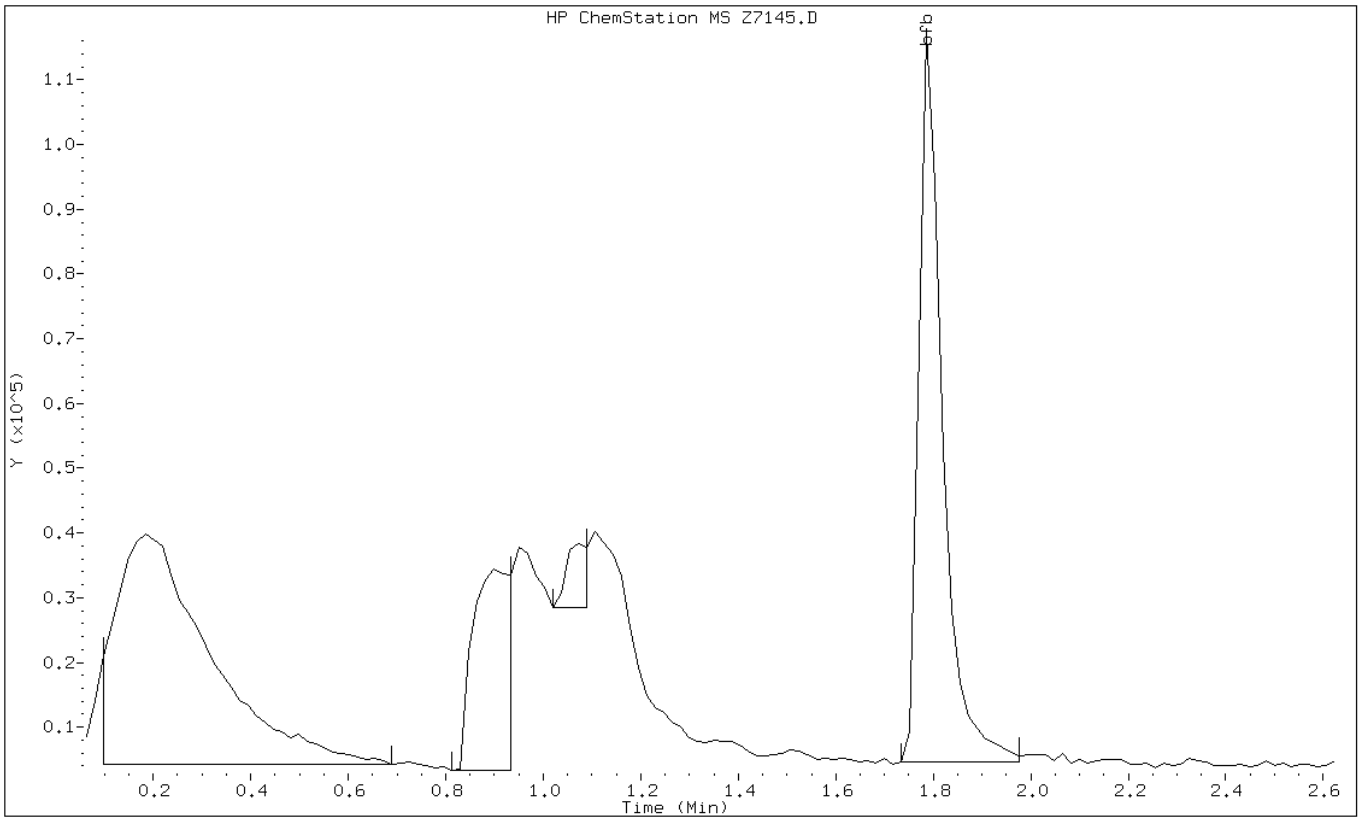
RT	EXP RT	REL RT	MASS	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	CONCENTRATIONS FINAL (ug/L)	TARGET RANGE	RATIO
1 bfb						CAS #: 460-00-4		
1.786	1.903	(0.000)	95	18984			0.00- 100.00	100.00
1.786	1.903	(0.000)	50	4476			15.00- 40.00	23.58
1.786	1.903	(0.000)	75	9093			30.00- 60.00	47.90
1.786	1.903	(0.000)	96	1505			5.00- 9.00	7.93
1.786	1.903	(0.000)	173	0	0.0	0.0	0.00- 2.00	0.00
1.786	1.903	(0.000)	174	11791			50.00- 0.00	62.11
1.786	1.903	(0.000)	175	881			5.00- 9.00	7.47
1.786	1.903	(0.000)	176	11514			95.00- 101.00	97.65
1.786	1.903	(0.000)	177	808			5.00- 9.00	7.02

Data File: Z7145.D

Date: 11-JUN-2012 23:51

Client ID: BFB | Instrument: Z.i

Sample Info: BFB,, | Operator: TINKHAMS



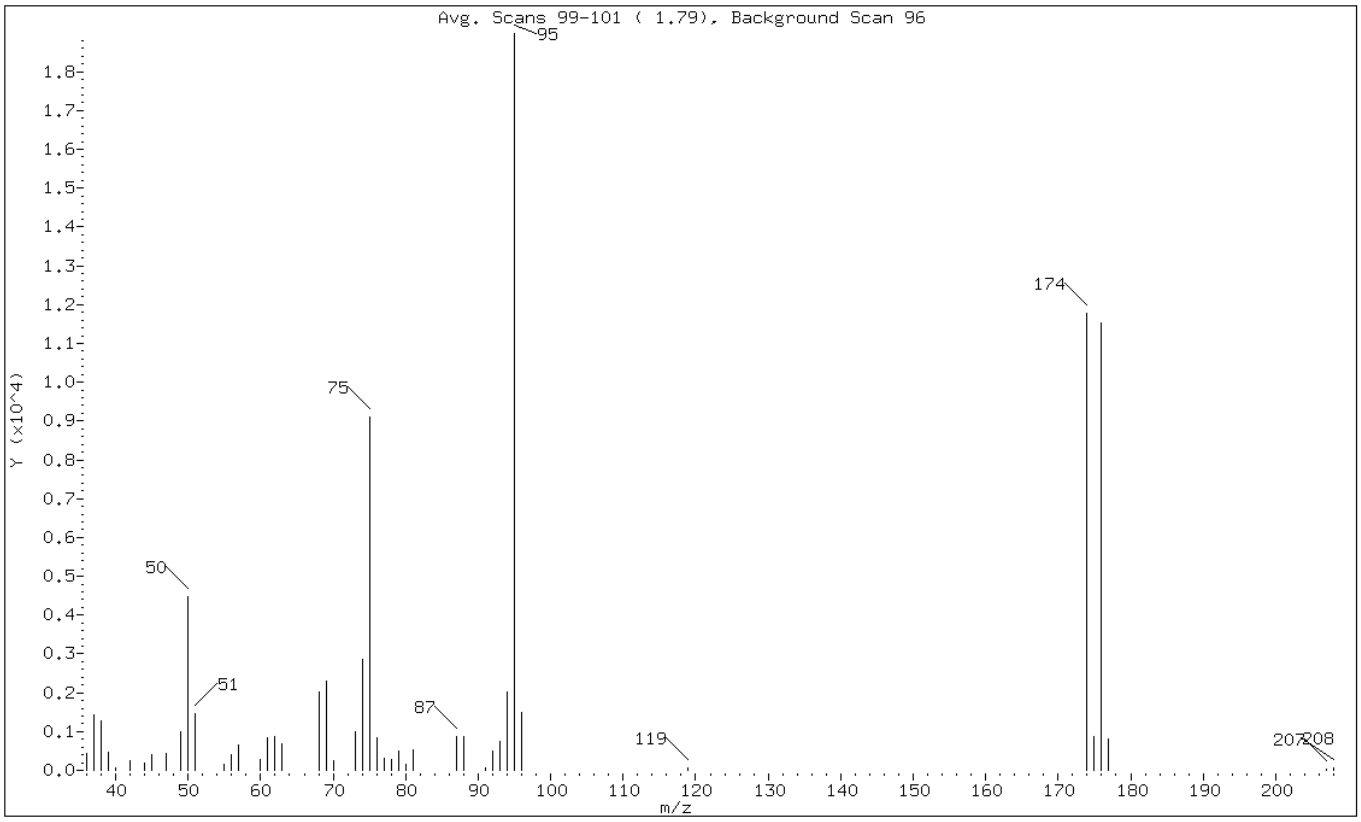
Data File: Z7145.D

Date: 11-JUN-2012 23:51

Client ID: BFB Instrument: Z.i

Sample Info: BFB,, Operator: TINKHAMS

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	23.58
75	30.00 - 60.00% of mass 95	47.90
96	5.00 - 9.00% of mass 95	7.93
173	Less than 2.00% of mass 174	0.00 (0.00)
174	Greater than 50.00% of mass 95	62.11
175	5.00 - 9.00% of mass 174	4.64 (7.47)
176	95.00 - 101.00% of mass 174	60.65 (97.65)
177	5.00 - 9.00% of mass 176	4.26 (7.02)

Data File: Z7145.D

Date: 11-JUN-2012 23:51

Client ID: BFB Instrument: Z.i

Sample Info: BFB,, Operator: TINKHAMS

Data File: \\DenSvr03\Public\chem\MSV\Z.i\061112MA.B\Z7145.D
Spectrum: Avg. Scans 99-101 (1.79), Background Scan 96
Location of Maximum: 95.00
Number of points: 46

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	442	55.00	141	75.00	9093	94.00	2030
37.00	1444	56.00	416	76.00	825	95.00	18984
38.00	1272	57.00	667	77.00	305	96.00	1505
39.00	467	60.00	273	78.00	268	119.00	70
40.00	68	61.00	838	79.00	502	174.00	11791
42.00	249	62.00	867	80.00	145	175.00	881
44.00	186	63.00	693	81.00	536	176.00	11514
45.00	397	68.00	2021	87.00	874	177.00	808
47.00	437	69.00	2302	88.00	862	207.00	20
49.00	991	70.00	246	91.00	50	208.00	75
50.00	4476	73.00	993	92.00	496		
51.00	1452	74.00	2872	93.00	753		

TestAmerica

Data file : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\Z8038.D
Lab Smp Id: BFB Client Smp ID: BFB
Inj Date : 05-JUL-2012 06:47
Operator : MEIERG Inst ID: Z.i
Smp Info : BFB,,
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\bfb390.m
Meth Date : 13-May-2011 06:15 meierg Quant Type: ISTD
Cal Date : Cal File:
Als bottle: 2 QC Sample: BFB
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: all.sub
Target Version: 4.14 Sample Matrix: WATER
Processing Host: DENPC232

Concentration Formula: Amt * DF * Uf * Vf * VI * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vf	1.000	Volumetric correction factor
VI	1.000	Injection Volume
Cpnd Variable		Local Compound Variable

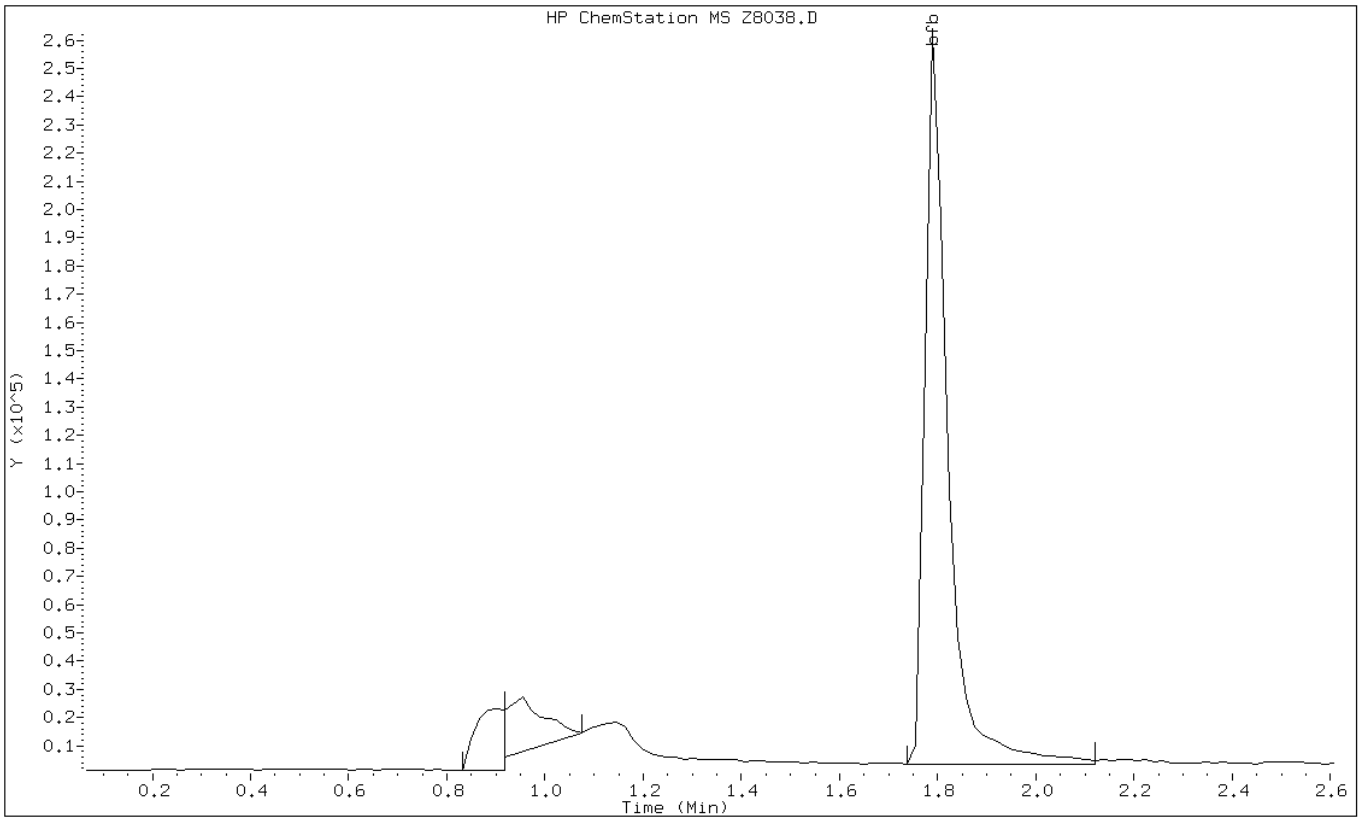
RT	EXP RT	REL RT	MASS	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	CONCENTRATIONS FINAL (ug/L)	TARGET RANGE	RATIO
1 bfb						CAS #: 460-00-4		
1.788	1.903	(0.000)	95	42720			0.00- 100.00	100.00
1.788	1.903	(0.000)	50	9899			15.00- 40.00	23.17
1.788	1.903	(0.000)	75	20616			30.00- 60.00	48.26
1.788	1.903	(0.000)	96	3108			5.00- 9.00	7.28
1.788	1.903	(0.000)	173	0	0.0	0.0	0.00- 2.00	0.00
1.788	1.903	(0.000)	174	27040			50.00- 0.00	63.30
1.788	1.903	(0.000)	175	1943			5.00- 9.00	7.19
1.788	1.903	(0.000)	176	26160			95.00- 101.00	96.75
1.788	1.903	(0.000)	177	1800			5.00- 9.00	6.88

Data File: Z8038.D

Date: 05-JUL-2012 06:47

Client ID: BFB | Instrument: Z.i

Sample Info: BFB,, | Operator: MEIERG



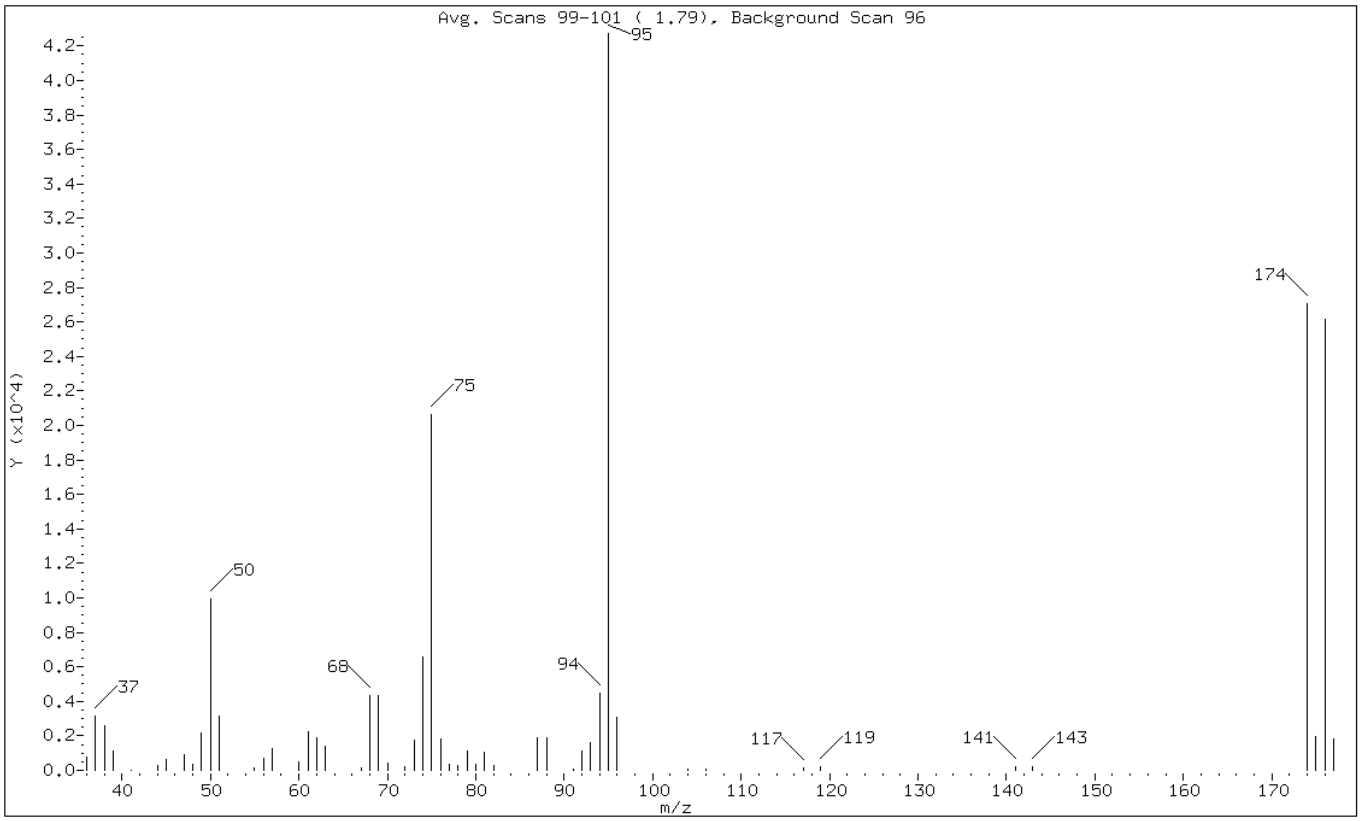
Data File: Z8038.D

Date: 05-JUL-2012 06:47

Client ID: BFB Instrument: Z.i

Sample Info: BFB,, Operator: MEIERG

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	23.17
75	30.00 - 60.00% of mass 95	48.26
96	5.00 - 9.00% of mass 95	7.28
173	Less than 2.00% of mass 174	0.00 (0.00)
174	Greater than 50.00% of mass 95	63.30
175	5.00 - 9.00% of mass 174	4.55 (7.19)
176	95.00 - 101.00% of mass 174	61.24 (96.75)
177	5.00 - 9.00% of mass 176	4.21 (6.88)

Data File: Z8038.D

Date: 05-JUL-2012 06:47

Client ID: BFB Instrument: Z.i

Sample Info: BFB,, Operator: MEIERG

Data File: \\DenSvr03\Public\chem\MSV\Z.i\070512.B\Z8038.D
Spectrum: Avg. Scans 99-101 (1.79), Background Scan 96
Location of Maximum: 95.00
Number of points: 52

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	744	57.00	1246	77.00	343	104.00	71
37.00	3134	60.00	473	78.00	289	106.00	70
38.00	2580	61.00	2204	79.00	1091	117.00	156
39.00	1128	62.00	1916	80.00	319	119.00	191
41.00	31	63.00	1364	81.00	1069	141.00	209
44.00	275	67.00	165	82.00	266	143.00	196
45.00	617	68.00	4355	87.00	1922	174.00	27040
47.00	899	69.00	4301	88.00	1855	175.00	1943
48.00	355	70.00	427	91.00	52	176.00	26160
49.00	2134	72.00	187	92.00	1093	177.00	1800
50.00	9899	73.00	1728	93.00	1603		
51.00	3144	74.00	6557	94.00	4499		
55.00	150	75.00	20616	95.00	42720		
56.00	715	76.00	1834	96.00	3108		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver
Job No.: 280-30655-1
SDG No.:
Client Sample ID:
Lab Sample ID: MB 280-126759/5
Matrix: Water
Lab File ID: Z8042.D
Analysis Method: 8260B/AFCEE
Date Collected:
Sample wt/vol: 20(mL)
Date Analyzed: 07/05/2012 07:57
Soil Aliquot Vol:
Dilution Factor: 1
Soil Extract Vol.:
GC Column: DB-624 (75.53) ID: 0.53(mm)
% Moisture:
Level: (low/med) Low
Analysis Batch No.: 126759
Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
78-87-5	1,2-Dichloropropane	0.078	U	1.0	0.078

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	89		81-120
1868-53-7	Dibromofluoromethane (Surr)	88		85-115
460-00-4	4-Bromofluorobenzene (Surr)	94		76-119
17060-07-0	1,2-Dichloroethane-d4 (Surr)	93		72-119

TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\Z8042.D
Lab Smp Id: MB Client Smp ID: MB
Inj Date : 05-JUL-2012 07:57
Operator : MEIERG Inst ID: Z.i
Smp Info : MB,,AF
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\8260B-H2O.m
Meth Date : 12-Jun-2012 06:45 meierg Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: DOD.sub
Target Version: 4.14
Processing Host: DENPC232

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
* 62 Fluorobenzene	96	4.780	4.767	(1.000)	854266	12.5000	
* 86 Chlorobenzene-d5	119	9.218	9.204	(1.000)	188829	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.237	13.207	(1.000)	280375	12.5000	(Q)
$ 51 Dibromofluoromethane (Surr)	111	3.963	3.947	(0.829)	373207	7.91426	7.91426
$ 56 1,2-Dichloroethane-d4	65	4.345	4.330	(0.909)	185969	8.33847	8.33847
$ 75 Toluene-d8	98	6.973	6.958	(0.756)	754975	7.99637	7.99637
$ 98 4-Bromofluorobenzene (Surr)	95	11.219	11.186	(0.848)	427310	8.46829	8.46829
M 1 1,2-Dichloroethene (total)	96	Compound Not Detected.					
M 2 Xylene (total)	106	Compound Not Detected.					
6 dichlorodifluoromethane	85	Compound Not Detected.					
8 1,2-Dichlorotetrafluoroethane	85	Compound Not Detected.					
7 Chloromethane	50	Compound Not Detected.					
9 Vinyl Chloride	62	Compound Not Detected.					
11 Ethylene Oxide	43	Compound Not Detected.					
12 Bromomethane	94	Compound Not Detected.					
13 Chloroethane	64	Compound Not Detected.					
14 Dichlorofluoromethane	67	Compound Not Detected.					
16 Trichlorofluoromethane	101	Compound Not Detected.					
17 Ethyl Ether	59	Compound Not Detected.					
19 1,2-dichloro-1,1,2-trifluoro	117	Compound Not Detected.					
20 2,2-dichloro-1,1,1-trifluoro	83	Compound Not Detected.					
21 Acrolein	56	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
23 1,1-Dichloroethene	96	Compound Not Detected.					
24 Trichlorotrifluoroethane	151	Compound Not Detected.					
22 Acetone	43	2.083	2.070	(0.436)	8616	1.98417	1.98417(a)
25 Iodomethane	142	Compound Not Detected.					
18 2-propanol	45	Compound Not Detected.					
26 Carbon Disulfide	76	Compound Not Detected.					
39 Allyl Chloride	41	Compound Not Detected.					
27 Methyl Acetate	43	Compound Not Detected.					
28 Methylene Chloride	84	2.379	2.366	(0.498)	6997	0.26743	0.267429(a)
30 tert-Butyl alcohol	59	Compound Not Detected.					
31 Acrylonitrile	53	Compound Not Detected.					
33 Methyl t-butyl ether	73	Compound Not Detected.					
32 trans-1,2-Dichloroethene	96	Compound Not Detected.					
34 Hexane	57	Compound Not Detected.					
36 1,1-Dichloroethane	63	Compound Not Detected.					
35 Vinyl Acetate	43	Compound Not Detected.					
37 Isopropyl ether	87	Compound Not Detected.					
38 Chloroprene	53	Compound Not Detected.					
40 ETBE	59	Compound Not Detected.					
42 cis-1,2-Dichloroethene	96	Compound Not Detected.					
43 2,2-Dichloropropane	77	Compound Not Detected.					
41 2-Butanone	43	Compound Not Detected.					
44 Ethyl Acetate	43	Compound Not Detected.					
49 2-Butanol	45	Compound Not Detected.					
46 Methacrylonitrile	41	Compound Not Detected.					
47 Bromochloromethane	128	Compound Not Detected.					
48 Tetrahydrofuran	42	Compound Not Detected.					
50 Chloroform	83	Compound Not Detected.					
52 1,1,1-Trichloroethane	97	Compound Not Detected.					
53 Cyclohexane	56	Compound Not Detected.					
54 1,1-Dichloropropene	75	Compound Not Detected.					
55 Carbon Tetrachloride	117	Compound Not Detected.					
59 Benzene	78	Compound Not Detected.					
57 1,2-Dichloroethane	62	Compound Not Detected.					
60 TAME	73	Compound Not Detected.					
63 Trichloroethene	95	Compound Not Detected.					
64 2-Pentanone	43	Compound Not Detected.					
65 Methyl Cyclohexane	55	Compound Not Detected.					
66 1,2-Dichloropropane	63	Compound Not Detected.					
67 Dibromomethane	93	Compound Not Detected.					
68 Methyl Methacrylate	100	Compound Not Detected.					
69 1,4-Dioxane	88	Compound Not Detected.					
70 Bromodichloromethane	83	Compound Not Detected.					
72 2-Chloroethyl vinyl ether	63	Compound Not Detected.					
73 cis-1,3-Dichloropropene	75	Compound Not Detected.					
74 4-Methyl-2-pentanone	43	Compound Not Detected.					
76 Toluene	91	Compound Not Detected.					
77 trans-1,3-Dichloropropene	75	Compound Not Detected.					
78 Ethyl methacrylate	69	Compound Not Detected.					
79 1,1,2-Trichloroethane	97	Compound Not Detected.					
80 Tetrachloroethene	164	Compound Not Detected.					
81 1,3-Dichloropropane	76	Compound Not Detected.					
82 2-Hexanone	43	Compound Not Detected.					
84 Dibromochloromethane	129	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
85 1,2-Dibromoethane	107	Compound Not Detected.					
88 1-Chlorohexane	91	Compound Not Detected.					
87 Chlorobenzene	112	Compound Not Detected.					
89 1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
90 Ethylbenzene	106	Compound Not Detected.					
91 m and p-Xylene	106	Compound Not Detected.					
92 o-Xylene	106	Compound Not Detected.					
93 Styrene	104	Compound Not Detected.					
94 Bromoform	173	Compound Not Detected.					
95 isopropyl benzene	105	Compound Not Detected.					
96 cis-1,4-dichloro-2-butene	53	Compound Not Detected.					
97 Cyclohexanone	55	Compound Not Detected.					
99 Bromobenzene	156	Compound Not Detected.					
100 1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
101 1,2,3-Trichloropropane	110	Compound Not Detected.					
102 t-1,4-Dichloro-2-butene	53	Compound Not Detected.					
103 n-Propylbenzene	120	Compound Not Detected.					
104 2-Chlorotoluene	126	Compound Not Detected.					
106 1,3,5-Trimethylbenzene	105	Compound Not Detected.					
105 4-Chlorotoluene	126	Compound Not Detected.					
107 tert-Butylbenzene	119	Compound Not Detected.					
108 1,2,4-Trimethylbenzene	105	Compound Not Detected.					
109 sec-Butylbenzene	134	Compound Not Detected.					
110 1,3-Dichlorobenzene	146	Compound Not Detected.					
112 4-Isopropyltoluene	119	Compound Not Detected.					
113 1,4-dichlorobenzene	146	Compound Not Detected.					
116 n-Butylbenzene	91	Compound Not Detected.					
115 1,2-Dichlorobenzene	146	Compound Not Detected.					
117 1,2-Dibromo-3-chloropropane	157	Compound Not Detected.					
118 1,2,4-Trichlorobenzene	180	Compound Not Detected.					
119 Hexachlorobutadiene	225	Compound Not Detected.					
120 Naphthalene	128	Compound Not Detected.					
121 1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.

Data File: Z8042.D

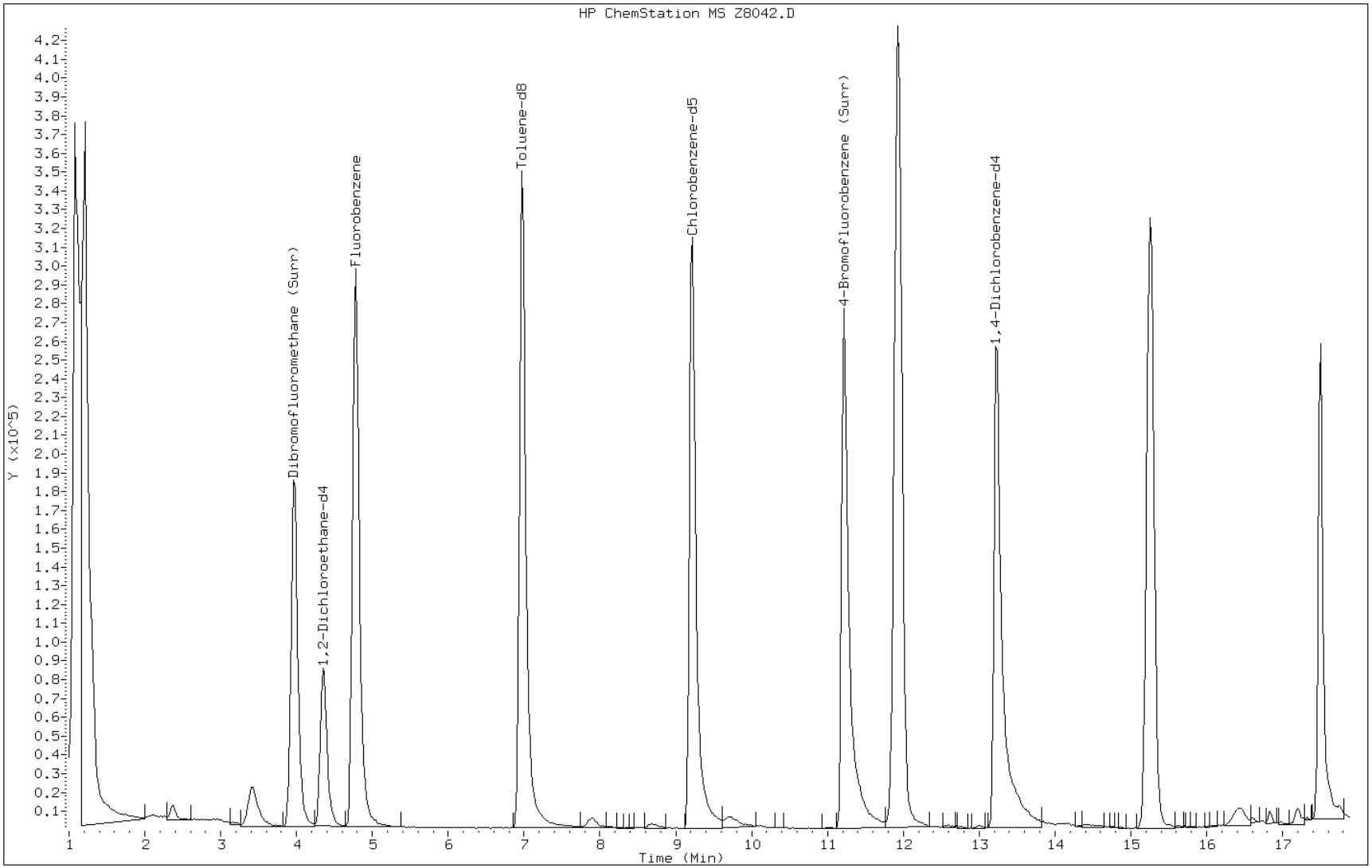
Date: 05-JUL-2012 07:57

Client ID: MB

Instrument: Z.i

Sample Info: MB,,AF

Operator: MEIERG



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver
Job No.: 280-30655-1
SDG No.:
Client Sample ID:
Lab Sample ID: LCS 280-126759/4
Matrix: Water
Lab File ID: Z8041.D
Analysis Method: 8260B/AFCEE
Date Collected:
Sample wt/vol: 20(mL)
Date Analyzed: 07/05/2012 07:36
Soil Aliquot Vol:
Dilution Factor: 1
Soil Extract Vol.:
GC Column: DB-624 (75.53) ID: 0.53(mm)
% Moisture:
Level: (low/med) Low
Analysis Batch No.: 126759
Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
78-87-5	1,2-Dichloropropane	4.94		1.0	0.078

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	94		81-120
1868-53-7	Dibromofluoromethane (Surr)	85		85-115
460-00-4	4-Bromofluorobenzene (Surr)	86		76-119
17060-07-0	1,2-Dichloroethane-d4 (Surr)	92		72-119

TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\Z8041.D
Lab Smp Id: LCS Client Smp ID: LCS
Inj Date : 05-JUL-2012 07:36
Operator : MEIERG Inst ID: Z.i
Smp Info : LCS,,
Misc Info :
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\8260B-H2O.m
Meth Date : 12-Jun-2012 06:45 meierg Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: TALS.sub
Target Version: 4.14
Processing Host: DENPC186

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
* 62 Fluorobenzene	96	4.766	4.767	(1.000)	867744	12.5000	
* 86 Chlorobenzene-d5	119	9.204	9.204	(1.000)	178606	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.206	13.207	(1.000)	308842	12.5000	(Q)
$ 51 Dibromofluoromethane (Surr)	111	3.966	3.947	(0.832)	364391	7.60728	7.60728
$ 56 1,2-Dichloroethane-d4	65	4.331	4.330	(0.909)	188142	8.30488	8.30488
$ 75 Toluene-d8	98	6.959	6.958	(0.756)	756895	8.47556	8.47556
$ 98 4-Bromofluorobenzene (Surr)	95	11.205	11.186	(0.848)	428003	7.70021	7.70021
M 1 1,2-Dichloroethene (total)	96				293652	9.78239	9.78239
M 2 Xylene (total)	106				637656	15.7951	15.7950
6 dichlorodifluoromethane	85	1.321	1.322	(0.277)	142479	3.33526	3.33526
8 1,2-Dichlorotetrafluoroethane	85	1.321	1.403	(0.277)	142479	2.35636	2.35636
7 Chloromethane	50	1.356	1.374	(0.285)	116398	3.62855	3.62855(Q)
9 Vinyl Chloride	62	1.460	1.461	(0.306)	99341	3.72487	3.72487
11 Ethylene Oxide	43	Compound Not Detected.					
12 Bromomethane	94	1.600	1.618	(0.336)	96464	3.89203	3.89202
13 Chloroethane	64	1.634	1.635	(0.343)	64217	3.70270	3.70270(Q)
14 Dichlorofluoromethane	67	Compound Not Detected.					
16 Trichlorofluoromethane	101	1.774	1.774	(0.372)	256230	4.10265	4.10265
15 Ethanol	45	Compound Not Detected.					
17 Ethyl Ether	59	2.069	1.894	(0.434)	11235	0.66295	0.662951(a)
19 1,2-dichloro-1,1,2-trifluoro	117	Compound Not Detected.					
20 2,2-dichloro-1,1,1-trifluoro	83	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
21 Acrolein	56	Compound Not Detected.					
23 1,1-Dichloroethene	96	2.069	2.070	(0.434)	131008	4.83581	4.83581
24 Trichlorotrifluoroethane	151	2.104	2.103	(0.442)	146304	3.87518	3.87518
22 Acetone	43	2.069	2.070	(0.434)	53050	23.1734	23.1734
25 Iodomethane	142	2.174	2.175	(0.456)	263900	4.40610	4.40610
18 2-propanol	45	Compound Not Detected.					
26 Carbon Disulfide	76	2.226	2.225	(0.467)	342891	3.25037	3.25037
39 Allyl Chloride	41	2.383	2.277	(0.500)	9739	0.18317	0.183166(aQ)
27 Methyl Acetate	43	Compound Not Detected.					
29 Acetonitrile	41	2.383	2.262	(0.500)	9739	20.7465	20.7465(aQ)
28 Methylene Chloride	84	2.365	2.366	(0.496)	110281	4.14953	4.14952
30 tert-Butyl alcohol	59	2.435	2.453	(0.511)	79923	86.5084	86.5084
31 Acrylonitrile	53	Compound Not Detected.					
33 Methyl t-butyl ether	73	2.591	2.573	(0.544)	197740	4.70603	4.70603(a)
32 trans-1,2-Dichloroethene	96	2.574	2.575	(0.540)	143688	4.74138	4.74138
34 Hexane	57	2.783	2.781	(0.302)	167701	3.62331	3.62331
36 1,1-Dichloroethane	63	2.905	2.905	(0.609)	270187	4.54600	4.54600
35 Vinyl Acetate	43	2.922	2.921	(0.613)	148727	4.09683	4.09683(Q)
37 Isopropyl ether	87	Compound Not Detected.					
38 Chloroprene	53	Compound Not Detected.					
40 ETBE	59	Compound Not Detected.					
42 cis-1,2-Dichloroethene	96	3.461	3.462	(0.726)	149964	5.04100	5.04100
43 2,2-Dichloropropane	77	3.479	3.480	(0.730)	266080	5.45961	5.45961
41 2-Butanone	43	3.461	3.462	(0.726)	88000	17.3671	17.3671
44 Ethyl Acetate	43	3.461	3.512	(0.726)	88000	6.68575	6.68574(Q)
45 Propionitrile	54	Compound Not Detected.					
46 Methacrylonitrile	41	Compound Not Detected.					
47 Bromochloromethane	128	3.705	3.706	(0.777)	63490	4.95708	4.95708
48 Tetrahydrofuran	42	Compound Not Detected.					
50 Chloroform	83	3.792	3.793	(0.796)	293359	5.19447	5.19447
52 1,1,1-Trichloroethane	97	4.018	4.019	(0.843)	296010	5.15697	5.15697
53 Cyclohexane	56	Compound Not Detected.					
54 1,1-Dichloropropene	75	4.192	4.193	(0.880)	252304	5.05155	5.05155
55 Carbon Tetrachloride	117	4.227	4.228	(0.887)	274243	5.16224	5.16224
59 Benzene	78	4.436	4.437	(0.931)	427970	4.98925	4.98925
57 1,2-Dichloroethane	62	4.436	4.437	(0.931)	133142	5.47931	5.47931
60 TAME	73	Compound Not Detected.					
58 Isobutanol	41	Compound Not Detected.					
63 Trichloroethene	95	5.254	5.255	(1.102)	192271	5.09673	5.09672
64 2-Pentanone	43	5.549	5.479	(1.164)	66576	5.69779	5.69779
65 Methyl Cyclohexane	55	Compound Not Detected.					
66 1,2-Dichloropropane	63	5.515	5.516	(1.157)	157046	4.93754	4.93754
67 Dibromomethane	93	5.689	5.672	(1.193)	86758	5.29640	5.29640
68 Methyl Methacrylate	100	Compound Not Detected.					
69 1,4-Dioxane	88	Compound Not Detected.					
70 Bromodichloromethane	83	5.915	5.916	(1.241)	250208	5.18066	5.18066
71 2-nitropropane	41	6.402	6.209	(1.343)	1245	1.67640	1.67640(aQ)
72 2-Chloroethyl vinyl ether	63	6.402	6.366	(1.343)	38201	4.96834	4.96834
73 cis-1,3-Dichloropropene	75	6.576	6.560	(1.380)	207136	5.27590	5.27590
74 4-Methyl-2-pentanone	43	6.837	6.803	(1.434)	261535	19.1073	19.1073
76 Toluene	91	7.063	7.064	(1.482)	490086	5.13718	5.13718
77 trans-1,3-Dichloropropene	75	7.411	7.395	(1.555)	156236	5.04292	5.04292
78 Ethyl methacrylate	69	Compound Not Detected.					
79 1,1,2-Trichloroethane	97	7.672	7.656	(1.610)	83807	4.65978	4.65978

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
80 Tetrachloroethene	164	7.899	7.899	(0.858)	163593	5.66321	5.66321
81 1,3-Dichloropropane	76	7.916	7.917	(0.860)	152244	5.56848	5.56848
82 2-Hexanone	43	8.177	8.108	(0.888)	122825	19.4724	19.4724
83 Tetrahydrothiophene	60	Compound Not Detected.					
84 Dibromochloromethane	129	8.264	8.265	(0.898)	155248	5.34823	5.34823
85 1,2-Dibromoethane	107	8.421	8.404	(0.915)	117205	5.38095	5.38095
88 1-Chlorohexane	91	9.291	9.291	(1.009)	236998	5.41269	5.41269
87 Chlorobenzene	112	9.238	9.239	(1.004)	333872	5.29131	5.29131
89 1,1,1,2-Tetrachloroethane	131	9.395	9.396	(1.021)	155095	5.36238	5.36238
90 Ethylbenzene	106	9.465	9.466	(1.028)	170861	5.48218	5.48218
91 m and p-Xylene	106	9.673	9.674	(1.051)	441051	10.4363	10.4363
92 o-Xylene	106	10.317	10.318	(1.121)	196605	5.35871	5.35871
93 Styrene	104	10.352	10.353	(1.125)	316750	5.33744	5.33744
94 Bromoform	173	10.613	10.597	(1.153)	93801	5.63334	5.63334
95 isopropyl benzene	105	10.978	10.979	(0.831)	669740	5.15572	5.15572
96 cis-1,4-dichloro-2-butene	53	11.118	11.082	(0.842)	2422	2.01244	2.01244(aQ)
97 Cyclohexanone	55	11.118	11.049	(1.208)	30621	134.023	134.023
99 Bromobenzene	156	11.431	11.414	(0.866)	149817	5.47002	5.47002
100 1,1,2,2-Tetrachloroethane	83	11.500	11.484	(0.871)	123745	5.32305	5.32305
101 1,2,3-Trichloropropane	110	11.535	11.519	(0.874)	26811	4.90828	4.90828
102 t-1,4-Dichloro-2-butene	53	11.605	11.604	(0.879)	112871	25.7147	25.7147
103 n-Propylbenzene	120	11.692	11.693	(0.885)	155969	4.96150	4.96150
104 2-Chlorotoluene	126	11.779	11.780	(0.892)	124748	4.76334	4.76334(Q)
106 1,3,5-Trimethylbenzene	105	12.023	12.023	(0.910)	500228	5.15957	5.15957
105 4-Chlorotoluene	126	11.988	11.971	(0.908)	141295	5.12479	5.12479
107 tert-Butylbenzene	119	12.562	12.563	(0.951)	534279	4.89077	4.89077
108 1,2,4-Trimethylbenzene	105	12.666	12.667	(0.959)	466030	4.98392	4.98392
109 sec-Butylbenzene	134	12.962	12.963	(0.982)	136638	4.97645	4.97645
110 1,3-Dichlorobenzene	146	13.101	13.085	(0.992)	251055	5.15202	5.15202
112 4-Isopropyltoluene	119	13.258	13.241	(1.004)	583114	4.80732	4.80732
113 1,4-dichlorobenzene	146	13.258	13.241	(1.004)	293003	4.98926	4.98926
116 n-Butylbenzene	91	13.989	13.972	(1.059)	615471	5.35403	5.35403
115 1,2-Dichlorobenzene	146	13.902	13.885	(1.053)	215431	4.98727	4.98727
117 1,2-Dibromo-3-chloropropane	157	15.363	15.277	(1.163)	19245	5.14363	5.14363(Q)
118 1,2,4-Trichlorobenzene	180	16.581	16.565	(1.256)	173373	4.93317	4.93317
119 Hexachlorobutadiene	225	16.808	16.809	(1.273)	160256	4.92646	4.92646
120 Naphthalene	128	16.843	16.826	(1.275)	171051	4.88578	4.88578
121 1,2,3-Trichlorobenzene	180	17.104	17.087	(1.295)	130610	4.90558	4.90558

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.

Data File: Z8041.D

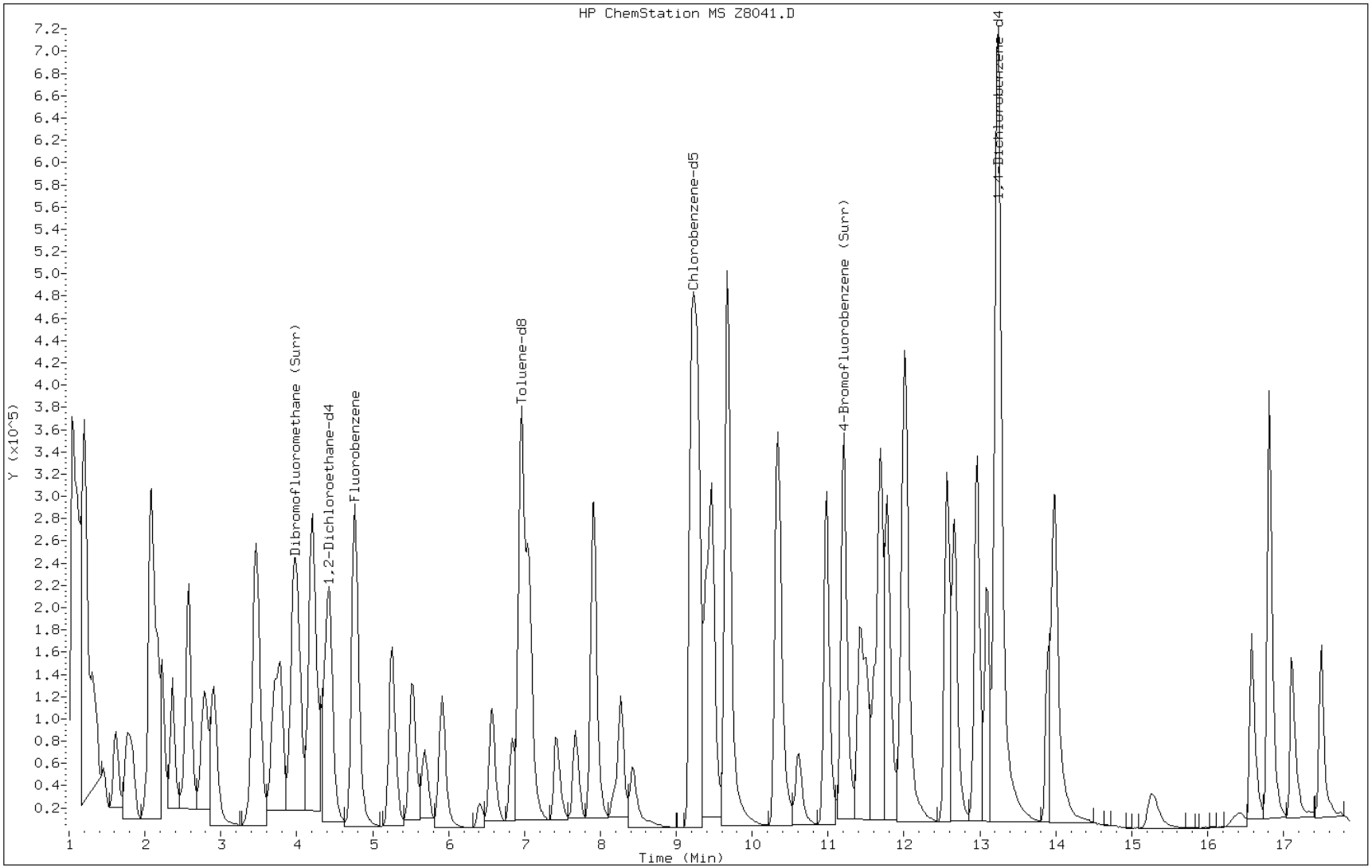
Date: 05-JUL-2012 07:36

Client ID: LCS

Instrument: Z.i

Sample Info: LCS,,

Operator: MEIERG



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-30655-1

SDG No.:

Client Sample ID: PAFB03-MW05-N-070212 MS | Lab Sample ID: 280-30655-1 MS

Matrix: Water | Lab File ID: Z8044.D

Analysis Method: 8260B/AFCEE | Date Collected: 07/02/2012 10:05

Sample wt/vol: 20(mL) | Date Analyzed: 07/05/2012 08:49

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 (75.53) ID: 0.53(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 126759 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
78-87-5	1,2-Dichloropropane	5.55		1.0	0.078

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	95		81-120
1868-53-7	Dibromofluoromethane (Surr)	86		85-115
460-00-4	4-Bromofluorobenzene (Surr)	89		76-119
17060-07-0	1,2-Dichloroethane-d4 (Surr)	92		72-119

TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\Z8044.D
Lab Smp Id: 280-30655-f-1 MS
Inj Date : 05-JUL-2012 08:49
Operator : MEIERG Inst ID: Z.i
Smp Info : 280-30655-f-1 MS,,PH=7
Misc Info : Z8043.D
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\8260B-H2O.m
Meth Date : 12-Jun-2012 06:45 meierg Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: DOD.sub
Target Version: 4.14
Processing Host: DENPC186

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
* 62 Fluorobenzene	96	4.779	4.767	(1.000)	901678	12.5000	
* 86 Chlorobenzene-d5	119	9.216	9.204	(1.000)	186057	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.219	13.207	(1.000)	310093	12.5000	(Q)
$ 51 Dibromofluoromethane (Surr)	111	3.961	3.947	(0.829)	383609	7.70709	7.70709
$ 56 1,2-Dichloroethane-d4	65	4.344	4.330	(0.909)	195784	8.31696	8.31696
$ 75 Toluene-d8	98	6.972	6.958	(0.756)	797176	8.56914	8.56914
$ 98 4-Bromofluorobenzene (Surr)	95	11.217	11.186	(0.849)	446174	7.99474	7.99474
M 1 1,2-Dichloroethene (total)	96				309486	9.92832	9.92832
M 2 Xylene (total)	106				636565	15.1255	15.1254
6 dichlorodifluoromethane	85	1.334	1.322	(0.279)	94145	2.24642	2.24642
8 1,2-Dichlorotetrafluoroethane	85	1.334	1.403	(0.279)	94145	1.49840	1.49840(a)
7 Chloromethane	50	1.403	1.374	(0.294)	96708	2.90128	2.90128(Q)
9 Vinyl Chloride	62	1.490	1.461	(0.312)	87460	3.15596	3.15596
11 Ethylene Oxide	43	Compound Not Detected.					
12 Bromomethane	94	1.630	1.618	(0.341)	88687	3.44358	3.44358
13 Chloroethane	64	1.647	1.635	(0.345)	63025	3.49721	3.49721
14 Dichlorofluoromethane	67	Compound Not Detected.					
16 Trichlorofluoromethane	101	1.786	1.774	(0.374)	238156	3.66974	3.66974
17 Ethyl Ether	59	1.908	1.894	(0.399)	3960	0.22488	0.224876(a)
19 1,2-dichloro-1,1,2-trifluoro	117	Compound Not Detected.					
20 2,2-dichloro-1,1,1-trifluoro	83	Compound Not Detected.					
21 Acrolein	56	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
23 1,1-Dichloroethene	96	2.082	2.070	(0.436)	128944	4.58050	4.58050
24 Trichlorotrifluoroethane	151	2.117	2.103	(0.443)	148920	3.79602	3.79602
22 Acetone	43	2.082	2.070	(0.436)	56061	23.6045	23.6044
25 Iodomethane	142	2.186	2.175	(0.458)	258134	4.14763	4.14763
18 2-propanol	45	Compound Not Detected.					
26 Carbon Disulfide	76	2.239	2.225	(0.468)	349535	3.18865	3.18865
39 Allyl Chloride	41	2.395	2.277	(0.501)	10279	0.18605	0.186046(aQ)
27 Methyl Acetate	43	Compound Not Detected.					
28 Methylene Chloride	84	2.378	2.366	(0.498)	115199	4.17145	4.17145
30 tert-Butyl alcohol	59	2.448	2.453	(0.512)	84456	87.9746	87.9746
31 Acrylonitrile	53	Compound Not Detected.					
33 Methyl t-butyl ether	73	2.604	2.573	(0.545)	188670	4.32119	4.32119(a)
32 trans-1,2-Dichloroethene	96	2.587	2.575	(0.541)	140564	4.46374	4.46374
34 Hexane	57	2.796	2.781	(0.303)	171096	3.54863	3.54862
36 1,1-Dichloroethane	63	2.917	2.905	(0.610)	356199	5.76764	5.76764
35 Vinyl Acetate	43	2.935	2.921	(0.614)	148905	3.94737	3.94737
37 Isopropyl ether	87	Compound Not Detected.					
38 Chloroprene	53	Compound Not Detected.					
40 ETBE	59	Compound Not Detected.					
42 cis-1,2-Dichloroethene	96	3.474	3.462	(0.727)	168922	5.46458	5.46458
43 2,2-Dichloropropane	77	3.492	3.480	(0.731)	272560	5.38210	5.38210
41 2-Butanone	43	3.474	3.462	(0.727)	84690	16.0849	16.0849
44 Ethyl Acetate	43	3.474	3.512	(0.727)	85893	6.37477	6.37476(Q)
49 2-Butanol	45	3.700	3.669	(0.774)	108823	139.531	139.531
46 Methacrylonitrile	41	Compound Not Detected.					
47 Bromochloromethane	128	3.718	3.706	(0.778)	62163	4.67082	4.67082
48 Tetrahydrofuran	42	Compound Not Detected.					
50 Chloroform	83	3.787	3.793	(0.792)	329222	5.61011	5.61011
52 1,1,1-Trichloroethane	97	4.031	4.019	(0.843)	310656	5.20844	5.20844
53 Cyclohexane	56	Compound Not Detected.					
54 1,1-Dichloropropene	75	4.205	4.193	(0.880)	251606	4.84799	4.84799
55 Carbon Tetrachloride	117	4.222	4.228	(0.884)	272698	4.93998	4.93998
59 Benzene	78	4.431	4.437	(0.927)	430180	4.82628	4.82628
57 1,2-Dichloroethane	62	4.431	4.437	(0.927)	139241	5.51465	5.51465
60 TAME	73	Compound Not Detected.					
63 Trichloroethene	95	5.266	5.255	(1.102)	208543	5.32002	5.32002
64 2-Pentanone	43	5.562	5.479	(1.164)	66049	5.43995	5.43995(R)
65 Methyl Cyclohexane	55	Compound Not Detected.					
66 1,2-Dichloropropane	63	5.527	5.516	(1.157)	183448	5.55056	5.55056
67 Dibromomethane	93	5.701	5.672	(1.193)	84381	4.95743	4.95743
68 Methyl Methacrylate	100	Compound Not Detected.					
69 1,4-Dioxane	88	Compound Not Detected.					
70 Bromodichloromethane	83	5.928	5.916	(1.240)	256968	5.12039	5.12039
72 2-Chloroethyl vinyl ether	63	6.432	6.366	(1.346)	37429	4.68473	4.68473
73 cis-1,3-Dichloropropene	75	6.571	6.560	(1.375)	204614	5.01552	5.01552
74 4-Methyl-2-pentanone	43	6.850	6.803	(1.433)	253419	17.9130	17.9130
76 Toluene	91	7.059	7.064	(1.477)	495217	4.99560	4.99560
77 trans-1,3-Dichloropropene	75	7.424	7.395	(1.553)	149842	4.66346	4.66346
78 Ethyl methacrylate	69	Compound Not Detected.					
79 1,1,2-Trichloroethane	97	7.685	7.656	(1.608)	86479	4.62738	4.62738
80 Tetrachloroethene	164	7.911	7.899	(0.858)	201928	6.71034	6.71034
81 1,3-Dichloropropane	76	7.929	7.917	(0.860)	147129	5.16588	5.16588
82 2-Hexanone	43	8.190	8.108	(0.889)	117243	18.3198	18.3198
84 Dibromochloromethane	129	8.277	8.265	(0.898)	158298	5.23491	5.23491

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
85 1,2-Dibromoethane	107	8.433	8.404	(0.915)	112538	4.95978	4.95978
88 1-Chlorohexane	91	9.303	9.291	(1.009)	235385	5.16056	5.16056
87 Chlorobenzene	112	9.251	9.239	(1.004)	331693	5.04626	5.04626
89 1,1,1,2-Tetrachloroethane	131	9.408	9.396	(1.021)	155328	5.15537	5.15537
90 Ethylbenzene	106	9.477	9.466	(1.028)	167770	5.16743	5.16743
91 m and p-Xylene	106	9.686	9.674	(1.051)	443517	10.0744	10.0744
92 o-Xylene	106	10.330	10.318	(1.121)	193048	5.05104	5.05104
93 Styrene	104	10.365	10.353	(1.125)	309862	5.01227	5.01227
94 Bromoform	173	10.608	10.597	(1.151)	89265	5.14623	5.14623
95 isopropyl benzene	105	10.991	10.979	(0.832)	671485	5.14830	5.14830
96 cis-1,4-dichloro-2-butene	53	11.130	11.082	(0.842)	3213	2.14417	2.14417(aQ)
97 Cyclohexanone	55	11.130	11.049	(1.208)	28341	124.931	124.931
99 Bromobenzene	156	11.426	11.414	(0.864)	146695	5.33442	5.33442
100 1,1,2,2-Tetrachloroethane	83	11.496	11.484	(0.870)	118534	5.07832	5.07832
101 1,2,3-Trichloropropane	110	11.531	11.519	(0.872)	25939	4.72948	4.72948(Q)
102 t-1,4-Dichloro-2-butene	53	11.618	11.604	(0.879)	114736	26.0246	26.0246
103 n-Propylbenzene	120	11.705	11.693	(0.885)	155967	4.94142	4.94142
104 2-Chlorotoluene	126	11.792	11.780	(0.892)	123449	4.69472	4.69472(Q)
106 1,3,5-Trimethylbenzene	105	12.035	12.023	(0.910)	492588	5.06027	5.06027
105 4-Chlorotoluene	126	12.000	11.971	(0.908)	138060	4.98725	4.98725
107 tert-Butylbenzene	119	12.575	12.563	(0.951)	529366	4.82625	4.82624
108 1,2,4-Trimethylbenzene	105	12.662	12.667	(0.958)	458197	4.88038	4.88038
109 sec-Butylbenzene	134	12.975	12.963	(0.982)	135981	4.93254	4.93254
110 1,3-Dichlorobenzene	146	13.097	13.085	(0.991)	236549	4.83476	4.83476
112 4-Isopropyltoluene	119	13.253	13.241	(1.003)	572431	4.70021	4.70021
113 1,4-dichlorobenzene	146	13.253	13.241	(1.003)	295119	5.00502	5.00502
116 n-Butylbenzene	91	13.984	13.972	(1.058)	606630	5.25583	5.25583
115 1,2-Dichlorobenzene	146	13.897	13.885	(1.051)	210422	4.85166	4.85166
117 1,2-Dibromo-3-chloropropane	157	15.341	15.277	(1.161)	17229	4.66889	4.66889(Q)
118 1,2,4-Trichlorobenzene	180	16.577	16.565	(1.254)	163229	4.62579	4.62579
119 Hexachlorobutadiene	225	16.820	16.809	(1.272)	153318	4.69631	4.69631
120 Naphthalene	128	16.855	16.826	(1.275)	152847	4.34820	4.34820
121 1,2,3-Trichlorobenzene	180	17.116	17.087	(1.295)	121607	4.54901	4.54901

QC Flag Legend

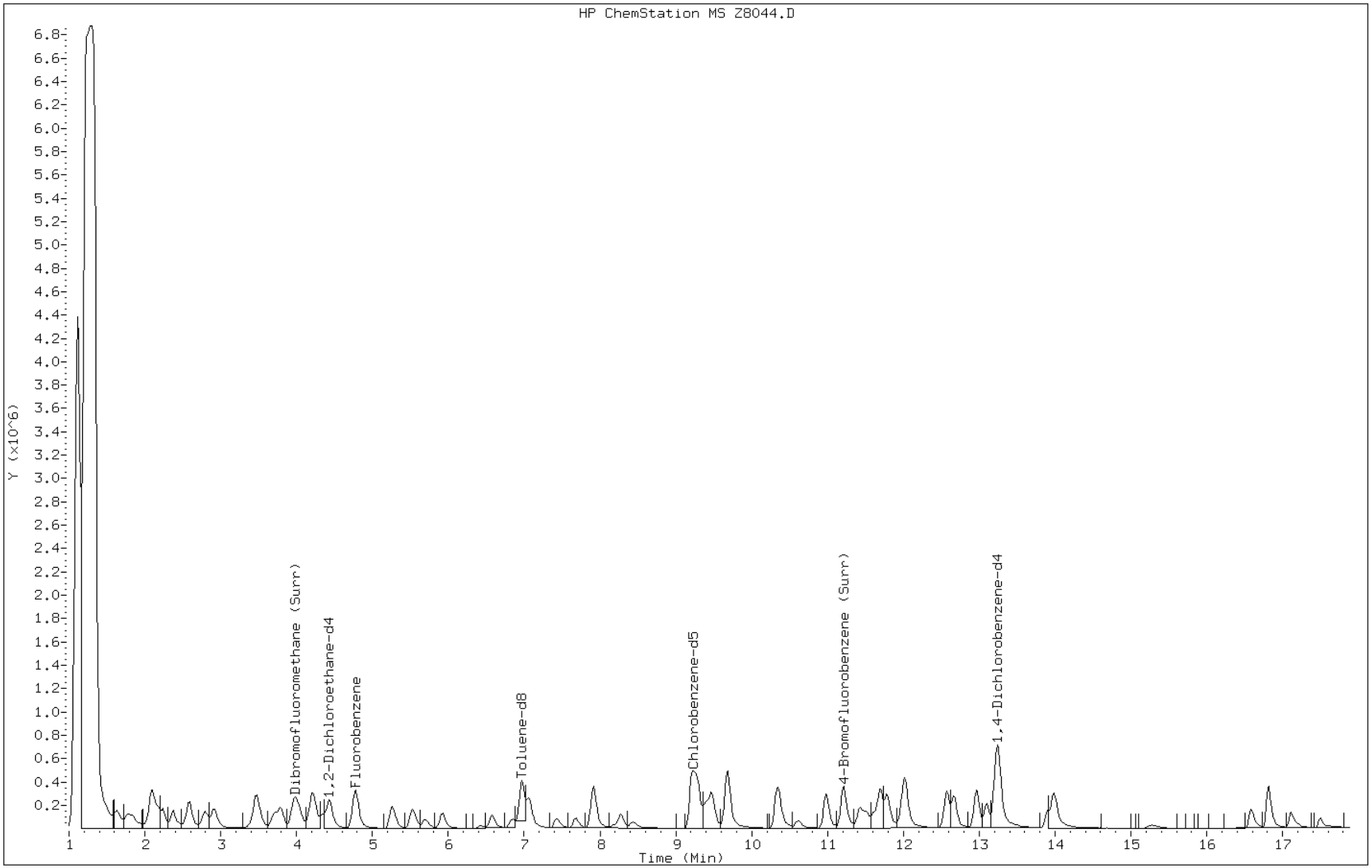
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.
R - Spike/Surrogate failed recovery limits.

Data File: Z8044.D

Date: 05-JUL-2012 08:49

Client ID: Instrument: Z.i

Sample Info: 280-30655-f-1 MS,,PH=7 Operator: MEIERG



FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-30655-1

SDG No.:

Client Sample ID: PAFB03-MW05-N-070212 MSD | Lab Sample ID: 280-30655-1 MSD

Matrix: Water | Lab File ID: Z8045.D

Analysis Method: 8260B/AFCEE | Date Collected: 07/02/2012 10:05

Sample wt/vol: 20(mL) | Date Analyzed: 07/05/2012 09:11

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 (75.53) ID: 0.53(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 126759 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
78-87-5	1,2-Dichloropropane	6.11		1.0	0.078

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	98		81-120
1868-53-7	Dibromofluoromethane (Surr)	89		85-115
460-00-4	4-Bromofluorobenzene (Surr)	91		76-119
17060-07-0	1,2-Dichloroethane-d4 (Surr)	97		72-119

TestAmerica

VOLATILE REPORT SW-846

Data file : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\Z8045.D
Lab Smp Id: 280-30655-f-1 MSD
Inj Date : 05-JUL-2012 09:11
Operator : MEIERG Inst ID: Z.i
Smp Info : 280-30655-f-1 MSD,,PH=7
Misc Info : Z8044.D
Comment :
Method : \\DenSvr03\Public\chem\MSV\Z.i\070512.B\8260B-H2O.m
Meth Date : 12-Jun-2012 06:45 meierg Quant Type: ISTD
Cal Date : 18-APR-2012 15:10 Cal File: Z4911.D
Als bottle: 2 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: DOD.sub
Target Version: 4.14
Processing Host: DENPC186

Concentration Formula: Amt * DF * Vp/Vs * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vp	20.000	Purge Volume (mL)
Vs	20.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
* 62 Fluorobenzene	96	4.778	4.767	(1.000)	877264	12.5000	
* 86 Chlorobenzene-d5	119	9.215	9.204	(1.000)	181364	12.5000	
* 111 1,4-Dichlorobenzene-d4	152	13.217	13.207	(1.000)	311076	12.5000	(Q)
$ 51 Dibromofluoromethane (Surr)	111	3.977	3.947	(0.832)	388265	8.01773	8.01773
$ 56 1,2-Dichloroethane-d4	65	4.360	4.330	(0.913)	200810	8.76787	8.76787
$ 75 Toluene-d8	98	6.970	6.958	(0.756)	801437	8.83786	8.83786
$ 98 4-Bromofluorobenzene (Surr)	95	11.216	11.186	(0.849)	461003	8.23435	8.23435
M 1 1,2-Dichloroethene (total)	96				323506	10.6664	10.6664
M 2 Xylene (total)	106				676436	16.5067	16.5067
6 dichlorodifluoromethane	85	1.350	1.322	(0.283)	92501	2.26521	2.26521
8 1,2-Dichlorotetrafluoroethane	85	1.350	1.403	(0.283)	92501	1.51321	1.51321(a)
7 Chloromethane	50	1.402	1.374	(0.293)	98094	3.02476	3.02476(Q)
9 Vinyl Chloride	62	1.489	1.461	(0.312)	90754	3.36596	3.36596
11 Ethylene Oxide	43	Compound Not Detected.					
12 Bromomethane	94	1.628	1.618	(0.341)	93891	3.74710	3.74710
13 Chloroethane	64	1.663	1.635	(0.348)	63852	3.64170	3.64170
14 Dichlorofluoromethane	67	Compound Not Detected.					
16 Trichlorofluoromethane	101	1.785	1.774	(0.374)	250552	3.96820	3.96820
17 Ethyl Ether	59	1.924	1.894	(0.403)	4750	0.27724	0.277245(a)
19 1,2-dichloro-1,1,2-trifluoro	117	Compound Not Detected.					
20 2,2-dichloro-1,1,1-trifluoro	83	Compound Not Detected.					
21 Acrolein	56	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
23 1,1-Dichloroethene	96	2.080	2.070	(0.436)	134645	4.91612	4.91612
24 Trichlorotrifluoroethane	151	2.115	2.103	(0.443)	151177	3.96079	3.96079
22 Acetone	43	2.098	2.070	(0.439)	51520	22.1741	22.1741
25 Iodomethane	142	2.185	2.175	(0.457)	273055	4.50948	4.50948
18 2-propanol	45	Compound Not Detected.					
26 Carbon Disulfide	76	2.254	2.225	(0.472)	355908	3.33715	3.33715
39 Allyl Chloride	41	2.394	2.277	(0.501)	9634	0.17922	0.179224(aQ)
27 Methyl Acetate	43	Compound Not Detected.					
28 Methylene Chloride	84	2.376	2.366	(0.497)	123651	4.60211	4.60211
30 tert-Butyl alcohol	59	2.463	2.453	(0.516)	89622	95.9539	95.9538
31 Acrylonitrile	53	Compound Not Detected.					
33 Methyl t-butyl ether	73	2.602	2.573	(0.545)	204885	4.82316	4.82316(a)
32 trans-1,2-Dichloroethene	96	2.585	2.575	(0.541)	147741	4.82222	4.82222
34 Hexane	57	2.811	2.781	(0.305)	176406	3.75343	3.75343
36 1,1-Dichloroethane	63	2.916	2.905	(0.610)	365136	6.07689	6.07689
35 Vinyl Acetate	43	2.950	2.921	(0.618)	150747	4.10741	4.10741
37 Isopropyl ether	87	Compound Not Detected.					
38 Chloroprene	53	Compound Not Detected.					
40 ETBE	59	Compound Not Detected.					
42 cis-1,2-Dichloroethene	96	3.472	3.462	(0.727)	175765	5.84418	5.84418
43 2,2-Dichloropropane	77	3.490	3.480	(0.731)	280368	5.69035	5.69035
41 2-Butanone	43	3.472	3.462	(0.727)	94183	18.3857	18.3857
44 Ethyl Acetate	43	3.472	3.512	(0.727)	95282	7.04964	7.04964(Q)
49 2-Butanol	45	3.699	3.669	(0.774)	116320	153.294	153.294
46 Methacrylonitrile	41	Compound Not Detected.					
47 Bromochloromethane	128	3.716	3.706	(0.778)	66195	5.11219	5.11219
48 Tetrahydrofuran	42	Compound Not Detected.					
50 Chloroform	83	3.803	3.793	(0.796)	343333	6.01339	6.01338
52 1,1,1-Trichloroethane	97	4.029	4.019	(0.843)	323380	5.57266	5.57266
53 Cyclohexane	56	Compound Not Detected.					
54 1,1-Dichloropropene	75	4.203	4.193	(0.880)	267331	5.29433	5.29433
55 Carbon Tetrachloride	117	4.238	4.228	(0.887)	279656	5.20701	5.20701
59 Benzene	78	4.447	4.437	(0.931)	458395	5.28595	5.28595
57 1,2-Dichloroethane	62	4.447	4.437	(0.931)	146769	5.97457	5.97456
60 TAME	73	Compound Not Detected.					
63 Trichloroethene	95	5.265	5.255	(1.102)	217678	5.70760	5.70760
64 2-Pentanone	43	5.561	5.479	(1.164)	72170	6.10951	6.10951(R)
65 Methyl Cyclohexane	55	Compound Not Detected.					
66 1,2-Dichloropropane	63	5.543	5.516	(1.160)	196424	6.10857	6.10857
67 Dibromomethane	93	5.700	5.672	(1.193)	90800	5.48301	5.48301
68 Methyl Methacrylate	100	Compound Not Detected.					
69 1,4-Dioxane	88	Compound Not Detected.					
70 Bromodichloromethane	83	5.926	5.916	(1.240)	272742	5.58595	5.58595
72 2-Chloroethyl vinyl ether	63	6.431	6.366	(1.346)	39704	5.10778	5.10778
73 cis-1,3-Dichloropropene	75	6.587	6.560	(1.379)	219593	5.53249	5.53249
74 4-Methyl-2-pentanone	43	6.848	6.803	(1.433)	281512	20.2522	20.2522
76 Toluene	91	7.074	7.064	(1.481)	520761	5.39948	5.39948
77 trans-1,3-Dichloropropene	75	7.440	7.395	(1.557)	163944	5.22989	5.22988
78 Ethyl methacrylate	69	Compound Not Detected.					
79 1,1,2-Trichloroethane	97	7.683	7.656	(1.608)	91457	5.02994	5.02994
80 Tetrachloroethene	164	7.910	7.899	(0.858)	210823	7.18722	7.18722
81 1,3-Dichloropropane	76	7.927	7.917	(0.860)	157284	5.66534	5.66534
82 2-Hexanone	43	8.188	8.108	(0.889)	134683	20.5726	20.5726(H)
84 Dibromochloromethane	129	8.275	8.265	(0.898)	167507	5.68279	5.68279

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
85 1,2-Dibromoethane	107	8.432	8.404	(0.915)	120609	5.45303	5.45303
88 1-Chlorohexane	91	9.302	9.291	(1.009)	246091	5.53489	5.53489
87 Chlorobenzene	112	9.250	9.239	(1.004)	352926	5.50823	5.50823
89 1,1,1,2-Tetrachloroethane	131	9.406	9.396	(1.021)	166218	5.65957	5.65957
90 Ethylbenzene	106	9.476	9.466	(1.028)	179022	5.65668	5.65668
91 m and p-Xylene	106	9.685	9.674	(1.051)	466221	10.8642	10.8642
92 o-Xylene	106	10.328	10.318	(1.121)	210215	5.64253	5.64253
93 Styrene	104	10.363	10.353	(1.125)	334370	5.54866	5.54866
94 Bromoform	173	10.624	10.597	(1.153)	96661	5.71682	5.71682
95 isopropyl benzene	105	10.990	10.979	(0.831)	691489	5.28492	5.28492
96 cis-1,4-dichloro-2-butene	53	11.111	11.082	(0.841)	3552	2.19945	2.19945(aQ)
97 Cyclohexanone	55	11.111	11.049	(1.206)	30304	131.952	131.952
99 Bromobenzene	156	11.442	11.414	(0.866)	158793	5.75611	5.75611
100 1,1,2,2-Tetrachloroethane	83	11.494	11.484	(0.870)	130607	5.57788	5.57788
101 1,2,3-Trichloropropane	110	11.546	11.519	(0.874)	28260	5.13639	5.13639
102 t-1,4-Dichloro-2-butene	53	11.616	11.604	(0.879)	122276	27.5989	27.5989
103 n-Propylbenzene	120	11.703	11.693	(0.885)	164177	5.18510	5.18510
104 2-Chlorotoluene	126	11.790	11.780	(0.892)	132887	5.03767	5.03767(Q)
106 1,3,5-Trimethylbenzene	105	12.034	12.023	(0.910)	525470	5.38100	5.38100
105 4-Chlorotoluene	126	11.999	11.971	(0.908)	150941	5.43533	5.43533
107 tert-Butylbenzene	119	12.573	12.563	(0.951)	565747	5.14163	5.14163
108 1,2,4-Trimethylbenzene	105	12.677	12.667	(0.959)	495446	5.26046	5.26046
109 sec-Butylbenzene	134	12.973	12.963	(0.982)	142951	5.16898	5.16898
110 1,3-Dichlorobenzene	146	13.095	13.085	(0.991)	255459	5.20475	5.20475
112 4-Isopropyltoluene	119	13.252	13.241	(1.003)	612330	5.01193	5.01193
113 1,4-dichlorobenzene	146	13.252	13.241	(1.003)	324679	5.48894	5.48894
116 n-Butylbenzene	91	13.983	13.972	(1.058)	650570	5.61872	5.61872
115 1,2-Dichlorobenzene	146	13.896	13.885	(1.051)	227951	5.23921	5.23921
117 1,2-Dibromo-3-chloropropane	157	15.357	15.277	(1.162)	20437	5.38156	5.38156
118 1,2,4-Trichlorobenzene	180	16.593	16.565	(1.255)	184684	5.21727	5.21727
119 Hexachlorobutadiene	225	16.819	16.809	(1.273)	167431	5.10837	5.10837
120 Naphthalene	128	16.854	16.826	(1.275)	180972	5.13204	5.13204
121 1,2,3-Trichlorobenzene	180	17.115	17.087	(1.295)	137999	5.14588	5.14588

QC Flag Legend

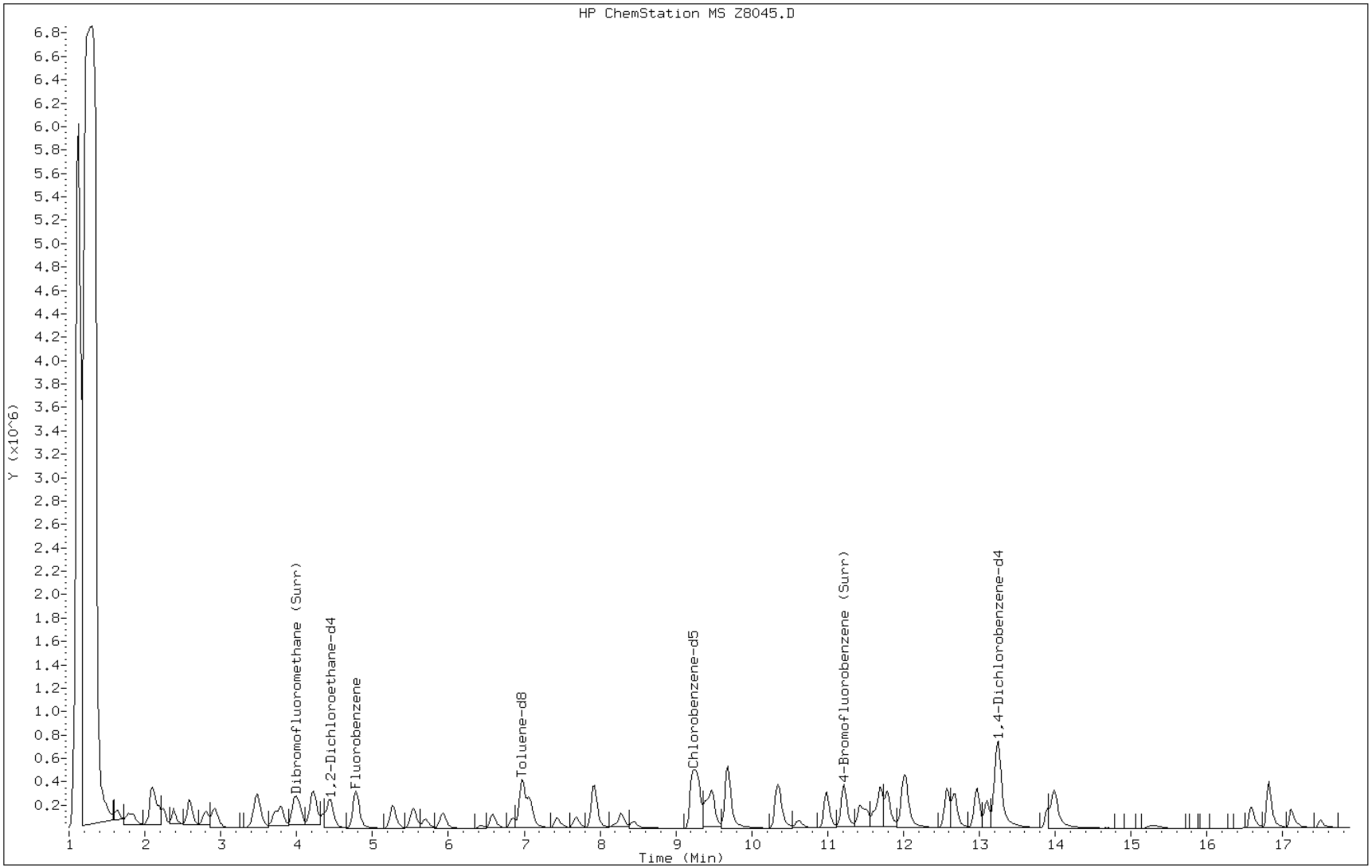
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.
R - Spike/Surrogate failed recovery limits.
H - Operator selected an alternate compound hit.

Data File: Z8045.D

Date: 05-JUL-2012 09:11

Client ID: Instrument: Z.i

Sample Info: 280-30655-f-1 MSD,,PH=7 Operator: MEIERG



GC/MS VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Instrument ID: MSV_Z Start Date: 06/11/2012 10:51

Analysis Batch Number: 123533 End Date: 06/11/2012 16:41

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 280-123533/1		06/11/2012 10:51	1	Z7127.D	DB-624 (75.53) 0.53(mm)
IC 280-123533/2		06/11/2012 10:59	1	Z7128.D	DB-624 (75.53) 0.53(mm)
IC 280-123533/3		06/11/2012 11:21	1	Z7129.D	DB-624 (75.53) 0.53(mm)
IC 280-123533/4		06/11/2012 11:42	1	Z7130.D	DB-624 (75.53) 0.53(mm)
ICIS 280-123533/5		06/11/2012 12:03	1	Z7131.D	DB-624 (75.53) 0.53(mm)
IC 280-123533/6		06/11/2012 12:25	1	Z7132.D	DB-624 (75.53) 0.53(mm)
IC 280-123533/7		06/11/2012 12:46	1	Z7133.D	DB-624 (75.53) 0.53(mm)
ICV 280-123533/8		06/11/2012 13:07	1	Z7134.D	DB-624 (75.53) 0.53(mm)
IC 280-123533/9		06/11/2012 13:29	1	Z7135.D	DB-624 (75.53) 0.53(mm)
IC 280-123533/10		06/11/2012 13:50	1	Z7136.D	DB-624 (75.53) 0.53(mm)
IC 280-123533/11		06/11/2012 14:11	1	Z7137.D	DB-624 (75.53) 0.53(mm)
IC 280-123533/12		06/11/2012 14:33	1	Z7138.D	DB-624 (75.53) 0.53(mm)
IC 280-123533/13		06/11/2012 14:54	1	Z7139.D	DB-624 (75.53) 0.53(mm)
IC 280-123533/14		06/11/2012 15:15	1	Z7140.D	DB-624 (75.53) 0.53(mm)
IC 280-123533/15		06/11/2012 15:37	1	Z7141.D	DB-624 (75.53) 0.53(mm)
ICV 280-123533/16		06/11/2012 15:58	1	Z7142.D	DB-624 (75.53) 0.53(mm)
ICV 280-123533/17		06/11/2012 16:19	1	Z7143.D	DB-624 (75.53) 0.53(mm)
ICV 280-123533/18		06/11/2012 16:41	1	Z7144.D	DB-624 (75.53) 0.53(mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Instrument ID: MSV_Z Start Date: 06/11/2012 23:51

Analysis Batch Number: 123534 End Date: 06/12/2012 00:11

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 280-123534/1		06/11/2012 23:51	1	Z7145.D	DB-624 (75.53) 0.53(mm)
ICV 280-123534/2		06/12/2012 00:11	1	Z7146.D	DB-624 (75.53) 0.53(mm)

8260B/AFCEE

GC/MS VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Denver Job No.: 280-30655-1

SDG No.:

Instrument ID: MSV_Z Start Date: 07/05/2012 06:47

Analysis Batch Number: 126759 End Date: 07/05/2012 18:09

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 280-126759/1		07/05/2012 06:47	1	Z8038.D	DB-624 (75.53) 0.53(mm)
CCV 280-126759/2		07/05/2012 06:53	1	Z8039.D	DB-624 (75.53) 0.53(mm)
CCV 280-126759/3		07/05/2012 07:14	1	Z8040.D	DB-624 (75.53) 0.53(mm)
LCS 280-126759/4		07/05/2012 07:36	1	Z8041.D	DB-624 (75.53) 0.53(mm)
MB 280-126759/5		07/05/2012 07:57	1	Z8042.D	DB-624 (75.53) 0.53(mm)
280-30655-1	PAFB03-MW05-N-070212	07/05/2012 08:28	1	Z8043.D	DB-624 (75.53) 0.53(mm)
280-30655-1 MS	PAFB03-MW05-N-070212 MS	07/05/2012 08:49	1	Z8044.D	DB-624 (75.53) 0.53(mm)
280-30655-1 MSD	PAFB03-MW05-N-070212 MSD	07/05/2012 09:11	1	Z8045.D	DB-624 (75.53) 0.53(mm)
280-30655-2	PAFB03-MW05-FD-070212	07/05/2012 09:32	1	Z8046.D	DB-624 (75.53) 0.53(mm)
280-30655-3	PAFB03-TRIP-TB-070212	07/05/2012 09:54	1	Z8047.D	DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 10:15	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 10:37	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 10:58	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 11:20	2		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 11:41	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 12:03	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 12:24	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 12:46	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 13:07	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 13:29	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 13:50	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 14:12	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 14:33	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 14:55	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 15:16	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 15:38	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 16:00	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 16:21	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 16:43	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 17:04	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 17:26	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 17:48	1		DB-624 (75.53) 0.53(mm)
ZZZZZ		07/05/2012 18:09	1		DB-624 (75.53) 0.53(mm)

Shipping and Receiving Documents

Login Sample Receipt Checklist

Client: AECOM Technical Services Inc.

Job Number: 280-30655-1

Login Number: 30655

List Source: TestAmerica Denver

List Number: 1

Creator: Bindel, Aaron M

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX B
STATISTICAL EVALUATION COMPUTATION RESULTS

(ON CD)

1,1,1,2-Tetrachlor	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.25	0.25	0.25	0.25	0.25	--	
2	0.25	0.25	0.25	0.25	0.25	0.25	
3	0.25	0.25	0.25	0.25	0.25	0.25	
4	0.25	0.25	0.25	0.25	0.25	0.25	
Count	4	4	4	4	4	3	23
SUM	1	1	1	1	1	0.75	5.75
SUM(x2)	0.25	0.25	0.25	0.25	0.25	0.1875	1.4375
St.Dev.	0	0	0	0	0	0	0
Mean	0.25	0.25	0.25	0.25	0.25	0.25	0.25
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Groups	0	5	0	1	2.81
W/IN Groups	0	17	0		df 5,17
Total	0	22			

Variance		
Max	0	
Min	0	
Variance	--	

raw	rank
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12

KW Rank for1,1,1,2-Tetrachloroethane Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

1,1,1,2-Tetrachloroethane is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.25	0.25	13	No
PAFB03-MW02	4.541	0.25	0.25	13	No
PAFB03-MW03	4.541	0.25	0.25	13	No
PAFB03-MW04	4.541	0.25	0.25	13	No
PAFB03-MW05	4.541	0.25	0.25	13	No
PAFB03-MW06	6.965	0.25	0.25	13	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for 1,1,1,2-Tetrachloroethane.
No sampling results for 1,1,1,2-Tetrachloroethane exceeded the regulatory standard.

1,1,1-Trichloroeth	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.38	0.5	0.15	0.15	--	
2	0.5	0.44	0.5	0.1	0.16	0.5	
3	0.5	0.29	0.5	0.075	0.14	0.5	
4	0.5	0.43	0.5	0.083	0.14	0.5	
Count	4	4	4	4	4	3	23
SUM	2	1.54	2	0.408	0.59	1.5	8.038
SUM(x2)	1	0.607	1	0.045014	0.0873	0.75	3.489314
St.Dev.	0	0.068557	0	0.033655	0.009574	0	0.175837
Mean	0.5	0.385	0.5	0.102	0.1475	0.5	0.349478
SS	0	0.0141	0	0.003398	0.000275	0	0.680208
Variance	0	0.0047	0	0.001133	9.17E-05	0	

Analyte ND?
No

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.662435	5	0.132487	126.7247011	2.81
W/IN Wells	0.017773	17	0.001045		df 5,17
Total	0.680208	22			

Variance			
Max	0.0047	MaxVar	0.0047
Min	0	Min(nonZero)	9.17E-05
Variance	--	Variance	51.3

raw	rank
0.5	18
0.5	18
0.5	18
0.5	18
0.38	10
0.44	12
0.29	9
0.43	11
0.5	18
0.5	18
0.5	18
0.5	18
0.15	6.5
0.1	3
0.075	1
0.083	2
0.15	6.5
0.16	8
0.14	4.5
0.14	4.5
0.5	18
0.5	18
0.5	18

KW Rank for1,1,1-Trichloroethane Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	18	10	18	6.5	6.5	18	
Qtr 2	18	12	18	3	8	18	
Qtr 3	18	9	18	1	4.5	18	
Qtr 4	18	11	18	2	4.5		
n	4	4	4	4	4	3	23
SUM(xi)	72	42	72	12.5	23.5	54	276
SUM(xi2)	1296	446	1296	56.25	146.75	972	4213
StDev	0	1.290994	0	2.393568	1.701715	0	6.399574
CV	0	0.122952	0	0.765942	0.289654	0	0.533298
MEAN	18	10.5	18	3.125	5.875	18	12
SS	0	5	0	17.1875	8.6875	0	901

1,1,1-Trichloroethane is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (51.3) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,17 degrees of freedom; suggesting possible groundwater contamination.
From KW: Calculated H exceeds 95% probable Hcrit with 5 degrees of freedom; suggesting possible groundwater contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	870.125	5	230	18.91576	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	200	No
PAFB03-MW02	4.541	0.229342	0.540658	200	No
PAFB03-MW03	4.541	0.5	0.5	200	No
PAFB03-MW04	4.541	0.025586	0.178414	200	No
PAFB03-MW05	4.541	0.125762	0.169238	200	No
PAFB03-MW06	6.965	0.5	0.5	200	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for 1,1,1-Trichloroethane.
No sampling results for 1,1,1-Trichloroethane exceeded the regulatory standard.

1,1,2,2-Tetrachlor	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.25	0.25	0.25	0.25	0.25	--	
2	0.25	0.25	0.25	0.25	0.25	0.25	
3	0.25	0.25	0.25	0.25	0.25	0.25	
4	0.25	0.25	0.25	0.25	0.25	0.25	
Count	4	4	4	4	4	3	23
SUM	1	1	1	1	1	0.75	5.75
SUM(x2)	0.25	0.25	0.25	0.25	0.25	0.1875	1.4375
St.Dev.	0	0	0	0	0	0	0
Mean	0.25	0.25	0.25	0.25	0.25	0.25	0.25
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12

KW Rank for1,1,2,2-Tetrachloroethane Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

1,1,2,2-Tetrachloroethane is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.25	0.25	0.18	Yes
PAFB03-MW02	4.541	0.25	0.25	0.18	Yes
PAFB03-MW03	4.541	0.25	0.25	0.18	Yes
PAFB03-MW04	4.541	0.25	0.25	0.18	Yes
PAFB03-MW05	4.541	0.25	0.25	0.18	Yes
PAFB03-MW06	6.965	0.25	0.25	0.18	Yes

Since the lower limit of the mean is greater than the regulatory limit, there is statistically significant evidence of contamination by 1,1,2,2-Tetrachloroethane.
Please note that 23 sampling results exceeded the regulatory standard for 1,1,2,2-Tetrachloroethane.

1,1,2-Trichloroeth	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.5	--	
2	0.5	0.5	0.5	0.5	0.5	0.5	
3	0.5	0.5	0.5	0.5	0.26	0.5	
4	0.5	0.5	0.5	0.5	0.2	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	1.46	1.5	10.96
SUM(x2)	1	1	1	1	0.6076	0.75	5.3576
St.Dev.	0	0	0	0	0.157797	0	0.078312
Mean	0.5	0.5	0.5	0.5	0.365	0.5	0.476522
SS	0	0	0	0	0.0747	0	0.134922
Variance	0	0	0	0	0.0249	0	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.060222	5	0.012044	2.741016239	2.81
W/IN Wells	0.0747	17	0.004394		df 5,17
Total	0.134922	22			

Variance				
Max	0.0249	MaxVar	0.0249
Min	0	Min(nonZero)	0.0249
Variance	--	Variance	1

raw	rank
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.26	2
0.2	1
0.5	13
0.5	13
0.5	13

KW Rank for1,1,2-Trichloroethane Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	13	13	13	13	13	13	
Qtr 2	13	13	13	13	13	13	
Qtr 3	13	13	13	13	2	13	
Qtr 4	13	13	13	13	1		
n	4	4	4	4	4	3	23
SUM(xi)	52	52	52	52	29	39	276
SUM(xi2)	676	676	676	676	343	507	3554
StDev	0	0	0	0	6.652067	0	3.316625
CV	0	0	0	0	0.917527	0	0.276385
MEAN	13	13	13	13	7.25	13	12
SS	0	0	0	0	132.75	0	242

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	109.25	5	230	2.375	11.0705

Hcrit with 95% probability and 5 degrees of freedom

1,1,2-Trichloroethane is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (1) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results applicable.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	2.8	No
PAFB03-MW02	4.541	0.5	0.5	2.8	No
PAFB03-MW03	4.541	0.5	0.5	2.8	No
PAFB03-MW04	4.541	0.5	0.5	2.8	No
PAFB03-MW05	4.541	0.006721	0.723279	2.8	No
PAFB03-MW06	6.965	0.5	0.5	2.8	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for 1,1,2-Trichloroethane.
No sampling results for 1,1,2-Trichloroethane exceeded the regulatory standard.

1,1-Dichloroethan	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	1.2	--	
2	0.5	0.5	0.5	0.5	1.7	0.35	
3	0.5	0.5	0.5	0.5	3.9	0.47	
4	0.5	0.5	0.5	0.5	4.1	0.66	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	10.9	1.48	20.38
SUM(x2)	1	1	1	1	36.35	0.779	41.129
St.Dev.	0	0	0	0	1.488568	0.156312	1.024042
Mean	0.5	0.5	0.5	0.5	2.725	0.493333	0.886087
SS	0	0	0	0	6.6475	0.048867	23.07055
Variance	0	0	0	0	2.215833	0.024433	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	16.37418	5	3.274836	8.313794437	2.81
W/IN Wells	6.696367	17	0.393904		df 5,17
Total	23.07055	22			

Variance				
Max	2.215833	MaxVar	2.215833
Min	0	Min(nonZero)	0.024433
Variance	--	Variance	90.68895

raw	rank
0.5	10.5
0.5	10.5
0.5	10.5
0.5	10.5
0.5	10.5
0.5	10.5
0.5	10.5
0.5	10.5
0.5	10.5
0.5	10.5
0.5	10.5
0.5	10.5
0.5	10.5
0.5	10.5
0.5	10.5
0.5	10.5
0.5	10.5
0.5	10.5
1.2	20
1.7	21
3.9	22
4.1	23
0.35	1
0.47	2
0.66	19

KW Rank for1,1-Dichloroethane Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	10.5	10.5	10.5	10.5	20	2	
Qtr 2	10.5	10.5	10.5	10.5	21	19	
Qtr 3	10.5	10.5	10.5	10.5	22		
Qtr 4	10.5	10.5	10.5	10.5	23		
n	4	4	4	4	4	2	22
SUM(xi)	42	42	42	42	86	21	275
SUM(xi2)	441	441	441	441	1854	365	3983
StDev	0	0	0	0	1.290994	12.02082	5.096684
CV	0	0	0	0	0.060046	1.14484	0.407735
MEAN	10.5	10.5	10.5	10.5	21.5	10.5	12.5
SS	0	0	0	0	5	144.5	545.5

1,1-Dichloroethane is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (90.7) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,17 degrees of freedom; suggesting possible groundwater contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	396	5	210.8333	9.391304	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	61	No
PAFB03-MW02	4.541	0.5	0.5	61	No
PAFB03-MW03	4.541	0.5	0.5	61	No
PAFB03-MW04	4.541	0.5	0.5	61	No
PAFB03-MW05	4.541	-0.65479	6.104793	61	No
PAFB03-MW06	6.965	-0.13523	1.121901	61	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for 1,1-Dichloroethane.
No sampling results for 1,1-Dichloroethane exceeded the regulatory standard.

1,1-Dichloroethen	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.53	0.5	0.5	0.5	--	
2	0.5	0.9	0.5	0.5	0.5	0.5	
3	0.5	0.51	0.5	0.5	0.5	0.5	
4	0.5	0.88	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2.82	2	2	2	1.5	12.32
SUM(x2)	1	2.1254	1	1	1	0.75	6.8754
St.Dev.	0	0.213931	0	0	0	0	0.11204
Mean	0.5	0.705	0.5	0.5	0.5	0.5	0.535652
SS	0	0.1373	0	0	0	0	0.276165
Variance	0	0.045767	0	0	0	0	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.138865	5	0.027773	3.438759935	2.81
W/IN Wells	0.1373	17	0.008076		df 5,17
Total	0.276165	22			

Variance				
Max	0.045767	MaxVar	0.045767
Min	0	Min(nonZero)	0.045767
Variance	--	Variance	1

raw	rank
0.5	10
0.5	10
0.5	10
0.5	10
0.53	21
0.9	23
0.51	20
0.88	22
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10

KW Rank for1,1-Dichloroethene Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	10	21	10	10	10	10	
Qtr 2	10	23	10	10	10	10	
Qtr 3	10	20	10	10	10	10	
Qtr 4	10	22	10	10	10		
n	4	4	4	4	4	3	23
SUM(xi)	40	86	40	40	40	30	276
SUM(xi2)	400	1854	400	400	400	300	3754
StDev	0	1.290994	0	0	0	0	4.482288
CV	0	0.060046	0	0	0	0	0.373524
MEAN	10	21.5	10	10	10	10	12
SS	0	5	0	0	0	0	442

1,1-Dichloroethene is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (1) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results applicable.
From ANOVA: Calculated F exceeds Fcrit with 5,17 degrees of freedom; suggesting possible groundwater contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	437	5	230	9.5	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	7	No
PAFB03-MW02	4.541	0.219269	1.190731	7	No
PAFB03-MW03	4.541	0.5	0.5	7	No
PAFB03-MW04	4.541	0.5	0.5	7	No
PAFB03-MW05	4.541	0.5	0.5	7	No
PAFB03-MW06	6.965	0.5	0.5	7	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for 1,1-Dichloroethene.
No sampling results for 1,1-Dichloroethene exceeded the regulatory standard.

1,2,3-Trichloroprc	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.5	--	
2	0.5	0.5	0.5	0.5	0.5	0.5	
3	0.5	0.5	0.5	0.5	0.5	0.5	
4	0.5	0.5	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	2	1.5	11.5
SUM(x2)	1	1	1	1	1	0.75	5.75
St.Dev.	0	0	0	0	0	0	0
Mean	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12

KW Rank for1,2,3-Trichloropropane Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

1,2,3-Trichloropropane is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW LL	> Screen?
PAFB03-MW01	4.541	0.5	0.5	28	No
PAFB03-MW02	4.541	0.5	0.5	28	No
PAFB03-MW03	4.541	0.5	0.5	28	No
PAFB03-MW04	4.541	0.5	0.5	28	No
PAFB03-MW05	4.541	0.5	0.5	28	No
PAFB03-MW06	6.965	0.5	0.5	28	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for 1,2,3-Trichloropropane.
No sampling results for 1,2,3-Trichloropropane exceeded the regulatory standard.

1,2-Dibromo-3-ch	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	1	1	1	1	1	--	
2	1	1	1	1	1	1	
3	1	1	1	1	1	1	
4	1	1	1	1	1	1	
Count	4	4	4	4	4	3	23
SUM	4	4	4	4	4	3	23
SUM(x2)	4	4	4	4	4	3	23
St.Dev.	0	0	0	0	0	0	0
Mean	1	1	1	1	1	1	1
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12

KW Rank for1,2-Dibromo-3-chloropropane Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

1,2-Dibromo-3-chloropropane is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW LL	> Screen?
PAFB03-MW01	4.541	1	1	0.2	Yes
PAFB03-MW02	4.541	1	1	0.2	Yes
PAFB03-MW03	4.541	1	1	0.2	Yes
PAFB03-MW04	4.541	1	1	0.2	Yes
PAFB03-MW05	4.541	1	1	0.2	Yes
PAFB03-MW06	6.965	1	1	0.2	Yes

Since the lower limit of the mean is greater than the regulatory limit, there is statistically significant evidence of contamination by 1,2-Dibromo-3-chloropropane.
Please note that 23 sampling results exceeded the regulatory standard for 1,2-Dibromo-3-chloropropane.

1,2-Dibromoethar	PAFB03-	PAFB03-	PAFB03-	PAFB03-	PAFB03-	PAFB03-	Total
1	0.5	0.5	0.5	0.5	0.5	--	
2	0.5	0.5	0.5	0.5	0.5	0.5	
3	0.5	0.5	0.5	0.5	0.5	0.5	
4	0.5	0.5	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	2	1.5	11.5
SUM(x2)	1	1	1	1	1	0.75	5.75
St.Dev.	0	0	0	0	0	0	0
Mean	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND? Yes

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12

KW Rank for1,2-Dibromoethane (EDB) Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

1,2-Dibromoethane (EDB) is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	0.02	Yes
PAFB03-MW02	4.541	0.5	0.5	0.02	Yes
PAFB03-MW03	4.541	0.5	0.5	0.02	Yes
PAFB03-MW04	4.541	0.5	0.5	0.02	Yes
PAFB03-MW05	4.541	0.5	0.5	0.02	Yes
PAFB03-MW06	6.965	0.5	0.5	0.02	Yes

Since the lower limit of the mean is greater than the regulatory limit, there is statistically significant evidence of contamination by 1,2-Dibromoethane (EDB).
Please note that 23 sampling results exceeded the regulatory standard for 1,2-Dibromoethane (EDB).

1,2-Dichlorobenze	PAFB03-	PAFB03-	PAFB03-	PAFB03-	PAFB03-	PAFB03-	Total
1	0.5	0.5	0.5	0.5	0.5	--	
2	0.5	0.5	0.5	0.5	0.5	0.5	
3	0.5	0.5	0.5	0.5	0.5	0.5	
4	0.5	0.5	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	2	1.5	11.5
SUM(x2)	1	1	1	1	1	0.75	5.75
St.Dev.	0	0	0	0	0	0	0
Mean	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND? Yes

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12

KW Rank for1,2-Dichlorobenzene Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

1,2-Dichlorobenzene is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	600	No
PAFB03-MW02	4.541	0.5	0.5	600	No
PAFB03-MW03	4.541	0.5	0.5	600	No
PAFB03-MW04	4.541	0.5	0.5	600	No
PAFB03-MW05	4.541	0.5	0.5	600	No
PAFB03-MW06	6.965	0.5	0.5	600	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for 1,2-Dichlorobenzene.
No sampling results for 1,2-Dichlorobenzene exceeded the regulatory standard.

1,2-Dichloroethan	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.25	0.25	0.25	0.25	0.25	--	
2	0.25	0.25	0.25	0.25	0.25	0.25	
3	0.25	0.25	0.25	0.25	0.43	0.25	
4	0.25	0.25	0.25	0.25	0.25	0.25	
Count	4	4	4	4	4	3	23
SUM	1	1	1	1	1.18	0.75	5.93
SUM(x2)	0.25	0.25	0.25	0.25	0.3724	0.1875	1.5599
St.Dev.	0	0	0	0	0.09	0	0.037533
Mean	0.25	0.25	0.25	0.25	0.295	0.25	0.257826
SS	0	0	0	0	0.0243	0	0.030991
Variance	0	0	0	0	0.0081	0	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.006691	5	0.001338	0.936231884	2.81
W/IN Wells	0.0243	17	0.001429		df 5,17
Total	0.030991	22			

Variance				
	Max	0.0081	MaxVar	0.0081
	Min	0	Min(nonZero)	0.0081
	Variance	--	Variance	1

raw	rank
0.25	11.5
0.25	11.5
0.25	11.5
0.25	11.5
0.25	11.5
0.25	11.5
0.25	11.5
0.25	11.5
0.25	11.5
0.25	11.5
0.25	11.5
0.25	11.5
0.25	11.5
0.25	11.5
0.25	11.5
0.25	11.5
0.25	11.5
0.25	11.5
0.43	23
0.25	11.5
0.25	11.5
0.25	11.5
0.25	11.5

KW — Rank for1,2-Dichloroethane Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	11.5	11.5	11.5	11.5	11.5	11.5	
Qtr 2	11.5	11.5	11.5	11.5	11.5	11.5	
Qtr 3	11.5	11.5	11.5	11.5	23	11.5	
Qtr 4	11.5	11.5	11.5	11.5	11.5		
n	4	4	4	4	4	3	23
SUM(xi)	46	46	46	46	57.5	34.5	276
SUM(xi2)	529	529	529	529	925.75	396.75	3438.5
StDev	0	0	0	0	5.75	0	2.397916
CV	0	0	0	0	0.4	0	0.199826
MEAN	11.5	11.5	11.5	11.5	14.375	11.5	12
SS	0	0	0	0	99.1875	0	126.5

1,2-Dichloroethane is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (1) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results applicable.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	27.3125	5	230	0.59375	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.25	0.25	0.38	No
PAFB03-MW02	4.541	0.25	0.25	0.38	No
PAFB03-MW03	4.541	0.25	0.25	0.38	No
PAFB03-MW04	4.541	0.25	0.25	0.38	No
PAFB03-MW05	4.541	0.090655	0.499345	0.38	No
PAFB03-MW06	6.965	0.25	0.25	0.38	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for 1,2-Dichloroethane.
Please note that 1 sampling results exceeded the regulatory standard for 1,2-Dichloroethane.

1,2-Dichloropropa	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.77	--	
2	0.5	0.5	0.5	0.5	0.89	0.5	
3	0.5	0.5	0.5	0.5	2.3	0.5	
4	0.5	0.5	0.5	0.5	2.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	6.46	1.5	15.96
SUM(x2)	1	1	1	1	12.925	0.75	17.675
St.Dev.	0	0	0	0	0.911427	0	0.547729
Mean	0.5	0.5	0.5	0.5	1.615	0.5	0.693913
SS	0	0	0	0	2.4921	0	6.600148
Variance	0	0	0	0	0.8307	0	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	4.108048	5	0.82161	5.604655756	2.81
W/IN Wells	2.4921	17	0.146594		df 5,17
Total	6.600148	22			

Variance				
	Max	0.8307	MaxVar	0.8307
	Min	0	Min(nonZero)	0.8307
	Variance	--	Variance	1

raw	rank
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.77	20
0.89	21
2.3	22
2.5	23
0.5	10
0.5	10
0.5	10

KW — Rank for1,2-Dichloropropane Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	10	10	10	10	20	10	
Qtr 2	10	10	10	10	21	10	
Qtr 3	10	10	10	10	22	10	
Qtr 4	10	10	10	10	23		
n	4	4	4	4	4	3	23
SUM(xi)	40	40	40	40	86	30	276
SUM(xi2)	400	400	400	400	1854	300	3754
StDev	0	0	0	0	1.290994	0	4.482288
CV	0	0	0	0	0.060046	0	0.373524
MEAN	10	10	10	10	21.5	10	12
SS	0	0	0	0	5	0	442

1,2-Dichloropropane is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (1) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results applicable.
From ANOVA: Calculated F exceeds Fcrit with 5,17 degrees of freedom; suggesting possible groundwater contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	437	5	230	9.5	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	0.52	No
PAFB03-MW02	4.541	0.5	0.5	0.52	No
PAFB03-MW03	4.541	0.5	0.5	0.52	No
PAFB03-MW04	4.541	0.5	0.5	0.52	No
PAFB03-MW05	4.541	-0.4544	3.684396	0.52	No
PAFB03-MW06	6.965	0.5	0.5	0.52	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for 1,2-Dichloropropane.
Please note that 4 sampling results exceeded the regulatory standard for 1,2-Dichloropropane.

1,4-Dichlorobenze	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.25	0.25	0.25	0.25	0.25	--	
2	0.25	0.25	0.25	0.25	0.25	0.25	
3	0.25	0.25	0.25	0.25	0.14	0.25	
4	0.25	0.25	0.25	0.25	0.16	0.25	
Count	4	4	4	4	4	3	23
SUM	1	1	1	1	0.8	0.75	5.55
SUM(x2)	0.25	0.25	0.25	0.25	0.1702	0.1875	1.3577
St.Dev.	0	0	0	0	0.05831	0	0.028968
Mean	0.25	0.25	0.25	0.25	0.2	0.25	0.241304
SS	0	0	0	0	0.0102	0	0.018461
Variance	0	0	0	0	0.0034	0	

Analyte ND?
No

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.008261	5	0.001652	2.753623188	2.81
W/IN Wells	0.0102	17	0.0006		df 5,17
Total	0.018461	22			

Variance				
	Max	0.0034	MaxVar	0.0034
	Min	0	Min(nonZero)	0.0034
	Variance	--	Variance	1

raw	rank
0.25	13
0.25	13
0.25	13
0.25	13
0.25	13
0.25	13
0.25	13
0.25	13
0.25	13
0.25	13
0.25	13
0.25	13
0.25	13
0.25	13
0.25	13
0.25	13
0.25	13
0.25	13
0.14	1
0.16	2
0.25	13
0.25	13
0.25	13

KW Rank for1,4-Dichlorobenzene Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	13	13	13	13	13	13	
Qtr 2	13	13	13	13	13	13	
Qtr 3	13	13	13	13	1	13	
Qtr 4	13	13	13	13	2		
n	4	4	4	4	4	3	23
SUM(xi)	52	52	52	52	29	39	276
SUM(xi2)	676	676	676	676	343	507	3554
StDev	0	0	0	0	6.652067	0	3.316625
CV	0	0	0	0	0.917527	0	0.276385
MEAN	13	13	13	13	7.25	13	12
SS	0	0	0	0	132.75	0	242

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	109.25	5	230	2.375	11.0705

Hcrit with 95% probability and 5 degrees of freedom

1,4-Dichlorobenzene is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (1) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results applicable.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.25	0.25	75	No
PAFB03-MW02	4.541	0.25	0.25	75	No
PAFB03-MW03	4.541	0.25	0.25	75	No
PAFB03-MW04	4.541	0.25	0.25	75	No
PAFB03-MW05	4.541	0.067608	0.332392	75	No
PAFB03-MW06	6.965	0.25	0.25	75	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for 1,4-Dichlorobenzene.
No sampling results for 1,4-Dichlorobenzene exceeded the regulatory standard.

2-Butanone (MEK	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	5	5	5	5	5	--	
2	5	5	5	5	5	5	
3	5	5	5	5	5	5	
4	5	5	5	5	5	5	
Count	4	4	4	4	4	3	23
SUM	20	20	20	20	20	15	115
SUM(x2)	100	100	100	100	100	75	575
St.Dev.	0	0	0	0	0	0	0
Mean	5	5	5	5	5	5	5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
	Max	0	MaxVar	0
	Min	0	Min(nonZero)	0
	Variance	--	Variance	--

raw	rank
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12

KW Rank for2-Butanone (MEK) Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

2-Butanone (MEK) is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	5	5	4200	No
PAFB03-MW02	4.541	5	5	4200	No
PAFB03-MW03	4.541	5	5	4200	No
PAFB03-MW04	4.541	5	5	4200	No
PAFB03-MW05	4.541	5	5	4200	No
PAFB03-MW06	6.965	5	5	4200	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for 2-Butanone (MEK).
No sampling results for 2-Butanone (MEK) exceeded the regulatory standard.

2-Hexanone	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	2.5	2.5	2.5	2.5	2.5	--	
2	2.5	2.5	2.5	2.5	2.5	2.5	
3	2.5	2.5	2.5	2.5	2.5	2.5	
4	2.5	2.5	2.5	2.5	2.5	2.5	
Count	4	4	4	4	4	3	23
SUM	10	10	10	10	10	7.5	57.5
SUM(x2)	25	25	25	25	25	18.75	143.75
St.Dev.	0	0	0	0	0	0	0
Mean	2.5	2.5	2.5	2.5	2.5	2.5	2.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12
2.5	12

KW Rank for2-Hexanone Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

2-Hexanone is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW LL	> Screen?
PAFB03-MW01	4.541	2.5	2.5	35	No
PAFB03-MW02	4.541	2.5	2.5	35	No
PAFB03-MW03	4.541	2.5	2.5	35	No
PAFB03-MW04	4.541	2.5	2.5	35	No
PAFB03-MW05	4.541	2.5	2.5	35	No
PAFB03-MW06	6.965	2.5	2.5	35	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for 2-Hexanone.
No sampling results for 2-Hexanone exceeded the regulatory standard.

4-Methyl-2-penta	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	5	5	5	5	5	--	
2	5	5	5	5	5	5	
3	5	5	5	5	5	5	
4	5	5	5	5	5	5	
Count	4	4	4	4	4	3	23
SUM	20	20	20	20	20	15	115
SUM(x2)	100	100	100	100	100	75	575
St.Dev.	0	0	0	0	0	0	0
Mean	5	5	5	5	5	5	5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12
5	12

KW Rank for4-Methyl-2-pentanone (MIBK) Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

4-Methyl-2-pentanone (MIBK) is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW LL	> Screen?
PAFB03-MW01	4.541	5	5	560	No
PAFB03-MW02	4.541	5	5	560	No
PAFB03-MW03	4.541	5	5	560	No
PAFB03-MW04	4.541	5	5	560	No
PAFB03-MW05	4.541	5	5	560	No
PAFB03-MW06	6.965	5	5	560	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for 4-Methyl-2-pentanone (MIBK).
No sampling results for 4-Methyl-2-pentanone (MIBK) exceeded the regulatory standard.

Acetone	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	5	5	5	5	5	--	
2	5	5	5	5	28	5	
3	5	5	5	5	5	9.6	
4	5	5	5	5	5	61	
Count	4	4	4	4	4	3	23
SUM	20	20	20	20	43	75.6	198.6
SUM(x2)	100	100	100	100	859	3838.16	5097.16
St.Dev.	0	0	0	0	11.5	31.0889	12.39922
Mean	5	5	5	5	10.75	25.2	8.634783
SS	0	0	0	0	396.75	1933.04	3382.292
Variance	0	0	0	0	132.25	966.52	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	1052.502	5	210.5004	1.535978518	2.81
W/IN Wells	2329.79	17	137.0465		df 5,17
Total	3382.292	22			

Variance				
Max	966.52	MaxVar	966.52
Min	0	Min(nonZero)	132.25
Variance	--	Variance	7.30828

raw	rank
5	10.5
5	10.5
5	10.5
5	10.5
5	10.5
5	10.5
5	10.5
5	10.5
5	10.5
5	10.5
5	10.5
5	10.5
5	10.5
5	10.5
5	10.5
5	10.5
5	10.5
28	22
5	10.5
5	10.5
5	10.5
9.6	21
61	23

KW — Rank forAcetone Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	10.5	10.5	10.5	10.5	10.5	10.5	
Qtr 2	10.5	10.5	10.5	10.5	22	21	
Qtr 3	10.5	10.5	10.5	10.5	10.5	23	
Qtr 4	10.5	10.5	10.5	10.5	10.5		
n	4	4	4	4	4	3	23
SUM(xi)	42	42	42	42	53.5	54.5	276
SUM(xi2)	441	441	441	441	814.75	1080.25	3659
StDev	0	0	0	0	5.75	6.714412	3.971489
CV	0	0	0	0	0.429907	0.369601	0.330957
MEAN	10.5	10.5	10.5	10.5	13.375	18.16667	12
SS	0	0	0	0	99.1875	90.16667	347

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	157.6458	5	230	3.427083	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Acetone is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (7.3) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	5	5	6300	No
PAFB03-MW02	4.541	5	5	6300	No
PAFB03-MW03	4.541	5	5	6300	No
PAFB03-MW04	4.541	5	5	6300	No
PAFB03-MW05	4.541	-15.3608	36.86075	6300	No
PAFB03-MW06	6.965	-99.8161	150.2161	6300	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Acetone.
No sampling results for Acetone exceeded the regulatory standard.

Acrylonitrile	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	10	10	10	10	10	--	
2	10	10	10	10	10	10	
3	10	10	10	10	10	10	
4	10	10	10	10	10	10	
Count	4	4	4	4	4	3	23
SUM	40	40	40	40	40	30	230
SUM(x2)	400	400	400	400	400	300	2300
St.Dev.	0	0	0	0	0	0	0
Mean	10	10	10	10	10	10	10
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
10	12
10	12
10	12
10	12
10	12
10	12
10	12
10	12
10	12
10	12
10	12
10	12
10	12
10	12
10	12
10	12
10	12
10	12
10	12
10	12
10	12
10	12
10	12

KW — Rank forAcrylonitrile Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Acrylonitrile is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	10	10	--	No
PAFB03-MW02	4.541	10	10	--	No
PAFB03-MW03	4.541	10	10	--	No
PAFB03-MW04	4.541	10	10	--	No
PAFB03-MW05	4.541	10	10	--	No
PAFB03-MW06	6.965	10	10	--	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Acrylonitrile.
No regulatory groundwater standard for Acrylonitrile.

ALKB	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	210	210	400	270	310	--	
2	210	220	520	290	330	--	
3	210	220	570	300	460	400	
4	1100	54	560	350	460	450	
Count	4	4	4	4	4	2	22
SUM	1730	704	2050	1210	1560	850	8104
SUM(x2)	1342300	143816	1068900	369500	628200	362500	3915216
St.Dev.	445	81.46983	78.04913	34.0343	81.24038	35.35534	210.4414
Mean	432.5	176	512.5	302.5	390	425	368.3636
SS	594075	19912	18275	3475	19800	1250	929997.1
Variance	198025	6637.333	6091.667	1158.333	6600	1250	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	273210.1	5	54642.02	1.331135194	2.8524
W/IN Wells	656787	16	41049.19		df 5,16
Total	929997.1	21			

Variance				
Max	198025	MaxVar	198025
Min	1158.333	Min(nonZero)	1158.333
Variance	170.9568	Variance	170.9568

raw	rank
210	3.5
210	3.5
210	3.5
1100	22
210	3.5
220	6.5
220	6.5
54	1
400	14.5
520	19
570	21
560	20
270	8
290	9
300	10
350	13
310	11
330	12
460	17.5
460	17.5
400	14.5
450	16

KW — Rank forALKB Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	3.5	3.5	14.5	8	11	14.5	
Qtr 2	3.5	6.5	19	9	12	16	
Qtr 3	3.5	6.5	21	10	17.5		
Qtr 4	22	1	20	13	17.5		
n	4	4	4	4	4	2	22
SUM(xi)	32.5	17.5	74.5	40	58	30.5	253
SUM(xi2)	520.75	97.75	1412.25	414	877.5	466.25	3788.5
StDev	9.25	2.657536	2.868652	2.160247	3.488075	1.06066	6.46971
CV	1.138462	0.607437	0.154022	0.216025	0.240557	0.069551	0.562583
MEAN	8.125	4.375	18.625	10	14.5	15.25	11.5
SS	256.6875	21.1875	24.6875	14	36.5	1.125	879

ALKB is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (171) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Calculated H exceeds 95% probable Hcrit with 5 degrees of freedom; suggesting possible groundwater contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	524.8125	5	210.8333	12.44615	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-577.873	1442.873	--	No
PAFB03-MW02	4.541	-8.97725	360.9773	--	No
PAFB03-MW03	4.541	335.2895	689.7105	--	No
PAFB03-MW04	4.541	225.2251	379.7749	--	No
PAFB03-MW05	4.541	205.5437	574.4563	--	No
PAFB03-MW06	31.82	-370.5	1220.5	--	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for ALKB.

Antimony	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.16	0.2	0.52	0.37	0.27	--	
2	0.15	0.17	0.34	0.24	0.13	--	
3	0.092	0.28	0.33	0.15	0.093	0.76	
4	0.5	0.5	0.5	0.5	0.5	0.94	
Count	4	4	4	4	4	2	22
SUM	0.902	1.15	1.69	1.26	0.993	1.7	7.695
SUM(x2)	0.306564	0.3973	0.7449	0.467	0.348449	1.4612	3.725413
St.Dev.	0.185439	0.149081	0.101448	0.152862	0.184334	0.127279	0.221887
Mean	0.2255	0.2875	0.4225	0.315	0.24825	0.85	0.349773
SS	0.103163	0.066675	0.030875	0.0701	0.101937	0.0162	1.033912
Variance	0.034388	0.022225	0.010292	0.023367	0.033979	0.0162	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.644962	5	0.128992	5.306286387	2.8524
W/IN Wells	0.38895	16	0.024309		df 5,16
Total	1.033912	21			

Variance				
Max	0.034388	MaxVar	0.034388
Min	0.010292	Min(nonZero)	0.010292
Variance	3.341312	Variance	3.341312

raw	rank
0.16	6
0.15	4.5
0.092	1
0.5	17
0.2	8
0.17	7
0.28	11
0.5	17
0.52	20
0.34	13
0.33	12
0.5	17
0.37	14
0.24	9
0.15	4.5
0.5	17
0.27	10
0.13	3
0.093	2
0.5	17
0.76	21
0.94	22

KW — Rank forAntimony Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	6	8	20	14	10	21	
Qtr 2	4.5	7	13	9	3	22	
Qtr 3	1	11	12	4.5	2		
Qtr 4	17	17	17	17	17		
n	4	4	4	4	4	2	22
SUM(xi)	28.5	43	62	44.5	32	43	253
SUM(xi2)	346.25	523	1002	586.25	402	925	3784.5
StDev	6.90863	4.5	3.696846	5.513242	6.97615	0.707107	6.454972
CV	0.969632	0.418605	0.238506	0.495572	0.872019	0.032889	0.561302
MEAN	7.125	10.75	15.5	11.125	8	21.5	11.5
SS	143.1875	60.75	41	91.1875	146	0.5	875

Antimony is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (3.3) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,16 degrees of freedom; suggesting possible groundwater contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	392.375	5	210.8333	9.305336	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-0.19554	0.64654	6	No
PAFB03-MW02	4.541	-0.05099	0.625987	6	No
PAFB03-MW03	4.541	0.192163	0.652837	6	No
PAFB03-MW04	4.541	-0.03207	0.662072	6	No
PAFB03-MW05	4.541	-0.17028	0.66678	6	No
PAFB03-MW06	31.82	-2.0138	3.7138	6	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Antimony.
No sampling results for Antimony exceeded the regulatory standard.

Antimony-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.21	0.39	0.54	0.31	0.25	--	
2	0.15	0.24	0.35	0.18	0.21	--	
3	0.25	0.49	0.35	0.27	0.3	0.63	
4	0.48	0.2	0.42	0.5	0.25	0.64	
Count	4	4	4	4	4	2	22
SUM	1.09	1.32	1.66	1.26	1.01	1.27	7.61
SUM(x2)	0.3595	0.4898	0.713	0.4514	0.2591	0.8065	3.0793
St.Dev.	0.144309	0.134412	0.089629	0.134784	0.036856	0.007071	0.145885
Mean	0.2725	0.33	0.415	0.315	0.2525	0.635	0.345909
SS	0.062475	0.0542	0.0241	0.0545	0.004075	5E-05	0.446932
Variance	0.020825	0.018067	0.008033	0.018167	0.001358	5E-05	

Analyte ND?
No

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.247532	5	0.049506	3.97242637	2.8524
W/IN Wells	0.1994	16	0.012463		df 5,16
Total	0.446932	21			

Variance				
Max	0.020825	MaxVar	0.020825
Min	5E-05	Min(nonZero)	5E-05
Variance	416.5	Variance	416.5

raw	rank
0.21	4.5
0.15	1
0.25	8
0.48	17
0.39	15
0.24	6
0.49	18
0.2	3
0.54	20
0.35	13.5
0.35	13.5
0.42	16
0.31	12
0.18	2
0.27	10
0.5	19
0.25	8
0.21	4.5
0.3	11
0.25	8
0.63	21
0.64	22

KW Rank forAntimony-Total Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	4.5	15	20	12	8	21	
Qtr 2	1	6	13.5	2	4.5	22	
Qtr 3	8	18	13.5	10	11		
Qtr 4	17	3	16	19	8		
n	4	4	4	4	4	2	22
SUM(xi)	30.5	42	63	43	31.5	43	253
SUM(xi2)	374.25	594	1020.5	609	269.25	925	3792
StDev	6.872348	7.141428	3.068659	6.994045	2.657536	0.707107	6.482577
CV	0.901292	0.680136	0.194835	0.650609	0.337465	0.032889	0.563702
MEAN	7.625	10.5	15.75	10.75	7.875	21.5	11.5
SS	141.6875	153	28.25	146.75	21.1875	0.5	882.5

Antimony-Total is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (416.5) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,16 degrees of freedom; suggesting possible groundwater contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	391.125	5	210.8333	9.275692	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-0.05515	0.600153	6	No
PAFB03-MW02	4.541	0.024817	0.635183	6	No
PAFB03-MW03	4.541	0.211498	0.618502	6	No
PAFB03-MW04	4.541	0.008973	0.621027	6	No
PAFB03-MW05	4.541	0.168819	0.336181	6	No
PAFB03-MW06	31.82	0.4759	0.7941	6	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Antimony-Total.
No sampling results for Antimony-Total exceeded the regulatory standard.

Arsenic	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	15	15	15	15	15	--	
2	15	15	15	15	15	--	
3	15	15	15	15	15	15	
4	15	15	15	15	15	15	
Count	4	4	4	4	4	2	22
SUM	60	60	60	60	60	30	330
SUM(x2)	900	900	900	900	900	450	4950
St.Dev.	0	0	0	0	0	0	0
Mean	15	15	15	15	15	15	15
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.8524
W/IN Wells	0	16	0		df 5,16
Total	0	21			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
15	11.5
15	11.5
15	11.5
15	11.5
15	11.5
15	11.5
15	11.5
15	11.5
15	11.5
15	11.5
15	11.5
15	11.5
15	11.5
15	11.5
15	11.5
15	11.5
15	11.5
15	11.5
15	11.5
15	11.5
15	11.5
15	11.5

KW Rank forArsenic Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	11.5	11.5	11.5	11.5	11.5	11.5	
Qtr 2	11.5	11.5	11.5	11.5	11.5	11.5	
Qtr 3	11.5	11.5	11.5	11.5	11.5		
Qtr 4	11.5	11.5	11.5	11.5	11.5		
n	4	4	4	4	4	2	22
SUM(xi)	46	46	46	46	46	23	253
SUM(xi2)	529	529	529	529	529	264.5	2909.5
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	11.5	11.5	11.5	11.5	11.5	11.5	11.5
SS	0	0	0	0	0	0	0

Arsenic is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	210.8333	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	15	15	10	Yes
PAFB03-MW02	4.541	15	15	10	Yes
PAFB03-MW03	4.541	15	15	10	Yes
PAFB03-MW04	4.541	15	15	10	Yes
PAFB03-MW05	4.541	15	15	10	Yes
PAFB03-MW06	31.82	15	15	10	Yes

Since the lower limit of the mean is greater than the regulatory limit, there is statistically significant evidence of contamination by Arsenic.
Please note that 22 sampling results exceeded the regulatory standard for Arsenic.

Arsenic-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	15	17	8.8	8.2	64	--	
2	12	5.7	15	15	11	--	
3	12	15	23	7.5	6.1	9.3	
4	16	9.2	15	7.1	16	16	
Count	4	4	4	4	4	2	22
SUM	55	46.9	61.8	37.8	97.1	25.3	323.9
SUM(x2)	769	631.13	1056.44	398.9	4510.21	342.49	7708.17
St.Dev.	2.061553	5.203444	5.820367	3.727823	26.78997	4.737615	11.83111
Mean	13.75	11.725	15.45	9.45	24.275	12.65	14.72273
SS	12.75	81.2275	101.63	41.69	2153.108	22.445	2939.479
Variance	4.25	27.07583	33.87667	13.89667	717.7025	22.445	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	526.6286	5	105.3257	0.698431994	2.8524
W/IN Wells	2412.85	16	150.8031		df 5,16
Total	2939.479	21			

Variance				
Max	717.7025	MaxVar	717.7025
Min	4.25	Min(nonZero)	4.25
Variance	168.8712	Variance	168.8712

raw	rank
15	14
12	10.5
12	10.5
16	18
17	20
5.7	1
15	14
9.2	7
8.8	6
15	14
23	21
15	14
8.2	5
15	14
7.5	4
7.1	3
64	22
11	9
6.1	2
16	18
9.3	8
16	18

KW	Rank forArsenic-Total Concentration						
WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	14	20	6	5	22	8	
Qtr 2	10.5	1	14	14	9	18	
Qtr 3	10.5	14	21	4	2		
Qtr 4	18	7	14	3	18		
n	4	4	4	4	4	2	22
SUM(xi)	53	42	55	26	51	26	253
SUM(xi2)	740.5	646	869	246	893	388	3782.5
StDev	3.570714	8.266398	6.130525	5.066228	8.995369	7.071068	6.447591
CV	0.269488	0.787276	0.445856	0.77942	0.705519	0.543928	0.56066
MEAN	13.25	10.5	13.75	6.5	12.75	13	11.5
SS	38.25	205	112.75	77	242.75	50	873

Arsenic-Total is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (168.9) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	147.25	5	210.8333	3.492095	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	9.069244	18.43076	10	No
PAFB03-MW02	4.541	-0.08942	23.53942	10	No
PAFB03-MW03	4.541	2.234858	28.66514	10	No
PAFB03-MW04	4.541	0.985977	17.91402	10	No
PAFB03-MW05	4.541	-36.5516	85.10163	10	No
PAFB03-MW06	31.82	-93.947	119.247	10	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Arsenic-Total.
Please note that 14 sampling results exceeded the regulatory standard for Arsenic-Total.

Barium	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	110	82	73	81	220	--	
2	98	19	78	77	100	--	
3	61	18	96	91	130	41	
4	61	21	99	100	140	51	
Count	4	4	4	4	4	2	22
SUM	330	140	346	349	590	92	1847
SUM(x2)	29146	7850	30430	30771	94900	4282	197379
St.Dev.	25.30481	31.35815	12.92285	10.34005	51.23475	7.071068	44.88873
Mean	82.5	35	86.5	87.25	147.5	46	83.95455
SS	1921	2950	501	320.75	7875	50	42314.95
Variance	640.3333	983.3333	167	106.9167	2625	50	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	28697.2	5	5739.441	6.743482187	2.8524
W/IN Wells	13617.75	16	851.1094		df 5,16
Total	42314.95	21			

Variance				
Max	2625	MaxVar	2625
Min	50	Min(nonZero)	50
Variance	52.5	Variance	52.5

raw	rank
110	19
98	15
61	6.5
61	6.5
82	12
19	2
18	1
21	3
73	8
78	10
96	14
99	16
81	11
77	9
91	13
100	17.5
220	22
100	17.5
130	20
140	21
41	4
51	5

KW	Rank forBarium Concentration						
WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	19	12	8	11	22	4	
Qtr 2	15	2	10	9	17.5	5	
Qtr 3	6.5	1	14	13	20		
Qtr 4	6.5	3	16	17.5	21		
n	4	4	4	4	4	2	22
SUM(xi)	47	18	48	50.5	80.5	9	253
SUM(xi2)	670.5	158	616	677.25	1631.25	41	3794
StDev	6.278269	5.066228	3.651484	3.637192	1.931105	0.707107	6.489919
CV	0.534321	1.125828	0.30429	0.288094	0.095956	0.157135	0.564341
MEAN	11.75	4.5	12	12.625	20.125	4.5	11.5
SS	118.25	77	40	39.6875	11.1875	0.5	884.5

Barium is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (52.5) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,16 degrees of freedom; suggesting possible groundwater contamination.
From KW: Calculated H exceeds 95% probable Hcrit with 5 degrees of freedom; suggesting possible groundwater contamination.

Kruskal-Wallis	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	597.875	5	210.8333	14.17885	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	25.04543	139.9546	2000	No
PAFB03-MW02	4.541	-36.1987	106.1987	2000	No
PAFB03-MW03	4.541	57.15867	115.8413	2000	No
PAFB03-MW04	4.541	63.77291	110.7271	2000	No
PAFB03-MW05	4.541	31.17149	263.8285	2000	No
PAFB03-MW06	31.82	-113.1	205.1	2000	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Barium.
No sampling results for Barium exceeded the regulatory standard.

Barium-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	140	210	130	310	1300	--	
2	350	96	130	220	290	--	
3	310	93	550	320	290	280	
4	350	220	160	210	360	280	
Count	4	4	4	4	4	2	22
SUM	1150	619	970	1060	2240	560	6599
SUM(x2)	360700	110365	361900	291000	1987800	156800	3268565
St.Dev.	100.1249	69.70115	205.4872	58.02298	494.4357	0	247.7676
Mean	287.5	154.75	242.5	265	560	280	299.9545
SS	30075	14574.75	126675	10100	733400	0	1289165
Variance	10025	4858.25	42225	3366.667	244466.7	0	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	374340.2	5	74868.04	1.309418722	2.8524
W/IN Wells	914824.8	16	57176.55		df 5,16
Total	1289165	21			

Variance				
	Max	244466.7	MaxVar	244466.7
	Min	0	Min(nonZero)	3366.667
	Variance	--	Variance	72.61386

raw	rank
140	5
350	18.5
310	15.5
350	18.5
210	7.5
96	2
93	1
220	9.5
130	3.5
130	3.5
550	21
160	6
310	15.5
220	9.5
320	17
210	7.5
1300	22
290	13.5
290	13.5
360	20
280	11.5
280	11.5

KW Rank forBarium-Total Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	5	7.5	3.5	15.5	22	11.5	
Qtr 2	18.5	2	3.5	9.5	13.5	11.5	
Qtr 3	15.5	1	21	17	13.5		
Qtr 4	18.5	9.5	6	7.5	20		
n	4	4	4	4	4	2	22
SUM(xi)	57.5	20	34	49.5	69	23	253
SUM(xi2)	949.75	151.5	501.5	675.75	1248.5	264.5	3791.5
StDev	6.408003	4.143268	8.416254	4.58939	4.406435	0	6.480741
CV	0.445774	0.828654	0.990148	0.37086	0.255445	0	0.563543
MEAN	14.375	5	8.5	12.375	17.25	11.5	11.5
SS	123.1875	51.5	212.5	63.1875	58.25	0	882

Barium-Total is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (72.6) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	373.375	5	210.8333	8.854743	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	60.16636	514.8336	2000	No
PAFB03-MW02	4.541	-3.50646	313.0065	2000	No
PAFB03-MW03	4.541	-224.059	709.0587	2000	No
PAFB03-MW04	4.541	133.2588	396.7412	2000	No
PAFB03-MW05	4.541	-562.616	1682.616	2000	No
PAFB03-MW06	31.82	280	280	2000	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Barium-Total.
No sampling results for Barium-Total exceeded the regulatory standard.

Benzene	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.2	0.2	0.2	0.2	0.2	--	
2	0.2	0.2	0.2	0.2	0.2	0.2	
3	0.2	0.2	0.2	0.2	0.2	0.2	
4	0.2	0.2	0.2	0.2	0.2	0.2	
Count	4	4	4	4	4	3	23
SUM	0.8	0.8	0.8	0.8	0.8	0.6	4.6
SUM(x2)	0.16	0.16	0.16	0.16	0.16	0.12	0.92
St.Dev.	0	0	0	0	0	0	0
Mean	0.2	0.2	0.2	0.2	0.2	0.2	0.2
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
	Max	0	MaxVar	0
	Min	0	Min(nonZero)	0
	Variance	--	Variance	--

raw	rank
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12
0.2	12

KW Rank forBenzene Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Benzene is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.2	0.2	5	No
PAFB03-MW02	4.541	0.2	0.2	5	No
PAFB03-MW03	4.541	0.2	0.2	5	No
PAFB03-MW04	4.541	0.2	0.2	5	No
PAFB03-MW05	4.541	0.2	0.2	5	No
PAFB03-MW06	6.965	0.2	0.2	5	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Benzene.
No sampling results for Benzene exceeded the regulatory standard.

Beryllium	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	2	2	2	2	1.1	--	
2	2	2	2	2	2	--	
3	2	2	2	2	2	2	
4	2	2	2	2	2	2	
Count	4	4	4	4	4	2	22
SUM	8	8	8	8	7.1	4	43.1
SUM(x2)	16	16	16	16	13.21	8	85.21
St.Dev.	0	0	0	0	0.45	0	0.191881
Mean	2	2	2	2	1.775	2	1.959091
SS	0	0	0	0	0.6075	0	0.773182
Variance	0	0	0	0	0.2025	0	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.165682	5	0.033136	0.872727273	2.8524
W/IN Wells	0.6075	16	0.037969		df 5,16
Total	0.773182	21			

Variance				
Max	0.2025	MaxVar	0.2025
Min	0	Min(nonZero)	0.2025
Variance	--	Variance	1

raw	rank
2	12
2	12
2	12
2	12
2	12
2	12
2	12
2	12
2	12
2	12
2	12
2	12
2	12
2	12
2	12
2	12
2	12
2	12
2	12
2	12
2	12
1.1	1
2	12
2	12
2	12
2	12
2	12

KW — Rank forBeryllium Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	1	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12		
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	2	22
SUM(xi)	48	48	48	48	37	24	253
SUM(xi2)	576	576	576	576	433	288	3025
StDev	0	0	0	0	5.5	0	2.345208
CV	0	0	0	0	0.594595	0	0.203931
MEAN	12	12	12	12	9.25	12	11.5
SS	0	0	0	0	90.75	0	115.5

Beryllium is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (1) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results applicable.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	24.75	5	210.8333	0.586957	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	2	2	4	No
PAFB03-MW02	4.541	2	2	4	No
PAFB03-MW03	4.541	2	2	4	No
PAFB03-MW04	4.541	2	2	4	No
PAFB03-MW05	4.541	0.753275	2.796725	4	No
PAFB03-MW06	31.82	2	2	4	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Beryllium.
No sampling results for Beryllium exceeded the regulatory standard.

Beryllium-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	2	1.6	2	1.4	9.4	--	
2	1.8	0.57	2	0.72	1.6	--	
3	1.6	0.47	2.6	1.6	1.3	1.1	
4	1.9	1.3	2	0.63	1.7	0.94	
Count	4	4	4	4	4	2	22
SUM	7.3	3.94	8.6	4.35	14	2.04	40.23
SUM(x2)	13.41	4.7958	18.76	5.4353	95.5	2.0936	139.9947
St.Dev.	0.170783	0.552238	0.3	0.484656	3.937004	0.113137	1.778558
Mean	1.825	0.985	2.15	1.0875	3.5	1.02	1.828636
SS	0.0875	0.9149	0.27	0.704675	46.5	0.0128	66.42866
Variance	0.029167	0.304967	0.09	0.234892	15.5	0.0128	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	17.93878	5	3.587757	1.183837019	2.8524
W/IN Wells	48.48988	16	3.030617		df 5,16
Total	66.42866	21			

Variance				
Max	15.5	MaxVar	15.5
Min	0.0128	Min(nonZero)	0.0128
Variance	1210.937	Variance	1210.937

raw	rank
2	18.5
1.8	15
1.6	11.5
1.9	16
1.6	11.5
0.57	2
0.47	1
1.3	7.5
2	18.5
2	18.5
2.6	21
2	18.5
1.4	9
0.72	4
1.6	11.5
0.63	3
9.4	22
1.6	11.5
1.3	7.5
1.7	14
1.1	6
0.94	5

KW — Rank forBeryllium-Total Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	18.5	11.5	18.5	9	22	6	
Qtr 2	15	2	18.5	4	11.5	5	
Qtr 3	11.5	1	21	11.5	7.5		
Qtr 4	16	7.5	18.5	3	14		
n	4	4	4	4	4	2	22
SUM(xi)	61	22	76.5	27.5	55	11	253
SUM(xi2)	955.5	193.5	1467.75	238.25	868.5	61	3784.5
StDev	2.901149	4.91596	1.25	4.049177	6.116916	0.707107	6.454972
CV	0.190239	0.893811	0.065359	0.588971	0.444867	0.128565	0.561302
MEAN	15.25	5.5	19.125	6.875	13.75	5.5	11.5
SS	25.25	72.5	4.6875	49.1875	112.25	0.5	875

Beryllium-Total is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (1210.9) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Calculated H exceeds 95% probable Hcrit with 5 degrees of freedom; suggesting possible groundwater contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	610.625	5	210.8333	14.48123	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	1.437238	2.212762	4	No
PAFB03-MW02	4.541	-0.26886	2.238856	4	No
PAFB03-MW03	4.541	1.46885	2.83115	4	No
PAFB03-MW04	4.541	-0.01291	2.187912	4	No
PAFB03-MW05	4.541	-5.43897	12.43897	4	No
PAFB03-MW06	31.82	-1.5256	3.5656	4	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Beryllium-Total.
Please note that 1 sampling results exceeded the regulatory standard for Beryllium-Total.

Bromochloromethe	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.5	--	
2	0.5	0.5	0.5	0.5	0.5	0.5	
3	0.5	0.5	0.5	0.5	0.5	0.5	
4	0.5	0.5	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	2	1.5	11.5
SUM(x2)	1	1	1	1	1	0.75	5.75
St.Dev.	0	0	0	0	0	0	0
Mean	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12

KW Rank forBromochloromethane Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Bromochloromethane is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	--	No
PAFB03-MW02	4.541	0.5	0.5	--	No
PAFB03-MW03	4.541	0.5	0.5	--	No
PAFB03-MW04	4.541	0.5	0.5	--	No
PAFB03-MW05	4.541	0.5	0.5	--	No
PAFB03-MW06	6.965	0.5	0.5	--	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Bromochloromethane.
No regulatory groundwater standard for Bromochloromethane.

Bromodichlorome	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.25	0.25	0.25	0.25	0.25	--	
2	0.25	0.25	0.25	0.25	0.25	0.25	
3	0.25	0.25	0.25	0.25	0.25	0.25	
4	0.25	0.25	0.25	0.25	0.25	0.25	
Count	4	4	4	4	4	3	23
SUM	1	1	1	1	1	0.75	5.75
SUM(x2)	0.25	0.25	0.25	0.25	0.25	0.1875	1.4375
St.Dev.	0	0	0	0	0	0	0
Mean	0.25	0.25	0.25	0.25	0.25	0.25	0.25
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12

KW Rank forBromodichloromethane Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Bromodichloromethane is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.25	0.25	0.56	No
PAFB03-MW02	4.541	0.25	0.25	0.56	No
PAFB03-MW03	4.541	0.25	0.25	0.56	No
PAFB03-MW04	4.541	0.25	0.25	0.56	No
PAFB03-MW05	4.541	0.25	0.25	0.56	No
PAFB03-MW06	6.965	0.25	0.25	0.56	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Bromodichloromethane.
No sampling results for Bromodichloromethane exceeded the regulatory standard.

Bromoform	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.5	--	
2	0.5	0.5	0.5	0.5	0.5	0.5	
3	0.5	0.5	0.5	0.5	0.5	0.5	
4	0.5	0.5	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	2	1.5	11.5
SUM(x2)	1	1	1	1	1	0.75	5.75
St.Dev.	0	0	0	0	0	0	0
Mean	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12

KW Rank forBromoform Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Bromoform is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	4	No
PAFB03-MW02	4.541	0.5	0.5	4	No
PAFB03-MW03	4.541	0.5	0.5	4	No
PAFB03-MW04	4.541	0.5	0.5	4	No
PAFB03-MW05	4.541	0.5	0.5	4	No
PAFB03-MW06	6.965	0.5	0.5	4	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Bromoform.
No sampling results for Bromoform exceeded the regulatory standard.

Bromomethane	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	1.5	1.5	1.5	1.5	1.5	--	
2	1.5	1.5	1.5	1.5	1.5	1.5	
3	1.5	1.5	1.5	1.5	1.5	1.5	
4	1.5	1.5	1.5	1.5	1.5	1.5	
Count	4	4	4	4	4	3	23
SUM	6	6	6	6	6	4.5	34.5
SUM(x2)	9	9	9	9	9	6.75	51.75
St.Dev.	0	0	0	0	0	0	0
Mean	1.5	1.5	1.5	1.5	1.5	1.5	1.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12

KW Rank forBromomethane Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Bromomethane is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	1.5	1.5	10	No
PAFB03-MW02	4.541	1.5	1.5	10	No
PAFB03-MW03	4.541	1.5	1.5	10	No
PAFB03-MW04	4.541	1.5	1.5	10	No
PAFB03-MW05	4.541	1.5	1.5	10	No
PAFB03-MW06	6.965	1.5	1.5	10	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Bromomethane.
No sampling results for Bromomethane exceeded the regulatory standard.

Cadmium	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.07	0.17	1	0.04	0.26	--	
2	0.14	0.053	0.07	0.047	0.14	--	
3	1	1	1	1	0.062	0.18	
4	0.05	0.072	1	1	1	1	
Count	4	4	4	4	4	2	22
SUM	1.26	1.295	3.07	2.087	1.462	1.18	10.354
SUM(x2)	1.027	1.036893	3.0049	2.003809	1.091044	1.0324	9.196046
St.Dev.	0.458294	0.453739	0.465	0.552243	0.430768	0.579828	0.453719
Mean	0.315	0.32375	0.7675	0.52175	0.3655	0.59	0.470636
SS	0.6301	0.617637	0.648675	0.914917	0.556683	0.3362	4.323077
Variance	0.210033	0.205879	0.216225	0.304972	0.185561	0.3362	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.618866	5	0.123773	0.534626571	2.8524
W/IN Wells	3.704212	16	0.231513		df 5,16
Total	4.323077	21			

Variance				
Max	0.3362	MaxVar	0.3362
Min	0.185561	Min(nonZero)	0.185561
Variance	1.811803	Variance	1.811803

raw	rank
0.07	6.5
0.14	9.5
1	18
0.05	3
0.17	11
0.053	4
1	18
0.072	8
1	18
0.07	6.5
1	18
1	18
0.04	1
0.047	2
1	18
1	18
0.26	13
0.14	9.5
0.062	5
1	18
0.18	12
1	18

KW Rank forCadmium Concentration

WELL	PAFB03-M	PAFB03-M	PAFB03-M	PAFB03-M	PAFB03-M	PAFB03-M	Total
Qtr 1	6.5	11	18	1	13	12	
Qtr 2	9.5	4	6.5	2	9.5	18	
Qtr 3	18	18	18	18	5		
Qtr 4	3	8	18	18	18		
n	4	4	4	4	4	2	22
SUM(xi)	37	41	60.5	39	45.5	30	253
SUM(xi2)	465.5	525	1014.25	653	608.25	468	3734
StDev	6.409628	5.909033	5.75	9.535023	5.498106	4.242641	6.265932
CV	0.692933	0.576491	0.380165	0.977951	0.48335	0.282843	0.544864
MEAN	9.25	10.25	15.125	9.75	11.375	15	11.5
SS	123.25	104.75	99.1875	272.75	90.6875	18	824.5

Cadmium is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (1.8) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	115.875	5	210.8333	2.748024	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-0.72556	1.355556	5	No
PAFB03-MW02	4.541	-0.70646	1.353964	5	No
PAFB03-MW03	4.541	-0.28828	1.823283	5	No
PAFB03-MW04	4.541	-0.73212	1.775618	5	No
PAFB03-MW05	4.541	-0.61256	1.343559	5	No
PAFB03-MW06	31.82	-12.4562	13.6362	5	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Cadmium.
No sampling results for Cadmium exceeded the regulatory standard.

Cadmium-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.46	0.64	0.2	0.34	0.7	--	
2	0.57	0.3	0.2	0.2	0.46	--	
3	0.31	0.23	1	0.42	0.38	0.97	
4	1	0.24	0.18	1	1	0.9	
Count	4	4	4	4	4	2	22
SUM	2.34	1.41	1.58	1.96	2.54	1.87	11.7
SUM(x2)	1.6326	0.6101	1.1124	1.332	1.846	1.7509	8.284
St.Dev.	0.296479	0.194143	0.403444	0.351947	0.278747	0.049497	0.313333
Mean	0.585	0.3525	0.395	0.49	0.635	0.935	0.531818
SS	0.2637	0.113075	0.4883	0.3716	0.2331	0.00245	2.061727
Variance	0.0879	0.037692	0.162767	0.123867	0.0777	0.00245	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.589502	5	0.1179	1.281330824	2.8524
W/IN Wells	1.472225	16	0.092014		df 5,16
Total	2.061727	21			

Variance				
Max	0.162767	MaxVar	0.162767
Min	0.00245	Min(nonZero)	0.00245
Variance	66.43537	Variance	66.43537

raw	rank
0.46	12.5
0.57	14
0.31	8
1	20.5
0.64	15
0.3	7
0.23	5
0.24	6
0.2	3
0.2	3
1	20.5
0.18	1
0.34	9
0.2	3
0.42	11
1	20.5
0.7	16
0.46	12.5
0.38	10
1	20.5
0.97	18
0.9	17

KW Rank forCadmium-Total Concentration

WELL	PAFB03-M	PAFB03-M	PAFB03-M	PAFB03-M	PAFB03-M	PAFB03-M	Total
Qtr 1	12.5	15	3	9	16	18	
Qtr 2	14	7	3	3	12.5	17	
Qtr 3	8	5	20.5	11	10		
Qtr 4	20.5	6	1	20.5	20.5		
n	4	4	4	4	4	2	22
SUM(xi)	55	33	27.5	43.5	59	35	253
SUM(xi2)	836.5	335	439.25	631.25	932.5	613	3787.5
StDev	5.17204	4.573474	9.132132	7.261485	4.555217	0.707107	6.466028
CV	0.376148	0.554361	1.32831	0.667723	0.308828	0.040406	0.562263
MEAN	13.75	8.25	6.875	10.875	14.75	17.5	11.5
SS	80.25	62.75	250.1875	158.1875	62.25	0.5	878

Cadmium-Total is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (66.4) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	263.875	5	210.8333	6.257905	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-0.08816	1.258156	5	No
PAFB03-MW02	4.541	-0.0883	0.793303	5	No
PAFB03-MW03	4.541	-0.52102	1.311018	5	No
PAFB03-MW04	4.541	-0.3091	1.289096	5	No
PAFB03-MW05	4.541	0.002104	1.267896	5	No
PAFB03-MW06	31.82	-0.1787	2.0487	5	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Cadmium-Total.
No sampling results for Cadmium-Total exceeded the regulatory standard.

Calcium	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	75000	55000	95000	84000	110000	--	
2	76000	53000	140000	77000	110000	--	
3	65000	52000	150000	75000	130000	120000	
4	65000	53000	150000	87000	140000	120000	
Count	4	4	4	4	4	2	22
SUM	281000	213000	535000	323000	490000	240000	2082000
SUM(x2)	1.99E+10	1.13E+10	7.36E+10	2.62E+10	6.07E+10	2.88E+10	2.21E+11
St.Dev.	6075.909	1258.306	26259.92	5678.908	15000	0	33430.16
Mean	70250	53250	133750	80750	122500	120000	94636.36
SS	1.11E+08	4750000	2.07E+09	96750000	6.75E+08	0	2.35E+10
Variance	36916667	1583333	6.9E+08	32250000	2.25E+08	0	

Analyte ND?
No

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	2.05E+10	5	4.1E+09	22.20632304	2.8524
W/IN Wells	2.96E+09	16	1.85E+08		df 5,16
Total	2.35E+10	21			

Variance				
	Max	6.9E+08	MaxVar	6.9E+08
	Min	0	Min(nonZero)	1583333
	Variance	--	Variance	435.5263

raw	rank
75000	7.5
76000	9
65000	5.5
65000	5.5
55000	4
53000	2.5
52000	1
53000	2.5
95000	13
140000	19.5
150000	21.5
150000	21.5
84000	11
77000	10
75000	7.5
87000	12
110000	14.5
110000	14.5
130000	18
140000	19.5
120000	16.5
120000	16.5

KW Rank forCalcium Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	7.5	4	13	11	14.5	16.5	
Qtr 2	9	2.5	19.5	10	14.5	16.5	
Qtr 3	5.5	1	21.5	7.5	18		
Qtr 4	5.5	2.5	21.5	12	19.5		
n	4	4	4	4	4	2	22
SUM(xi)	27.5	10	75.5	40.5	66.5	33	253
SUM(xi2)	197.75	29.5	1473.75	421.25	1124.75	544.5	3791.5
StDev	1.701715	1.224745	4.028544	1.931105	2.528998	0	6.480741
CV	0.247522	0.489898	0.213433	0.190726	0.15212	0	0.563543
MEAN	6.875	2.5	18.875	10.125	16.625	16.5	11.5
SS	8.6875	4.5	48.6875	11.1875	19.1875	0	882

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	789.75	5	210.8333	18.72925	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Calcium is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (435.5) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,16 degrees of freedom; suggesting possible groundwater contamination.
From KW: Calculated H exceeds 95% probable Hcrit with 5 degrees of freedom; suggesting possible groundwater contamination.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	56454.65	84045.35	--	No
PAFB03-MW02	4.541	50393.02	56106.98	--	No
PAFB03-MW03	4.541	74126.85	193373.1	--	No
PAFB03-MW04	4.541	67856.04	93643.96	--	No
PAFB03-MW05	4.541	88442.5	156557.5	--	No
PAFB03-MW06	31.82	120000	120000	--	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Calcium.
No regulatory groundwater standard for Calcium.

Calcium-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	72000	59000	100000	92000	180000	--	
2	79000	54000	130000	78000	110000	--	
3	84000	55000	200000	88000	150000	140000	
4	85000	59000	150000	93000	150000	140000	
Count	4	4	4	4	4	2	22
SUM	320000	227000	580000	351000	590000	280000	2348000
SUM(x2)	2.57E+10	1.29E+10	8.94E+10	3.09E+10	8.95E+10	3.92E+10	2.88E+11
St.Dev.	5944.185	2629.956	42031.73	6849.574	28722.81	0	42005.87
Mean	80000	56750	145000	87750	147500	140000	106727.3
SS	1.06E+08	20750000	5.3E+09	1.41E+08	2.48E+09	0	3.71E+10
Variance	35333333	6916667	1.77E+09	46916667	8.25E+08	0	

Analyte ND?
No

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	2.9E+10	5	5.8E+09	11.54342103	2.8524
W/IN Wells	8.04E+09	16	5.03E+08		df 5,16
Total	3.71E+10	21			

Variance				
	Max	1.77E+09	MaxVar	1.77E+09
	Min	0	Min(nonZero)	6916667
	Variance	--	Variance	255.4217

raw	rank
72000	5
79000	7
84000	8
85000	9
59000	3.5
54000	1
55000	2
59000	3.5
100000	13
130000	15
200000	22
150000	19
92000	11
78000	6
88000	10
93000	12
180000	21
110000	14
150000	19
150000	19
140000	16.5
140000	16.5

KW Rank forCalcium-Total Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	5	3.5	13	11	21	16.5	
Qtr 2	7	1	15	6	14	16.5	
Qtr 3	8	2	22	10	19		
Qtr 4	9	3.5	19	12	19		
n	4	4	4	4	4	2	22
SUM(xi)	29	10	69	39	73	33	253
SUM(xi2)	219	29.5	1239	401	1359	544.5	3792
StDev	1.707825	1.224745	4.031129	2.629956	2.986079	0	6.482577
CV	0.235562	0.489898	0.233689	0.269739	0.163621	0	0.563702
MEAN	7.25	2.5	17.25	9.75	18.25	16.5	11.5
SS	8.75	4.5	48.75	20.75	26.75	0	882.5

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	773	5	210.8333	18.33202	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Calcium-Total is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (255.4) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,16 degrees of freedom; suggesting possible groundwater contamination.
From KW: Calculated H exceeds 95% probable Hcrit with 5 degrees of freedom; suggesting possible groundwater contamination.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	66503.73	93496.27	--	No
PAFB03-MW02	4.541	50778.69	62721.31	--	No
PAFB03-MW03	4.541	49566.95	240433.1	--	No
PAFB03-MW04	4.541	72198.04	103302	--	No
PAFB03-MW05	4.541	82284.85	212715.1	--	No
PAFB03-MW06	31.82	140000	140000	--	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Calcium-Total.
No regulatory groundwater standard for Calcium-Total.

Carbon disulfide	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	1	1	1	1	1	--	
2	1	1	1	1	1	1	
3	1	1	1	1	1	1	
4	1	1	1	1	1	1	
Count	4	4	4	4	4	3	23
SUM	4	4	4	4	4	3	23
SUM(x2)	4	4	4	4	4	3	23
St.Dev.	0	0	0	0	0	0	0
Mean	1	1	1	1	1	1	1
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA					
SS	dFreedom	MeanSq	F		Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12

KW — Rank forCarbon disulfide Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Carbon disulfide is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	1	1	700	No
PAFB03-MW02	4.541	1	1	700	No
PAFB03-MW03	4.541	1	1	700	No
PAFB03-MW04	4.541	1	1	700	No
PAFB03-MW05	4.541	1	1	700	No
PAFB03-MW06	6.965	1	1	700	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Carbon disulfide.
No sampling results for Carbon disulfide exceeded the regulatory standard.

Carbon tetrachlor	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.5	--	
2	0.5	0.5	0.5	0.5	0.5	0.5	
3	0.5	0.5	0.5	0.5	0.5	0.5	
4	0.5	0.5	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	2	1.5	11.5
SUM(x2)	1	1	1	1	1	0.75	5.75
St.Dev.	0	0	0	0	0	0	0
Mean	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA					
SS	dFreedom	MeanSq	F		Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12

KW — Rank forCarbon tetrachloride Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Carbon tetrachloride is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	0.27	Yes
PAFB03-MW02	4.541	0.5	0.5	0.27	Yes
PAFB03-MW03	4.541	0.5	0.5	0.27	Yes
PAFB03-MW04	4.541	0.5	0.5	0.27	Yes
PAFB03-MW05	4.541	0.5	0.5	0.27	Yes
PAFB03-MW06	6.965	0.5	0.5	0.27	Yes

Since the lower limit of the mean is greater than the regulatory limit, there is statistically significant evidence of contamination by Carbon tetrachloride.
Please note that 23 sampling results exceeded the regulatory standard for Carbon tetrachloride.

Chloride	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	24	13	13	21	28	--	
2	20	12	13	13	29	--	
3	20	13	13	9.2	41	27	
4	16	13	14	8.1	43	26	
Count	4	4	4	4	4	2	22
SUM	80	51	53	51.3	141	53	429.3
SUM(x2)	1632	651	703	760.25	5155	1405	10306.25
St.Dev.	3.265986	0.5	0.5	5.840305	7.847505	0.707107	9.584327
Mean	20	12.75	13.25	12.825	35.25	26.5	19.51364
SS	32	0.75	0.75	102.3275	184.75	0.5	1929.046
Variance	10.66667	0.25	0.25	34.10917	61.58333	0.5	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	1607.968	5	321.5937	16.02572248	2.8524
W/IN Wells	321.0775	16	20.06734		df 5,16
Total	1929.046	21			

Variance				
Max	61.58333	MaxVar	61.58333
Min	0.25	Min(nonZero)	0.25
Variance	246.3333	Variance	246.3333

raw	rank
24	16
20	13.5
20	13.5
16	12
13	7
12	3
13	7
13	7
13	7
13	7
13	7
14	11
21	15
13	7
9.2	2
8.1	1
28	19
29	20
41	21
43	22
27	18
26	17

KW Rank forChloride Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	16	7	7	15	19	18	
Qtr 2	13.5	3	7	7	20	17	
Qtr 3	13.5	7	7	2	21		
Qtr 4	12	7	11	1	22		
n	4	4	4	4	4	2	22
SUM(xi)	55	24	32	25	82	35	253
SUM(xi2)	764.5	156	268	279	1686	613	3766.5
StDev	1.658312	2	2	6.396614	1.290994	0.707107	6.388233
CV	0.120605	0.333333	0.25	1.023458	0.062975	0.040406	0.555499
MEAN	13.75	6	8	6.25	20.5	17.5	11.5
SS	8.25	12	12	122.75	5	0.5	857

Chloride is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (246.3) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,16 degrees of freedom; suggesting possible groundwater contamination.
From KW: Calculated H exceeds 95% probable Hcrit with 5 degrees of freedom; suggesting possible groundwater contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	696.5	5	210.8333	16.51779	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	12.58458	27.41542	250	No
PAFB03-MW02	4.541	11.61475	13.88525	250	No
PAFB03-MW03	4.541	12.11475	14.38525	250	No
PAFB03-MW04	4.541	-0.43541	26.08541	250	No
PAFB03-MW05	4.541	17.43224	53.06776	250	No
PAFB03-MW06	31.82	10.59	42.41	250	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Chloride.
No sampling results for Chloride exceeded the regulatory standard.

Chlorobenzene	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.25	0.25	0.25	0.25	0.25	--	
2	0.25	0.25	0.25	0.25	0.25	0.25	
3	0.25	0.25	0.25	0.25	0.25	0.25	
4	0.25	0.25	0.25	0.25	0.25	0.25	
Count	4	4	4	4	4	3	23
SUM	1	1	1	1	1	0.75	5.75
SUM(x2)	0.25	0.25	0.25	0.25	0.25	0.1875	1.4375
St.Dev.	0	0	0	0	0	0	0
Mean	0.25	0.25	0.25	0.25	0.25	0.25	0.25
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12

KW Rank forChlorobenzene Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Chlorobenzene is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.25	0.25	100	No
PAFB03-MW02	4.541	0.25	0.25	100	No
PAFB03-MW03	4.541	0.25	0.25	100	No
PAFB03-MW04	4.541	0.25	0.25	100	No
PAFB03-MW05	4.541	0.25	0.25	100	No
PAFB03-MW06	6.965	0.25	0.25	100	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Chlorobenzene.
No sampling results for Chlorobenzene exceeded the regulatory standard.

Chloroethane	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.5	--	
2	0.5	0.5	0.5	0.5	0.5	0.5	
3	0.5	0.5	0.5	0.5	0.5	0.5	
4	0.5	0.5	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	2	1.5	11.5
SUM(x2)	1	1	1	1	1	0.75	5.75
St.Dev.	0	0	0	0	0	0	0
Mean	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12

KW Rank forChloroethane Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Chloroethane is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	290	No
PAFB03-MW02	4.541	0.5	0.5	290	No
PAFB03-MW03	4.541	0.5	0.5	290	No
PAFB03-MW04	4.541	0.5	0.5	290	No
PAFB03-MW05	4.541	0.5	0.5	290	No
PAFB03-MW06	6.965	0.5	0.5	290	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Chloroethane.
No sampling results for Chloroethane exceeded the regulatory standard.

Chloroform	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.15	0.15	0.15	0.15	0.29	--	
2	0.15	0.15	0.15	0.15	0.32	0.15	
3	0.15	0.15	0.15	0.15	0.35	0.15	
4	0.15	0.15	0.15	0.15	0.43	0.15	
Count	4	4	4	4	4	3	23
SUM	0.6	0.6	0.6	0.6	1.39	0.45	4.24
SUM(x2)	0.09	0.09	0.09	0.09	0.4939	0.0675	0.9214
St.Dev.	0	0	0	0	0.060208	0	0.079705
Mean	0.15	0.15	0.15	0.15	0.3475	0.15	0.184348
SS	0	0	0	0	0.010875	0	0.139765
Variance	0	0	0	0	0.003625	0	

Analyte ND?
No

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.12889	5	0.025778	40.29671164	2.81
W/IN Wells	0.010875	17	0.00064		df 5,17
Total	0.139765	22			

Variance				
Max	0.003625	MaxVar	0.003625
Min	0	Min(nonZero)	0.003625
Variance	--	Variance	1

raw	rank
0.15	10
0.15	10
0.15	10
0.15	10
0.15	10
0.15	10
0.15	10
0.15	10
0.15	10
0.15	10
0.15	10
0.15	10
0.15	10
0.15	10
0.15	10
0.15	10
0.29	20
0.32	21
0.35	22
0.43	23
0.15	10
0.15	10
0.15	10

KW Rank forChloroform Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	10	10	10	10	20	10	
Qtr 2	10	10	10	10	21	10	
Qtr 3	10	10	10	10	22	10	
Qtr 4	10	10	10	10	23		
n	4	4	4	4	4	3	23
SUM(xi)	40	40	40	40	86	30	276
SUM(xi2)	400	400	400	400	1854	300	3754
StDev	0	0	0	0	1.290994	0	4.482288
CV	0	0	0	0	0.060046	0	0.373524
MEAN	10	10	10	10	21.5	10	12
SS	0	0	0	0	5	0	442

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	437	5	230	9.5	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Chloroform is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (1) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results applicable.
From ANOVA: Calculated F exceeds Fcrit with 5,17 degrees of freedom; suggesting possible groundwater contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.15	0.15	3.5	No
PAFB03-MW02	4.541	0.15	0.15	3.5	No
PAFB03-MW03	4.541	0.15	0.15	3.5	No
PAFB03-MW04	4.541	0.15	0.15	3.5	No
PAFB03-MW05	4.541	0.210798	0.484202	3.5	No
PAFB03-MW06	6.965	0.15	0.15	3.5	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Chloroform.
No sampling results for Chloroform exceeded the regulatory standard.

Chloromethane	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.5	--	
2	0.5	0.5	0.5	0.5	0.5	0.5	
3	0.5	0.5	0.5	0.5	0.5	0.12	
4	0.5	0.5	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	2	1.12	11.12
SUM(x2)	1	1	1	1	1	0.5144	5.5144
St.Dev.	0	0	0	0	0	0.219393	0.079235
Mean	0.5	0.5	0.5	0.5	0.5	0.373333	0.483478
SS	0	0	0	0	0	0.096267	0.138122
Variance	0	0	0	0	0	0.048133	

Analyte ND?
No

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.041855	5	0.008371	1.47826087	2.81
W/IN Wells	0.096267	17	0.005663		df 5,17
Total	0.138122	22			

Variance				
Max	0.048133	MaxVar	0.048133
Min	0	Min(nonZero)	0.048133
Variance	--	Variance	1

raw	rank
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.12	1
0.5	12.5

KW Rank forChloromethane Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12.5	12.5	12.5	12.5	12.5	12.5	
Qtr 2	12.5	12.5	12.5	12.5	12.5	1	
Qtr 3	12.5	12.5	12.5	12.5	12.5	12.5	
Qtr 4	12.5	12.5	12.5	12.5	12.5		
n	4	4	4	4	4	3	23
SUM(xi)	50	50	50	50	50	26	276
SUM(xi2)	625	625	625	625	625	313.5	3438.5
StDev	0	0	0	0	0	6.639528	2.397916
CV	0	0	0	0	0	0.766099	0.199826
MEAN	12.5	12.5	12.5	12.5	12.5	8.666667	12
SS	0	0	0	0	0	88.16667	126.5

Chloromethane is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (1) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results applicable.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	38.33333	5	230	0.833333	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	66	No
PAFB03-MW02	4.541	0.5	0.5	66	No
PAFB03-MW03	4.541	0.5	0.5	66	No
PAFB03-MW04	4.541	0.5	0.5	66	No
PAFB03-MW05	4.541	0.5	0.5	66	No
PAFB03-MW06	6.965	-0.5089	1.255567	66	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Chloromethane.
No sampling results for Chloromethane exceeded the regulatory standard.

Chromium	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	6.8	9.8	5	5	11	--	
2	6.9	1.6	1.1	0.87	4.8	--	
3	5	1.5	5	5	5	5	
4	5	1.7	0.89	5	5	5	
Count	4	4	4	4	4	2	22
SUM	23.7	14.6	11.99	15.87	25.8	10	101.96
SUM(x2)	143.85	103.74	52.0021	75.7569	194.04	50	619.389
St.Dev.	1.068878	4.100813	2.313877	2.065	3.034798	0	2.644408
Mean	5.925	3.65	2.9975	3.9675	6.45	5	4.634545
SS	3.4275	50.45	16.06208	12.79268	27.63	0	146.8507
Variance	1.1425	16.81667	5.354025	4.264225	9.21	0	

Analyte ND?
No

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	36.4885	5	7.297699	1.05799932	2.8524
W/IN Wells	110.3623	16	6.897641		df 5,16
Total	146.8507	21			

Variance				
Max	16.81667	MaxVar	16.81667
Min	0	Min(nonZero)	1.1425
Variance	--	Variance	14.71918

raw	rank
6.8	19
6.9	20
5	13
5	13
9.8	21
1.6	5
1.5	4
1.7	6
5	13
1.1	3
5	13
0.89	2
5	13
0.87	1
5	13
5	13
11	22
4.8	7
5	13
5	13
5	13
5	13

KW Rank forChromium Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	19	21	13	13	22	13	
Qtr 2	20	5	3	1	7	13	
Qtr 3	13	4	13	13	13		
Qtr 4	13	6	2	13	13		
n	4	4	4	4	4	2	22
SUM(xi)	65	36	31	40	55	26	253
SUM(xi2)	1099	518	351	508	871	338	3685
StDev	3.774917	8.041559	6.075909	6	6.184658	0	6.076888
CV	0.232303	0.893507	0.783988	0.6	0.449793	0	0.528425
MEAN	16.25	9	7.75	10	13.75	13	11.5
SS	42.75	194	110.75	108	114.75	0	775.5

Chromium is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (14.7) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	205.25	5	210.8333	4.867589	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	3.498113	8.351887	100	No
PAFB03-MW02	4.541	-5.6609	12.9609	100	No
PAFB03-MW03	4.541	-2.25616	8.251157	100	No
PAFB03-MW04	4.541	-0.72108	8.656083	100	No
PAFB03-MW05	4.541	-0.44051	13.34051	100	No
PAFB03-MW06	31.82	5	5	100	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Chromium.
No sampling results for Chromium exceeded the regulatory standard.

Chromium-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	15	26	11	38	190	--	
2	76	11	7.7	20	49	--	
3	60	7.4	59	37	31	58	
4	63	16	8.8	15	37	62	
Count	4	4	4	4	4	2	22
SUM	214	60.4	86.5	110	307	120	897.9
SUM(x2)	13570	1107.76	3738.73	3438	40831	7208	69893.49
St.Dev.	26.58947	8.077128	24.95441	11.73314	75.86995	2.828427	39.78928
Mean	53.5	15.1	21.625	27.5	76.75	60	40.81364
SS	2121	195.72	1868.168	413	17268.75	8	33246.93
Variance	707	65.24	622.7225	137.6667	5756.25	8	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	11372.29	5	2274.458	1.663630902	2.8524
W/IN Wells	21874.64	16	1367.165		df 5,16
Total	33246.93	21			

Variance				
Max	5756.25	MaxVar	5756.25
Min	8	Min(nonZero)	8
Variance	719.5313	Variance	719.5313

raw	rank
15	6.5
76	21
60	18
63	20
26	10
11	4.5
7.4	1
16	8
11	4.5
7.7	2
59	17
8.8	3
38	14
20	9
37	12.5
15	6.5
190	22
49	15
31	11
37	12.5
58	16
62	19

KW Rank forChromium-Total Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	6.5	10	4.5	14	22	16	
Qtr 2	21	4.5	2	9	15	19	
Qtr 3	18	1	17	12.5	11		
Qtr 4	20	8	3	6.5	12.5		
n	4	4	4	4	4	2	22
SUM(xi)	65.5	23.5	26.5	42	60.5	35	253
SUM(xi2)	1207.25	185.25	322.25	475.5	986.25	617	3793.5
StDev	6.700435	3.966001	6.992556	3.391165	4.871259	2.12132	6.488084
CV	0.409187	0.675064	1.05548	0.322968	0.322067	0.121218	0.564181
MEAN	16.375	5.875	6.625	10.5	15.125	17.5	11.5
SS	134.6875	47.1875	146.6875	34.5	71.1875	4.5	884

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	445.25	5	210.8333	10.55929	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Chromium-Total is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (719.5) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-6.8714	113.8714	100	No
PAFB03-MW02	4.541	-3.23912	33.43912	100	No
PAFB03-MW03	4.541	-35.034	78.28398	100	No
PAFB03-MW04	4.541	0.859897	54.1401	100	No
PAFB03-MW05	4.541	-95.5127	249.0127	100	No
PAFB03-MW06	31.82	-3.64	123.64	100	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Chromium-Total.
Please note that 1 sampling results exceeded the regulatory standard for Chromium-Total.

cis-1,2-Dichloroet	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.57	--	
2	0.5	0.5	0.5	0.5	0.85	0.5	
3	0.5	0.5	0.5	0.5	1.4	0.5	
4	0.5	0.5	0.5	0.5	1.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	4.32	1.5	13.82
SUM(x2)	1	1	1	1	5.2574	0.75	10.0074
St.Dev.	0	0	0	0	0.444147	0	0.278256
Mean	0.5	0.5	0.5	0.5	1.08	0.5	0.60087
SS	0	0	0	0	0.5918	0	1.703383
Variance	0	0	0	0	0.197267	0	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	1.111583	5	0.222317	6.386246823	2.81
W/IN Wells	0.5918	17	0.034812		df 5,17
Total	1.703383	22			

Variance				
Max	0.197267	MaxVar	0.197267
Min	0	Min(nonZero)	0.197267
Variance	--	Variance	1

raw	rank
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.5	10
0.57	20
0.85	21
1.4	22
1.5	23
0.5	10
0.5	10
0.5	10

KW Rank forcis-1,2-Dichloroethene Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	10	10	10	10	20	10	
Qtr 2	10	10	10	10	21	10	
Qtr 3	10	10	10	10	22	10	
Qtr 4	10	10	10	10	23		
n	4	4	4	4	4	3	23
SUM(xi)	40	40	40	40	86	30	276
SUM(xi2)	400	400	400	400	1854	300	3754
StDev	0	0	0	0	1.290994	0	4.482288
CV	0	0	0	0	0.060046	0	0.373524
MEAN	10	10	10	10	21.5	10	12
SS	0	0	0	0	5	0	442

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	437	5	230	9.5	11.0705

Hcrit with 95% probability and 5 degrees of freedom

cis-1,2-Dichloroethene is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (1) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results applicable.
From ANOVA: Calculated F exceeds Fcrit with 5,17 degrees of freedom; suggesting possible groundwater contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	70	No
PAFB03-MW02	4.541	0.5	0.5	70	No
PAFB03-MW03	4.541	0.5	0.5	70	No
PAFB03-MW04	4.541	0.5	0.5	70	No
PAFB03-MW05	4.541	0.071564	2.088436	70	No
PAFB03-MW06	6.965	0.5	0.5	70	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for cis-1,2-Dichloroethene.
No sampling results for cis-1,2-Dichloroethene exceeded the regulatory standard.

cis-1,3-Dichloropr	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.25	0.25	0.25	0.25	0.25	--	
2	0.25	0.25	0.25	0.25	0.25	0.25	
3	0.25	0.25	0.25	0.25	0.25	0.25	
4	0.25	0.25	0.25	0.25	0.25	0.25	
Count	4	4	4	4	4	3	23
SUM	1	1	1	1	1	0.75	5.75
SUM(x2)	0.25	0.25	0.25	0.25	0.25	0.1875	1.4375
St.Dev.	0	0	0	0	0	0	0
Mean	0.25	0.25	0.25	0.25	0.25	0.25	0.25
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12

KW Rank forcis-1,3-Dichloropropene Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

cis-1,3-Dichloropropene is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.25	0.25	3.5	No
PAFB03-MW02	4.541	0.25	0.25	3.5	No
PAFB03-MW03	4.541	0.25	0.25	3.5	No
PAFB03-MW04	4.541	0.25	0.25	3.5	No
PAFB03-MW05	4.541	0.25	0.25	3.5	No
PAFB03-MW06	6.965	0.25	0.25	3.5	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for cis-1,3-Dichloropropene.
No sampling results for cis-1,3-Dichloropropene exceeded the regulatory standard.

Cobalt	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	1.8	2.8	30	30	8.8	--	
2	2.4	30	30	30	30	--	
3	30	30	1.9	30	30	1.2	
4	30	30	30	30	30	30	
Count	4	4	4	4	4	2	22
SUM	64.2	92.8	91.9	120	98.8	31.2	498.9
SUM(x2)	1809	2707.84	2703.61	3600	2777.44	901.44	14499.33
St.Dev.	16.10993	13.6	14.05	0	10.6	20.36468	12.31654
Mean	16.05	23.2	22.975	30	24.7	15.6	22.67727
SS	778.59	554.88	592.2075	0	337.08	414.72	3185.639
Variance	259.53	184.96	197.4025	0	112.36	414.72	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	508.1611	5	101.6322	0.607331205	2.8524
W/IN Wells	2677.478	16	167.3423		df 5,16
Total	3185.639	21			

Variance				
Max	414.72	MaxVar	414.72
Min	0	Min(nonZero)	112.36
Variance	--	Variance	3.690993

raw	rank
1.8	2
2.4	4
30	14.5
30	14.5
2.8	5
30	14.5
30	14.5
30	14.5
30	14.5
30	14.5
1.9	3
30	14.5
30	14.5
30	14.5
30	14.5
8.8	6
30	14.5
30	14.5
30	14.5
1.2	1
30	14.5

KW Rank forCobalt Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	2	5	14.5	14.5	6	1	
Qtr 2	4	14.5	14.5	14.5	14.5	14.5	
Qtr 3	14.5	14.5	3	14.5	14.5		
Qtr 4	14.5	14.5	14.5	14.5	14.5		
n	4	4	4	4	4	2	22
SUM(xi)	35	48.5	46.5	58	49.5	15.5	253
SUM(xi2)	440.5	655.75	639.75	841	666.75	211.25	3455
StDev	6.689544	4.75	5.75	0	4.25	9.545942	5.096684
CV	0.764519	0.391753	0.494624	0	0.343434	1.231734	0.44319
MEAN	8.75	12.125	11.625	14.5	12.375	7.75	11.5
SS	134.25	67.6875	99.1875	0	54.1875	91.125	545.5

Cobalt is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (3.7) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	99.0625	5	210.8333	2.349308	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-20.5276	52.62761	50	No
PAFB03-MW02	4.541	-7.6788	54.0788	50	No
PAFB03-MW03	4.541	-8.92552	54.87553	50	No
PAFB03-MW04	4.541	30	30	50	No
PAFB03-MW05	4.541	0.6327	48.7673	50	No
PAFB03-MW06	31.82	-442.608	473.808	50	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Cobalt.
No sampling results for Cobalt exceeded the regulatory standard.

Cobalt-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	2.5	8.4	3.4	8.6	71	--	
2	14	2.7	2.2	4	8.7	--	
3	13	2.6	27	10	10	11	
4	14	6.6	3.5	3.1	15	9.8	
Count	4	4	4	4	4	2	22
SUM	43.5	20.3	36.1	25.7	104.7	20.8	251.1
SUM(x2)	567.25	128.17	757.65	199.57	5441.69	217.04	7311.37
St.Dev.	5.603198	2.895255	11.99788	3.388584	30.00649	0.848528	14.54943
Mean	10.875	5.075	9.025	6.425	26.175	10.4	11.41364
SS	94.1875	25.1475	431.8475	34.4475	2701.168	0.72	4445.406
Variance	31.39583	8.3825	143.9492	11.4825	900.3892	0.72	

Analyte ND?
No

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	1157.888	5	231.5777	1.127064087	2.8524
W/IN Wells	3287.518	16	205.4698		df 5,16
Total	4445.406	21			

Variance				
Max	900.3892	MaxVar	900.3892
Min	0.72	Min(nonZero)	0.72
Variance	1250.541	Variance	1250.541

raw	rank
2.5	2
14	18.5
13	17
14	18.5
8.4	10
2.7	4
2.6	3
6.6	9
3.4	6
2.2	1
27	21
3.5	7
8.6	11
4	8
10	14.5
3.1	5
71	22
8.7	12
10	14.5
15	20
11	16
9.8	13

KW Rank forCobalt-Total Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	2	10	6	11	22	16	
Qtr 2	18.5	4	1	8	12	13	
Qtr 3	17	3	21	14.5	14.5		
Qtr 4	18.5	9	7	5	20		
n	4	4	4	4	4	2	22
SUM(xi)	56	26	35	38.5	68.5	29	253
SUM(xi2)	977.5	206	527	420.25	1238.25	425	3794
StDev	8.031189	3.511885	8.578073	4.069705	4.661455	2.12132	6.489919
CV	0.573656	0.54029	0.980351	0.422827	0.272202	0.146298	0.564341
MEAN	14	6.5	8.75	9.625	17.125	14.5	11.5
SS	193.5	37	220.75	49.6875	65.1875	4.5	884.5

Cobalt-Total is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (1250.5) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	313.875	5	210.8333	7.443676	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-1.84706	23.59706	50	No
PAFB03-MW02	4.541	-1.49868	11.64868	50	No
PAFB03-MW03	4.541	-18.2162	36.26619	50	No
PAFB03-MW04	4.541	-1.26878	14.11878	50	No
PAFB03-MW05	4.541	-41.9547	94.30473	50	No
PAFB03-MW06	31.82	-8.692	29.492	50	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Cobalt-Total.
Please note that 1 sampling results exceeded the regulatory standard for Cobalt-Total.

Copper	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	4.5	7.4	5	5	12	--	
2	8	2.2	3.1	2.8	4.3	--	
3	5	5	5	5	5	5	
4	5	5	5	5	5	5	
Count	4	4	4	4	4	2	22
SUM	22.5	19.6	18.1	17.8	26.3	10	114.3
SUM(x2)	134.25	109.6	84.61	82.84	212.49	50	673.79
St.Dev.	1.600781	2.126029	0.95	1.1	3.631689	0	1.951185
Mean	5.625	4.9	4.525	4.45	6.575	5	5.195455
SS	7.6875	13.56	2.7075	3.63	39.5675	0	79.94955
Variance	2.5625	4.52	0.9025	1.21	13.18917	0	

Analyte ND?
No

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	12.79705	5	2.559409	0.609814161	2.8524
W/IN Wells	67.1525	16	4.197031		df 5,16
Total	79.94955	21			

Variance				
Max	13.18917	MaxVar	13.18917
Min	0	Min(nonZero)	0.9025
Variance	--	Variance	14.61404

raw	rank
4.5	5
8	21
5	12.5
5	12.5
7.4	20
2.2	1
5	12.5
5	12.5
5	12.5
3.1	3
5	12.5
5	12.5
5	12.5
2.8	2
5	12.5
5	12.5
12	22
4.3	4
5	12.5
5	12.5
5	12.5
5	12.5

KW Rank forCopper Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	5	20	12.5	12.5	22	12.5	
Qtr 2	21	1	3	2	4	12.5	
Qtr 3	12.5	12.5	12.5	12.5	12.5		
Qtr 4	12.5	12.5	12.5	12.5	12.5		
n	4	4	4	4	4	2	22
SUM(xi)	51	46	40.5	39.5	51	25	253
SUM(xi2)	778.5	713.5	477.75	472.75	812.5	312.5	3567.5
StDev	6.538348	7.842194	4.75	5.25	7.354137	0	5.597619
CV	0.512812	0.68193	0.469136	0.531646	0.576795	0	0.486749
MEAN	12.75	11.5	10.125	9.875	12.75	12.5	11.5
SS	128.25	184.5	67.6875	82.6875	162.25	0	658

Copper is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (14.6) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	32.625	5	210.8333	0.773715	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	1.990427	9.259573	200	No
PAFB03-MW02	4.541	0.072851	9.727149	200	No
PAFB03-MW03	4.541	2.368025	6.681975	200	No
PAFB03-MW04	4.541	1.95245	6.94755	200	No
PAFB03-MW05	4.541	-1.67075	14.82075	200	No
PAFB03-MW06	31.82	5	5	200	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Copper.
No sampling results for Copper exceeded the regulatory standard.

Copper-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	7.2	20	4.9	26	150	--	
2	34	7.3	5.6	13	24	--	
3	29	6	53	27	19	35	
4	34	14	6.7	11	26	33	
Count	4	4	4	4	4	2	22
SUM	104.2	47.3	70.2	77	219	68	585.7
SUM(x2)	3204.84	685.29	2909.26	1695	24113	2314	34921.39
St.Dev.	12.7858	6.479905	23.64494	8.421203	63.5682	1.414214	30.33814
Mean	26.05	11.825	17.55	19.25	54.75	34	26.62273
SS	490.43	125.9675	1677.25	212.75	12122.75	2	19328.46
Variance	163.4767	41.98917	559.0833	70.91667	4040.917	2	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	4697.311	5	939.4622	1.027355895	2.8524
W/IN Wells	14631.15	16	914.4467		df 5,16
Total	19328.46	21			

Variance				
Max	4040.917	MaxVar	4040.917
Min	2	Min(nonZero)	2
Variance	2020.458	Variance	2020.458

raw	rank
7.2	5
34	18.5
29	16
34	18.5
20	11
7.3	6
6	3
14	9
4.9	1
5.6	2
53	21
6.7	4
26	13.5
13	8
27	15
11	7
150	22
24	12
19	10
26	13.5
35	20
33	17

KW Rank forCopper-Total Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	5	11	1	13.5	22	20	
Qtr 2	18.5	6	2	8	12	17	
Qtr 3	16	3	21	15	10		
Qtr 4	18.5	9	4	7	13.5		
n	4	4	4	4	4	2	22
SUM(xi)	58	29	28	43.5	57.5	37	253
SUM(xi2)	965.5	247	462	520.25	910.25	689	3794
StDev	6.442049	3.5	9.416298	3.966001	5.281651	2.12132	6.489919
CV	0.444279	0.482759	1.345185	0.36469	0.367419	0.114666	0.564341
MEAN	14.5	7.25	7	10.875	14.375	18.5	11.5
SS	124.5	36.75	266	47.1875	83.6875	4.5	884.5

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	321.875	5	210.8333	7.633399	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Copper-Total is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (2020.5) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-2.98016	55.08016	200	No
PAFB03-MW02	4.541	-2.88762	26.53762	200	No
PAFB03-MW03	4.541	-36.1358	71.23584	200	No
PAFB03-MW04	4.541	0.129658	38.37034	200	No
PAFB03-MW05	4.541	-89.5816	199.0816	200	No
PAFB03-MW06	31.82	2.18	65.82	200	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Copper-Total.
No sampling results for Copper-Total exceeded the regulatory standard.

Dibromochlorome	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.25	0.25	0.25	0.25	0.25	--	
2	0.25	0.25	0.25	0.25	0.25	0.25	
3	0.25	0.25	0.25	0.25	0.25	0.25	
4	0.25	0.25	0.25	0.25	0.25	0.25	
Count	4	4	4	4	4	3	23
SUM	1	1	1	1	1	0.75	5.75
SUM(x2)	0.25	0.25	0.25	0.25	0.25	0.1875	1.4375
St.Dev.	0	0	0	0	0	0	0
Mean	0.25	0.25	0.25	0.25	0.25	0.25	0.25
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12
0.25	12

KW Rank forDibromochloromethane Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Dibromochloromethane is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.25	0.25	14	No
PAFB03-MW02	4.541	0.25	0.25	14	No
PAFB03-MW03	4.541	0.25	0.25	14	No
PAFB03-MW04	4.541	0.25	0.25	14	No
PAFB03-MW05	4.541	0.25	0.25	14	No
PAFB03-MW06	6.965	0.25	0.25	14	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Dibromochloromethane.
No sampling results for Dibromochloromethane exceeded the regulatory standard.

Dibromomethane	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.5	--	
2	0.5	0.5	0.5	0.5	0.5	0.5	
3	0.5	0.5	0.5	0.5	0.5	0.5	
4	0.5	0.5	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	2	1.5	11.5
SUM(x2)	1	1	1	1	1	0.75	5.75
St.Dev.	0	0	0	0	0	0	0
Mean	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12

KW Rank forDibromomethane Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Dibromomethane is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	370	No
PAFB03-MW02	4.541	0.5	0.5	370	No
PAFB03-MW03	4.541	0.5	0.5	370	No
PAFB03-MW04	4.541	0.5	0.5	370	No
PAFB03-MW05	4.541	0.5	0.5	370	No
PAFB03-MW06	6.965	0.5	0.5	370	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Dibromomethane.
No sampling results for Dibromomethane exceeded the regulatory standard.

Ethylbenzene	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.5	--	
2	0.5	0.5	0.5	0.5	0.5	0.5	
3	0.5	0.5	0.5	0.5	0.5	0.5	
4	0.5	0.5	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	2	1.5	11.5
SUM(x2)	1	1	1	1	1	0.75	5.75
St.Dev.	0	0	0	0	0	0	0
Mean	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12

KW Rank forEthylbenzene Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Ethylbenzene is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	700	No
PAFB03-MW02	4.541	0.5	0.5	700	No
PAFB03-MW03	4.541	0.5	0.5	700	No
PAFB03-MW04	4.541	0.5	0.5	700	No
PAFB03-MW05	4.541	0.5	0.5	700	No
PAFB03-MW06	6.965	0.5	0.5	700	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Ethylbenzene.
No sampling results for Ethylbenzene exceeded the regulatory standard.

Iodomethane	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.5	--	
2	0.5	0.5	0.5	0.5	0.5	0.5	
3	0.5	0.5	0.5	0.5	0.5	0.5	
4	0.5	0.5	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	2	1.5	11.5
SUM(x2)	1	1	1	1	1	0.75	5.75
St.Dev.	0	0	0	0	0	0	0
Mean	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Iodomethane is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12

KW Rank forIodomethane Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	--	No
PAFB03-MW02	4.541	0.5	0.5	--	No
PAFB03-MW03	4.541	0.5	0.5	--	No
PAFB03-MW04	4.541	0.5	0.5	--	No
PAFB03-MW05	4.541	0.5	0.5	--	No
PAFB03-MW06	6.965	0.5	0.5	--	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Iodomethane.
No regulatory groundwater standard for Iodomethane.

Lead	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	4.8	11	12.5	12.5	16	--	
2	6.9	12.5	12.5	12.5	2.9	--	
3	12.5	12.5	12.5	12.5	12.5	12.5	
4	12.5	12.5	12.5	12.5	12.5	12.5	
Count	4	4	4	4	4	2	22
SUM	36.7	48.5	50	50	43.9	25	254.1
SUM(x2)	383.15	589.75	625	625	576.91	312.5	3112.31
St.Dev.	3.933934	0.75	0	0	5.630497	0	2.906929
Mean	9.175	12.125	12.5	12.5	10.975	12.5	11.55
SS	46.4275	1.6875	0	0	95.1075	0	177.455
Variance	15.47583	0.5625	0	0	31.7025	0	

Lead is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (56.4) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Analyte ND?
No

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	34.2325	5	6.8465	0.764851891	2.8524
W/IN Wells	143.2225	16	8.951406		df 5,16
Total	177.455	21			

Variance				
Max	31.7025	MaxVar	31.7025
Min	0	Min(nonZero)	0.5625
Variance	--	Variance	56.36

raw	rank
4.8	2
6.9	3
12.5	13
12.5	13
11	4
12.5	13
12.5	13
12.5	13
12.5	13
12.5	13
12.5	13
12.5	13
12.5	13
12.5	13
12.5	13
12.5	13
12.5	13
16	22
2.9	1
12.5	13
12.5	13
12.5	13
12.5	13

KW Rank forLead Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	2	4	13	13	22	13	
Qtr 2	3	13	13	13	1	13	
Qtr 3	13	13	13	13	13		
Qtr 4	13	13	13	13	13		
n	4	4	4	4	4	2	22
SUM(xi)	31	43	52	52	49	26	253
SUM(xi2)	351	523	676	676	823	338	3387
StDev	6.075909	4.5	0	0	8.616844	0	4.768448
CV	0.783988	0.418605	0	0	0.703416	0	0.414648
MEAN	7.75	10.75	13	13	12.25	13	11.5
SS	110.75	60.75	0	0	222.75	0	477.5

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	83.25	5	210.8333	1.974308	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.243004	18.107	50	No
PAFB03-MW02	4.541	10.42213	13.82788	50	No
PAFB03-MW03	4.541	12.5	12.5	50	No
PAFB03-MW04	4.541	12.5	12.5	50	No
PAFB03-MW05	4.541	-1.80904	23.75904	50	No
PAFB03-MW06	31.82	12.5	12.5	50	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Lead.
No sampling results for Lead exceeded the regulatory standard.

Lead-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	6.3	28	3.9	24	150	--	
2	36	10	3.9	13	27	--	
3	32	7.6	43	30	22	20	
4	36	21	6.1	10	28	19	
Count	4	4	4	4	4	2	22
SUM	110.3	66.6	56.9	77	227	39	576.8
SUM(x2)	3655.69	1382.76	1916.63	1745	24497	761	33958.08
St.Dev.	14.30813	9.55458	19.21135	9.358597	62.22205	0.707107	29.94871
Mean	27.575	16.65	14.225	19.25	56.75	19.5	26.21818
SS	614.1675	273.87	1107.228	262.75	11614.75	0.5	18835.43
Variance	204.7225	91.29	369.0758	87.58333	3871.583	0.5	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	4962.168	5	992.4335	1.144570995	2.8524
W/IN Wells	13873.27	16	867.0791		df 5,16
Total	18835.43	21			

Variance				
Max	3871.583	MaxVar	3871.583
Min	0.5	Min(nonZero)	0.5
Variance	7743.167	Variance	7743.167

raw	rank
6.3	4
36	19.5
32	18
36	19.5
28	15.5
10	6.5
7.6	5
21	11
3.9	1.5
3.9	1.5
43	21
6.1	3
24	13
13	8
30	17
10	6.5
150	22
27	14
22	12
28	15.5
20	10
19	9

KW Rank forLead-Total Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	4	15.5	1.5	13	22	10	
Qtr 2	19.5	6.5	1.5	8	14	9	
Qtr 3	18	5	21	17	12		
Qtr 4	19.5	11	3	6.5	15.5		
n	4	4	4	4	4	2	22
SUM(xi)	61	38	27	44.5	63.5	19	253
SUM(xi2)	1100.5	428.5	454.5	564.25	1064.25	181	3793
StDev	7.53326	4.743416	9.526279	4.802343	4.327721	0.707107	6.486249
CV	0.493984	0.499307	1.411301	0.431671	0.272612	0.074432	0.564022
MEAN	15.25	9.5	6.75	11.125	15.875	9.5	11.5
SS	170.25	67.5	272.25	69.1875	56.1875	0.5	883.5

Lead-Total is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (7743.2) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	247.625	5	210.8333	5.87253	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-4.9116	60.0616	50	No
PAFB03-MW02	4.541	-5.04367	38.34367	50	No
PAFB03-MW03	4.541	-29.3944	57.84436	50	No
PAFB03-MW04	4.541	-1.99869	40.49869	50	No
PAFB03-MW05	4.541	-84.5252	198.0252	50	No
PAFB03-MW06	31.82	3.59	35.41	50	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Lead-Total.
Please note that 1 sampling results exceeded the regulatory standard for Lead-Total.

Magnesium	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	13000	11000	20000	13000	19000	--	
2	13000	8900	23000	12000	16000	--	
3	10000	9100	24000	12000	20000	20000	
4	9500	8900	22000	13000	21000	21000	
Count	4	4	4	4	4	2	22
SUM	45500	37900	89000	50000	76000	41000	339400
SUM(x2)	5.28E+08	3.62E+08	1.99E+09	6.26E+08	1.46E+09	8.41E+08	5.8E+09
St.Dev.	1887.459	1021.029	1707.825	577.3503	2160.247	707.1068	5202.855
Mean	11375	9475	22250	12500	19000	20500	15427.27
SS	10687500	3127500	8750000	1000000	14000000	500000	5.68E+08
Variance	3562500	1042500	2916667	333333.3	4666667	500000	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	5.3E+08	5	1.06E+08	44.58887788	2.8524
W/IN Wells	38065000	16	2379063		df 5,16
Total	5.68E+08	21			

Variance				
Max	4666667	MaxVar	4666667
Min	333333.3	Min(nonZero)	333333.3
Variance	14	Variance	14

raw	rank
13000	10.5
13000	10.5
10000	5
9500	4
11000	6
8900	1.5
9100	3
8900	1.5
20000	16
23000	21
24000	22
22000	20
13000	10.5
12000	7.5
12000	7.5
13000	10.5
19000	14
16000	13
20000	16
21000	18.5
20000	16
21000	18.5

KW Rank forMagnesium Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	10.5	6	16	10.5	14	16	
Qtr 2	10.5	1.5	21	7.5	13	18.5	
Qtr 3	5	3	22	7.5	16		
Qtr 4	4	1.5	20	10.5	18.5		
n	4	4	4	4	4	2	22
SUM(xi)	30	12	79	36	61.5	34.5	253
SUM(xi2)	261.5	49.5	1581	333	963.25	598.25	3786.5
StDev	3.488075	2.12132	2.629956	1.732051	2.428134	1.767767	6.462345
CV	0.465077	0.707107	0.133162	0.19245	0.157927	0.102479	0.561943
MEAN	7.5	3	19.75	9	15.375	17.25	11.5
SS	36.5	13.5	20.75	9	17.6875	3.125	877

Magnesium is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (14) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,16 degrees of freedom; suggesting possible groundwater contamination.
From KW: Calculated H exceeds 95% probable Hcrit with 5 degrees of freedom; suggesting possible groundwater contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	776.4375	5	210.8333	18.41354	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	7089.525	15660.47	--	No
PAFB03-MW02	4.541	7156.754	11793.25	--	No
PAFB03-MW03	4.541	18372.38	26127.62	--	No
PAFB03-MW04	4.541	11189.13	13810.87	--	No
PAFB03-MW05	4.541	14095.16	23904.84	--	No
PAFB03-MW06	31.82	4590	36410	--	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Magnesium.
No regulatory groundwater standard for Magnesium.

Magnesium-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	13000	13000	20000	21000	53000	--	
2	22000	10000	21000	15000	20000	--	
3	22000	9900	37000	21000	25000	31000	
4	24000	12000	24000	17000	27000	30000	
Count	4	4	4	4	4	2	22
SUM	81000	44900	102000	74000	125000	61000	487900
SUM(x2)	1.71E+09	5.11E+08	2.79E+09	1.4E+09	4.56E+09	1.86E+09	1.28E+10
St.Dev.	4924.429	1528.343	7852.813	3000	14795.83	707.1068	9782.683
Mean	20250	11225	25500	18500	31250	30500	22177.27
SS	72750000	7007500	1.85E+08	27000000	6.57E+08	500000	2.01E+09
Variance	24250000	2335833	61666667	9000000	2.19E+08	500000	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	1.06E+09	5	2.12E+08	3.576658389	2.8524
W/IN Wells	9.49E+08	16	59312969		df 5,16
Total	2.01E+09	21			

Variance				
Max	2.19E+08	MaxVar	2.19E+08
Min	500000	Min(nonZero)	500000
Variance	437.8333	Variance	437.8333

raw	rank
13000	4.5
22000	13.5
22000	13.5
24000	15.5
13000	4.5
10000	2
9900	1
12000	3
20000	8.5
21000	11
37000	21
24000	15.5
21000	11
15000	6
21000	11
17000	7
53000	22
20000	8.5
25000	17
27000	18
31000	20
30000	19

KW Rank forMagnesium-Total Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	4.5	4.5	8.5	11	22	20	
Qtr 2	13.5	2	11	6	8.5	19	
Qtr 3	13.5	1	21	11	17		
Qtr 4	15.5	3	15.5	7	18		
n	4	4	4	4	4	2	22
SUM(xi)	47	10.5	56	35	65.5	39	253
SUM(xi2)	625	34.25	874.5	327	1169.25	761	3791
StDev	4.924429	1.493039	5.492419	2.629956	5.677074	0.707107	6.478903
CV	0.4191	0.568777	0.392316	0.300566	0.346692	0.036262	0.563383
MEAN	11.75	2.625	14	8.75	16.375	19.5	11.5
SS	72.75	6.6875	90.5	20.75	96.6875	0.5	881.5

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	593.625	5	210.8333	14.07806	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Magnesium-Total is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (437.8) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,16 degrees of freedom; suggesting possible groundwater contamination.
From KW: Calculated H exceeds 95% probable Hcrit with 5 degrees of freedom; suggesting possible groundwater contamination.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	9069.084	31430.92	--	No
PAFB03-MW02	4.541	7754.896	14695.1	--	No
PAFB03-MW03	4.541	7670.189	43329.81	--	No
PAFB03-MW04	4.541	11688.5	25311.5	--	No
PAFB03-MW05	4.541	-2343.94	64843.94	--	No
PAFB03-MW06	31.82	14590	46410	--	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Magnesium-Total.
No regulatory groundwater standard for Magnesium-Total.

Methylene chloric	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.34	1	1	1	0.55	--	
2	0.45	0.49	0.46	0.41	0.98	0.48	
3	1	1	1	1	1.2	1	
4	1	1	1	1	1	1	
Count	4	4	4	4	4	3	23
SUM	2.79	3.49	3.46	3.41	3.73	2.48	19.36
SUM(x2)	2.3181	3.2401	3.2116	3.1681	3.7029	2.2304	17.8712
St.Dev.	0.352172	0.255	0.27	0.295	0.273663	0.300222	0.267576
Mean	0.6975	0.8725	0.865	0.8525	0.9325	0.826667	0.841739
SS	0.372075	0.195075	0.2187	0.261075	0.224675	0.180267	1.57513
Variance	0.124025	0.065025	0.0729	0.087025	0.074892	0.090133	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.123264	5	0.024653	0.288660675	2.81
W/IN Wells	1.451867	17	0.085404		df 5,17
Total	1.57513	22			

Variance				
Max	0.124025	MaxVar	0.124025
Min	0.065025	Min(nonZero)	0.065025
Variance	1.907343	Variance	1.907343

raw	rank
0.34	1
0.45	3
1	15.5
1	15.5
1	15.5
0.49	6
1	15.5
1	15.5
1	15.5
0.46	4
1	15.5
1	15.5
1	15.5
0.41	2
1	15.5
1	15.5
0.55	7
0.98	8
1.2	23
1	15.5
0.48	5
1	15.5
1	15.5

KW Rank forMethylene chloride Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	1	15.5	15.5	15.5	7	5	
Qtr 2	3	6	4	2	8	15.5	
Qtr 3	15.5	15.5	15.5	15.5	23	15.5	
Qtr 4	15.5	15.5	15.5	15.5	15.5		
n	4	4	4	4	4	3	23
SUM(xi)	35	52.5	50.5	48.5	53.5	36	276
SUM(xi2)	490.5	756.75	736.75	724.75	882.25	505.5	4096.5
StDev	7.836879	4.75	5.75	6.75	7.454026	6.062178	5.971523
CV	0.895643	0.361905	0.455446	0.556701	0.55731	0.505181	0.497627
MEAN	8.75	13.125	12.625	12.125	13.375	12	12
SS	184.25	67.6875	99.1875	136.6875	166.6875	73.5	784.5

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	56.5	5	230	1.228261	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Methylene chloride is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (1.9) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-0.10211	1.497106	4.7	No
PAFB03-MW02	4.541	0.293523	1.451478	4.7	No
PAFB03-MW03	4.541	0.251965	1.478035	4.7	No
PAFB03-MW04	4.541	0.182703	1.522298	4.7	No
PAFB03-MW05	4.541	0.311147	1.553853	4.7	No
PAFB03-MW06	6.965	-0.3806	2.033933	4.7	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Methylene chloride.
No sampling results for Methylene chloride exceeded the regulatory standard.

Nickel	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	5.1	6.9	10	2.6	16	--	
2	4.5	10	4.4	1.6	2.8	--	
3	10	6.3	9.5	1.5	1.9	4.1	
4	1.6	10	2.5	10	2.5	5	
Count	4	4	4	4	4	2	22
SUM	21.2	33.2	26.4	15.7	23.2	9.1	128.8
SUM(x2)	148.82	287.3	215.86	111.57	273.7	41.81	1079.06
St.Dev.	3.486163	1.978215	3.724692	4.080339	6.810286	0.636396	3.933946
Mean	5.3	8.3	6.6	3.925	5.8	4.55	5.854545
SS	36.46	11.74	41.62	49.9475	139.14	0.405	324.9945
Variance	12.15333	3.913333	13.87333	16.64917	46.38	0.405	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	45.68205	5	9.136409	0.523365569	2.8524
W/IN Wells	279.3125	16	17.45703		df 5,16
Total	324.9945	21			

Variance				
Max	46.38	MaxVar	46.38
Min	0.405	Min(nonZero)	0.405
Variance	114.5185	Variance	114.5185

raw	rank
5.1	13
4.5	11
10	19
1.6	2.5
6.9	15
10	19
6.3	14
10	19
10	19
4.4	10
9.5	16
2.5	5.5
2.6	7
1.6	2.5
1.5	1
10	19
16	22
2.8	8
1.9	4
2.5	5.5
4.1	9
5	12

KW Rank forNickel Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	13	15	19	7	22	9	
Qtr 2	11	19	10	2.5	8	12	
Qtr 3	19	14	16	1	4		
Qtr 4	2.5	19	5.5	19	5.5		
n	4	4	4	4	4	2	22
SUM(xi)	45.5	67	50.5	29.5	39.5	21	253
SUM(xi2)	657.25	1143	747.25	417.25	594.25	225	3784
StDev	6.823672	2.629956	6.046693	8.158584	8.25	2.12132	6.453128
CV	0.599883	0.157012	0.478946	1.106249	0.835443	0.202031	0.561142
MEAN	11.375	16.75	12.625	7.375	9.875	10.5	11.5
SS	139.6875	20.75	109.6875	199.6875	204.1875	4.5	874.5

Nickel is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (114.5) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	196	5	210.8333	4.648221	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-2.61533	13.21533	100	No
PAFB03-MW02	4.541	3.808464	12.79154	100	No
PAFB03-MW03	4.541	-1.85691	15.05691	100	No
PAFB03-MW04	4.541	-5.33941	13.18941	100	No
PAFB03-MW05	4.541	-9.66276	21.26276	100	No
PAFB03-MW06	31.82	-9.769	18.869	100	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Nickel.
No sampling results for Nickel exceeded the regulatory standard.

Nickel-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	6.9	21	4.3	23	150	--	
2	35	7.4	11	11	19	--	
3	30	6.9	110	24	19	33	
4	38	16	10	10	24	29	
Count	4	4	4	4	4	2	22
SUM	109.9	51.3	135.3	68	212	62	638.5
SUM(x2)	3616.61	799.37	12339.49	1326	23798	1930	43809.47
St.Dev.	14.10801	6.866525	50.86901	7.527727	64.70961	2.828427	34.6949
Mean	27.475	12.825	33.825	17	53	31	29.02273
SS	597.1075	141.4475	7762.968	170	12562	8	25278.46
Variance	199.0358	47.14917	2587.656	56.66667	4187.333	8	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	4036.936	5	807.3872	0.608157708	2.8524
W/IN Wells	21241.52	16	1327.595		df 5,16
Total	25278.46	21			

Variance				
Max	4187.333	MaxVar	4187.333
Min	8	Min(nonZero)	8
Variance	523.4167	Variance	523.4167

raw	rank
6.9	2.5
35	19
30	17
38	20
21	12
7.4	4
6.9	2.5
16	9
4.3	1
11	7.5
110	21
10	5.5
23	13
11	7.5
24	14.5
10	5.5
150	22
19	10.5
19	10.5
24	14.5
33	18
29	16

KW Rank forNickel-Total Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	2.5	12	1	13	22	18	
Qtr 2	19	4	7.5	7.5	10.5	16	
Qtr 3	17	2.5	21	14.5	10.5		
Qtr 4	20	9	5.5	5.5	14.5		
n	4	4	4	4	4	2	22
SUM(xi)	58.5	27.5	35	40.5	57.5	34	253
SUM(xi2)	1056.25	247.25	528.5	465.75	914.75	580	3792.5
StDev	8.178987	4.40407	8.607168	4.308422	5.421792	1.414214	6.484414
CV	0.559247	0.640592	0.983676	0.425523	0.377168	0.083189	0.563862
MEAN	14.625	6.875	8.75	10.125	14.375	17	11.5
SS	200.6875	58.1875	222.25	55.6875	88.1875	2	883

Nickel-Total is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (523.4) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	256	5	210.8333	6.071146	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-4.55723	59.50723	100	No
PAFB03-MW02	4.541	-2.76545	28.41545	100	No
PAFB03-MW03	4.541	-81.6731	149.3231	100	No
PAFB03-MW04	4.541	-0.0917	34.0917	100	No
PAFB03-MW05	4.541	-93.9232	199.9232	100	No
PAFB03-MW06	31.82	-32.64	94.64	100	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Nickel-Total.
Please note that 2 sampling results exceeded the regulatory standard for Nickel-Total.

Nitrate as N	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	3.7	3.2	14	4	6.7	--	
2	3.9	2.9	14	0.96	6.7	--	
3	4.4	3.2	14	0.63	7.1	3.7	
4	4.8	3.1	14	0.52	7.1	4.6	
Count	4	4	4	4	4	2	22
SUM	16.8	12.4	56	6.11	27.6	8.3	127.21
SUM(x2)	71.3	38.5	784	17.5889	190.6	34.85	1136.839
St.Dev.	0.496655	0.141421	0	1.658903	0.23094	0.636396	4.371313
Mean	4.2	3.1	14	1.5275	6.9	4.15	5.782273
SS	0.74	0.06	0	8.255875	0.16	0.405	401.276
Variance	0.246667	0.02	0	2.751958	0.053333	0.405	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	391.6551	5	78.33102	130.2684378	2.8524
W/IN Wells	9.620875	16	0.601305		df 5,16
Total	401.276	21			

Variance				
Max	2.751958	MaxVar	2.751958
Min	0	Min(nonZero)	0.02
Variance	--	Variance	137.5979

raw	rank
3.7	8.5
3.9	10
4.4	12
4.8	14
3.2	6.5
2.9	4
3.2	6.5
3.1	5
14	20.5
14	20.5
14	20.5
14	20.5
4	11
0.96	3
0.63	2
0.52	1
6.7	15.5
6.7	15.5
7.1	17.5
7.1	17.5
3.7	8.5
4.6	13

KW Rank forNitrate as N Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	8.5	6.5	20.5	11	15.5	8.5	
Qtr 2	10	4	20.5	3	15.5	13	
Qtr 3	12	6.5	20.5	2	17.5		
Qtr 4	14	5	20.5	1	17.5		
n	4	4	4	4	4	2	22
SUM(xi)	44.5	22	82	17	66	21.5	253
SUM(xi2)	512.25	125.5	1681	135	1093	241.25	3788
StDev	2.393568	1.224745	0	4.573474	1.154701	3.181981	6.467869
CV	0.215152	0.222681	0	1.076112	0.069982	0.295998	0.562423
MEAN	11.125	5.5	20.5	4.25	16.5	10.75	11.5
SS	17.1875	4.5	0	62.75	4	10.125	878.5

Nitrate as N is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (137.6) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,16 degrees of freedom; suggesting possible groundwater contamination.
From KW: Calculated H exceeds 95% probable Hcrit with 5 degrees of freedom; suggesting possible groundwater contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	779.9375	5	210.8333	18.49654	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	3.072344	5.327656	10	No
PAFB03-MW02	4.541	2.778903	3.421097	10	No
PAFB03-MW03	4.541	14	14	10	Yes
PAFB03-MW04	4.541	-2.23904	5.294039	10	No
PAFB03-MW05	4.541	6.37565	7.42435	10	No
PAFB03-MW06	31.82	-10.169	18.469	10	No

Since the lower limit of the mean is greater than the regulatory limit, there is statistically significant evidence of contamination by Nitrate as N.
Please note that 4 sampling results exceeded the regulatory standard for Nitrate as N.

Nitrite	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.04	0.25	0.25	0.25	0.25	--	
2	0.25	0.25	0.25	0.25	0.25	--	
3	0.25	0.25	0.25	0.25	0.25	0.76	
4	0.25	0.25	0.25	0.25	0.25	0.57	
Count	4	4	4	4	4	2	22
SUM	0.79	1	1	1	1	1.33	6.12
SUM(x2)	0.1891	0.25	0.25	0.25	0.25	0.9025	2.0916
St.Dev.	0.105	0	0	0	0	0.13435	0.136124
Mean	0.1975	0.25	0.25	0.25	0.25	0.665	0.278182
SS	0.033075	0	0	0	0	0.01805	0.389127
Variance	0.011025	0	0	0	0	0.01805	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.338002	5	0.0676	21.15613247	2.8524
W/IN Wells	0.051125	16	0.003195		df 5,16
Total	0.389127	21			

Variance				
Max	0.01805	MaxVar	0.01805
Min	0	Min(nonZero)	0.011025
Variance	--	Variance	1.637188

raw	rank
0.04	1
0.25	11
0.25	11
0.25	11
0.25	11
0.25	11
0.25	11
0.25	11
0.25	11
0.25	11
0.25	11
0.25	11
0.25	11
0.25	11
0.25	11
0.25	11
0.25	11
0.25	11
0.25	11
0.25	11
0.76	22
0.57	21

KW Rank forNitrite Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	1	11	11	11	11	22	
Qtr 2	11	11	11	11	11	21	
Qtr 3	11	11	11	11	11		
Qtr 4	11	11	11	11	11		
n	4	4	4	4	4	2	22
SUM(xi)	34	44	44	44	44	43	253
SUM(xi2)	364	484	484	484	484	925	3225
StDev	5	0	0	0	0	0.707107	3.876056
CV	0.588235	0	0	0	0	0.032889	0.337048
MEAN	8.5	11	11	11	11	21.5	11.5
SS	75	0	0	0	0	0.5	315.5

Nitrite is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (1.6) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,16 degrees of freedom; suggesting possible groundwater contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	240	5	210.8333	5.6917	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-0.0409	0.435903	1	No
PAFB03-MW02	4.541	0.25	0.25	1	No
PAFB03-MW03	4.541	0.25	0.25	1	No
PAFB03-MW04	4.541	0.25	0.25	1	No
PAFB03-MW05	4.541	0.25	0.25	1	No
PAFB03-MW06	31.82	-2.3579	3.6879	1	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Nitrite.
No sampling results for Nitrite exceeded the regulatory standard.

Potassium	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	2200	2900	2700	2100	3200	--	
2	2100	1200	2800	2000	2900	--	
3	1700	2100	3100	2200	2600	4300	
4	1700	1500	3100	2100	3000	3900	
Count	4	4	4	4	4	2	22
SUM	7700	7700	11700	8400	11700	8200	55400
SUM(x2)	15030000	16510000	34350000	17660000	34410000	33700000	1.52E+08
St.Dev.	262.9956	750	206.1553	81.64966	250	282.8427	760.7242
Mean	1925	1925	2925	2100	2925	4100	2518.182
SS	207500	1687500	127500	20000	187500	80000	12152727
Variance	69166.67	562500	42500	6666.667	62500	80000	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	9842727	5	1968545	13.63494687	2.8524
W/IN Wells	2310000	16	144375		df 5,16
Total	12152727	21			

Variance				
	Max	562500	MaxVar	562500
	Min	6666.667	Min(nonZero)	6666.667
	Variance	84.375	Variance	84.375

raw	rank
2200	10.5
2100	7.5
1700	3.5
1700	3.5
2900	15.5
1200	1
2100	7.5
1500	2
2700	13
2800	14
3100	18.5
3100	18.5
2100	7.5
2000	5
2200	10.5
2100	7.5
3200	20
2900	15.5
2600	12
3000	17
4300	22
3900	21

KW Rank forPotassium Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	10.5	15.5	13	7.5	20	22	
Qtr 2	7.5	1	14	5	15.5	21	
Qtr 3	3.5	7.5	18.5	10.5	12		
Qtr 4	3.5	2	18.5	7.5	17		
n	4	4	4	4	4	2	22
SUM(xi)	25	26	64	30.5	64.5	43	253
SUM(xi2)	191	301.5	1049.5	247.75	1073.25	925	3788
StDev	3.40343	6.645801	2.915476	2.25	3.326034	0.707107	6.467869
CV	0.544549	1.022431	0.182217	0.295082	0.206266	0.032889	0.562423
MEAN	6.25	6.5	16	7.625	16.125	21.5	11.5
SS	34.75	132.5	25.5	15.1875	33.1875	0.5	878.5

Potassium is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (84.4) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,16 degrees of freedom; suggesting possible groundwater contamination.
From KW: Calculated H exceeds 95% probable Hcrit with 5 degrees of freedom; suggesting possible groundwater contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	636.875	5	210.8333	15.10375	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	1327.869	2522.131	--	No
PAFB03-MW02	4.541	222.125	3627.875	--	No
PAFB03-MW03	4.541	2456.924	3393.076	--	No
PAFB03-MW04	4.541	1914.614	2285.386	--	No
PAFB03-MW05	4.541	2357.375	3492.625	--	No
PAFB03-MW06	31.82	-2264	10464	--	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Potassium.
No regulatory groundwater standard for Potassium.

Potassium-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	3800	5100	4100	7100	19000	--	
2	7100	2900	3500	4900	6500	--	
3	6900	3000	9200	6400	5900	8300	
4	7000	4100	4300	4500	7200	7700	
Count	4	4	4	4	4	2	22
SUM	24800	15100	21100	22900	38600	16000	138500
SUM(x2)	1.61E+08	60230000	1.32E+08	1.36E+08	4.9E+08	1.28E+08	1.11E+09
St.Dev.	1602.082	1037.224	2638.655	1228.481	6255.931	424.2641	3349.979
Mean	6200	3775	5275	5725	9650	8000	6295.455
SS	7700000	3227500	20887500	4527500	1.17E+08	180000	2.36E+08
Variance	2566667	1075833	6962500	1509167	39136667	180000	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	81737045	5	16347409	1.699176882	2.8524
W/IN Wells	1.54E+08	16	9620781		df 5,16
Total	2.36E+08	21			

Variance				
	Max	39136667	MaxVar	39136667
	Min	180000	Min(nonZero)	180000
	Variance	217.4259	Variance	217.4259

raw	rank
3800	4
7100	16.5
6900	14
7000	15
5100	10
2900	1
3000	2
4100	5.5
4100	5.5
3500	3
9200	21
4300	7
7100	16.5
4900	9
6400	12
4500	8
19000	22
6500	13
5900	11
7200	18
8300	20
7700	19

KW Rank forPotassium-Total Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	4	10	5.5	16.5	22	20	
Qtr 2	16.5	1	3	9	13	19	
Qtr 3	14	2	21	12	11		
Qtr 4	15	5.5	7	8	18		
n	4	4	4	4	4	2	22
SUM(xi)	49.5	18.5	36.5	45.5	64	39	253
SUM(xi2)	709.25	135.25	529.25	561.25	1098	761	3794
StDev	5.677074	4.069705	8.086769	3.816084	4.966555	0.707107	6.489919
CV	0.458753	0.879936	0.886221	0.33548	0.31041	0.036262	0.564341
MEAN	12.375	4.625	9.125	11.375	16	19.5	11.5
SS	96.6875	49.6875	196.1875	43.6875	74	0.5	884.5

Potassium-Total is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (217.4) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	423.75	5	210.8333	10.04941	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	2562.473	9837.527	--	No
PAFB03-MW02	4.541	1419.983	6130.017	--	No
PAFB03-MW03	4.541	-716.066	11266.07	--	No
PAFB03-MW04	4.541	2935.733	8514.267	--	No
PAFB03-MW05	4.541	-4554.09	23854.09	--	No
PAFB03-MW06	31.82	-1546	17546	--	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Potassium-Total.
No regulatory groundwater standard for Potassium-Total.

Selenium	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	1.1	2.4	5.4	0.7	1.3	--	
2	1.8	2	6.1	1	2.4	--	
3	1.3	2	6	1	1.6	4.5	
4	1.5	1.7	5.3	1	1.5	2	
Count	4	4	4	4	4	2	22
SUM	5.7	8.1	22.8	3.7	6.8	6.5	53.6
SUM(x2)	8.39	16.65	130.46	3.49	12.26	24.25	195.5
St.Dev.	0.298608	0.287228	0.408248	0.15	0.483046	1.767767	1.758123
Mean	1.425	2.025	5.7	0.925	1.7	3.25	2.436364
SS	0.2675	0.2475	0.5	0.0675	0.7	3.125	64.91091
Variance	0.089167	0.0825	0.166667	0.0225	0.233333	3.125	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	60.00341	5	12.00068	39.12601306	2.8524
W/IN Wells	4.9075	16	0.306719		df 5,16
Total	64.91091	21			

Variance				
Max	3.125	MaxVar	3.125
Min	0.0225	Min(nonZero)	0.0225
Variance	138.8889	Variance	138.8889

raw	rank
1.1	5
1.8	12
1.3	6.5
1.5	8.5
2.4	16.5
2	14
2	14
1.7	11
5.4	20
6.1	22
6	21
5.3	19
0.7	1
1	3
1	3
1	3
1.3	6.5
2.4	16.5
1.6	10
1.5	8.5
4.5	18
2	14

KW Rank forSelenium Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	5	16.5	20	1	6.5	18	
Qtr 2	12	14	22	3	16.5	14	
Qtr 3	6.5	14	21	3	10		
Qtr 4	8.5	11	19	3	8.5		
n	4	4	4	4	4	2	22
SUM(xi)	32	55.5	82	10	41.5	32	253
SUM(xi2)	283.5	785.25	1686	28	486.75	520	3789.5
StDev	3.02765	2.25	1.290994	1	4.327721	2.828427	6.473389
CV	0.378456	0.162162	0.062975	0.4	0.41713	0.176777	0.562903
MEAN	8	13.875	20.5	2.5	10.375	16	11.5
SS	27.5	15.1875	5	3	56.1875	8	880

Selenium is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (138.9) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,16 degrees of freedom; suggesting possible groundwater contamination.
From KW: Calculated H exceeds 95% probable Hcrit with 5 degrees of freedom; suggesting possible groundwater contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	765.125	5	210.8333	18.14526	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.747011	2.102989	20	No
PAFB03-MW02	4.541	1.372849	2.677151	20	No
PAFB03-MW03	4.541	4.773072	6.626928	20	No
PAFB03-MW04	4.541	0.584425	1.265575	20	No
PAFB03-MW05	4.541	0.603244	2.796756	20	No
PAFB03-MW06	31.82	-36.525	43.025	20	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Selenium.
No sampling results for Selenium exceeded the regulatory standard.

Selenium-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	4.8	4.4	6	2.7	6.4	--	
2	4.3	2.3	5.8	1.7	4.9	--	
3	4	3.2	13	4.1	4.6	7.9	
4	2	1.9	6.1	1	2	3.7	
Count	4	4	4	4	4	2	22
SUM	15.1	11.8	30.9	9.5	17.9	11.6	96.8
SUM(x2)	61.53	38.5	275.85	27.99	90.13	76.1	570.1
St.Dev.	1.228481	1.109054	3.518878	1.345053	1.828251	2.969848	2.620251
Mean	3.775	2.95	7.725	2.375	4.475	5.8	4.4
SS	4.5275	3.69	37.1475	5.4275	10.0275	8.82	144.18
Variance	1.509167	1.23	12.3825	1.809167	3.3425	8.82	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	74.54	5	14.908	3.425157955	2.8524
W/IN Wells	69.64	16	4.3525		df 5,16
Total	144.18	21			

Variance				
Max	12.3825	MaxVar	12.3825
Min	1.23	Min(nonZero)	1.23
Variance	10.06707	Variance	10.06707

raw	rank
4.8	15
4.3	12
4	10
2	4.5
4.4	13
2.3	6
3.2	8
1.9	3
6	18
5.8	17
13	22
6.1	19
2.7	7
1.7	2
4.1	11
1	1
6.4	20
4.9	16
4.6	14
2	4.5
7.9	21
3.7	9

KW Rank forSelenium-Total Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	15	13	18	7	20	21	
Qtr 2	12	6	17	2	16	9	
Qtr 3	10	8	22	11	14		
Qtr 4	4.5	3	19	1	4.5		
n	4	4	4	4	4	2	22
SUM(xi)	41.5	30	76	21	54.5	30	253
SUM(xi2)	489.25	278	1458	175	872.25	522	3794.5
StDev	4.422952	4.203173	2.160247	4.645787	6.574889	8.485281	6.491753
CV	0.426309	0.560423	0.113697	0.884912	0.482561	0.565685	0.5645
MEAN	10.375	7.5	19	5.25	13.625	15	11.5
SS	58.6875	53	14	64.75	129.6875	72	885

Selenium-Total is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (10.1) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,16 degrees of freedom; suggesting possible groundwater contamination.
From KW: Calculated H exceeds 95% probable Hcrit with 5 degrees of freedom; suggesting possible groundwater contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	492.875	5	210.8333	11.68874	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.985733	6.564267	20	No
PAFB03-MW02	4.541	0.431894	5.468106	20	No
PAFB03-MW03	4.541	-0.26461	15.71461	20	No
PAFB03-MW04	4.541	-0.67894	5.428942	20	No
PAFB03-MW05	4.541	0.323957	8.626043	20	No
PAFB03-MW06	31.82	-61.022	72.622	20	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Selenium-Total.
No sampling results for Selenium-Total exceeded the regulatory standard.

Silver	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	1.1	5	5	5	1	--	
2	5	5	5	5	5	--	
3	5	5	5	5	5	5	
4	5	5	5	5	5	5	
Count	4	4	4	4	4	2	22
SUM	16.1	20	20	20	16	10	102.1
SUM(x2)	76.21	100	100	100	76	50	502.21
St.Dev.	1.95	0	0	0	2	0	1.16237
Mean	4.025	5	5	5	4	5	4.640909
SS	11.4075	0	0	0	12	0	28.37318
Variance	3.8025	0	0	0	4	0	

Analyte ND?
No

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	4.965682	5	0.993136	0.678850019	2.8524
W/IN Wells	23.4075	16	1.462969		df 5,16
Total	28.37318	21			

Variance				
	Max	4	MaxVar	4
	Min	0	Min(nonZero)	3.8025
	Variance	--	Variance	1.05194

raw	rank
1.1	2
5	12.5
5	12.5
5	12.5
5	12.5
5	12.5
5	12.5
5	12.5
5	12.5
5	12.5
5	12.5
5	12.5
5	12.5
5	12.5
5	12.5
5	12.5
5	12.5
5	12.5
1	1
5	12.5
5	12.5
5	12.5
5	12.5
5	12.5

KW Rank forSilver Concentration

WELL	PAFB03-M	PAFB03-M	PAFB03-M	PAFB03-M	PAFB03-M	PAFB03-M	Total
Qtr 1	2	12.5	12.5	12.5	1	12.5	
Qtr 2	12.5	12.5	12.5	12.5	12.5	12.5	
Qtr 3	12.5	12.5	12.5	12.5	12.5		
Qtr 4	12.5	12.5	12.5	12.5	12.5		
n	4	4	4	4	4	2	22
SUM(xi)	39.5	50	50	50	38.5	25	253
SUM(xi2)	472.75	625	625	625	469.75	312.5	3130
StDev	5.25	0	0	0	5.75	0	3.24037
CV	0.531646	0	0	0	0.597403	0	0.281771
MEAN	9.875	12.5	12.5	12.5	9.625	12.5	11.5
SS	82.6875	0	0	0	99.1875	0	220.5

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	38.625	5	210.8333	0.916008	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Silver is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (1.1) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results applicable.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-0.40248	8.452475	50	No
PAFB03-MW02	4.541	5	5	50	No
PAFB03-MW03	4.541	5	5	50	No
PAFB03-MW04	4.541	5	5	50	No
PAFB03-MW05	4.541	-0.541	8.541	50	No
PAFB03-MW06	31.82	5	5	50	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Silver.
No sampling results for Silver exceeded the regulatory standard.

Silver-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	5	5	5	5	5	--	
2	5	5	5	5	5	--	
3	5	5	5	5	5	5	
4	5	5	5	5	5	5	
Count	4	4	4	4	4	2	22
SUM	20	20	20	20	20	10	110
SUM(x2)	100	100	100	100	100	50	550
St.Dev.	0	0	0	0	0	0	0
Mean	5	5	5	5	5	5	5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.8524
W/IN Wells	0	16	0		df 5,16
Total	0	21			

Variance				
	Max	0	MaxVar	0
	Min	0	Min(nonZero)	0
	Variance	--	Variance	--

raw	rank
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5
5	11.5

KW Rank forSilver-Total Concentration

WELL	PAFB03-M	PAFB03-M	PAFB03-M	PAFB03-M	PAFB03-M	PAFB03-M	Total
Qtr 1	11.5	11.5	11.5	11.5	11.5	11.5	
Qtr 2	11.5	11.5	11.5	11.5	11.5	11.5	
Qtr 3	11.5	11.5	11.5	11.5	11.5		
Qtr 4	11.5	11.5	11.5	11.5	11.5		
n	4	4	4	4	4	2	22
SUM(xi)	46	46	46	46	46	23	253
SUM(xi2)	529	529	529	529	529	264.5	2909.5
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	11.5	11.5	11.5	11.5	11.5	11.5	11.5
SS	0	0	0	0	0	0	0

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	210.8333	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Silver-Total is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	5	5	50	No
PAFB03-MW02	4.541	5	5	50	No
PAFB03-MW03	4.541	5	5	50	No
PAFB03-MW04	4.541	5	5	50	No
PAFB03-MW05	4.541	5	5	50	No
PAFB03-MW06	31.82	5	5	50	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Silver-Total.
No sampling results for Silver-Total exceeded the regulatory standard.

Sodium	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	27000	47000	73000	33000	36000	--	
2	22000	46000	72000	33000	35000	--	
3	22000	49000	76000	35000	44000	110000	
4	25000	48000	74000	38000	47000	100000	
Count	4	4	4	4	4	2	22
SUM	96000	190000	295000	139000	162000	210000	1092000
SUM(x2)	2.32E+09	9.03E+09	2.18E+10	4.85E+09	6.67E+09	2.21E+10	6.67E+10
St.Dev.	2449.49	1290.994	1707.825	2362.908	5916.08	7071.068	24423.93
Mean	24000	47500	73750	34750	40500	105000	49636.36
SS	18000000	5000000	8750000	16750000	1.05E+08	50000000	1.25E+10
Variance	6000000	1666667	2916667	5583333	35000000	50000000	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	1.23E+10	5	2.46E+09	193.7861961	2.8524
W/IN Wells	2.04E+08	16	12718750		df 5,16
Total	1.25E+10	21			

Variance				
Max	50000000	MaxVar	50000000
Min	1666667	Min(nonZero)	1666667
Variance	30	Variance	30

raw	rank
27000	4
22000	1.5
22000	1.5
25000	3
47000	13.5
46000	12
49000	16
48000	15
73000	18
72000	17
76000	20
74000	19
33000	5.5
33000	5.5
35000	7.5
38000	10
36000	9
35000	7.5
44000	11
47000	13.5
110000	22
100000	21

KW Rank forSodium Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	4	13.5	18	5.5	9	22	
Qtr 2	1.5	12	17	5.5	7.5	21	
Qtr 3	1.5	16	20	7.5	11		
Qtr 4	3	15	19	10	13.5		
n	4	4	4	4	4	2	22
SUM(xi)	10	56.5	74	28.5	41	43	253
SUM(xi2)	29.5	807.25	1374	216.75	440.5	925	3793
StDev	1.224745	1.75	1.290994	2.136001	2.598076	0.707107	6.486249
CV	0.489898	0.123894	0.069783	0.29979	0.253471	0.032889	0.564022
MEAN	2.5	14.125	18.5	7.125	10.25	21.5	11.5
SS	4.5	9.1875	5	13.6875	20.25	0.5	883.5

Sodium is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (30) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,16 degrees of freedom; suggesting possible groundwater contamination.
From KW: Calculated H exceeds 95% probable Hcrit with 5 degrees of freedom; suggesting possible groundwater contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	830.375	5	210.8333	19.69269	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	18438.43	29561.57	--	No
PAFB03-MW02	4.541	44568.8	50431.2	--	No
PAFB03-MW03	4.541	69872.38	77627.62	--	No
PAFB03-MW04	4.541	29385.02	40114.98	--	No
PAFB03-MW05	4.541	27067.54	53932.46	--	No
PAFB03-MW06	31.82	-54100	264100	--	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Sodium.
No regulatory groundwater standard for Sodium.

Sodium-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	24000	46000	71000	32000	33000	--	
2	21000	46000	67000	33000	33000	--	
3	22000	48000	74000	34000	45000	110000	
4	24000	46000	74000	38000	47000	100000	
Count	4	4	4	4	4	2	22
SUM	91000	186000	286000	137000	158000	210000	1068000
SUM(x2)	2.08E+09	8.65E+09	2.05E+10	4.71E+09	6.41E+09	2.21E+10	6.44E+10
St.Dev.	1500	1000	3316.625	2629.956	7549.834	7071.068	24484.64
Mean	22750	46500	71500	34250	39500	105000	48545.45
SS	6750000	3000000	33000000	20750000	1.71E+08	50000000	1.26E+10
Variance	2250000	1000000	11000000	6916667	57000000	50000000	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	1.23E+10	5	2.46E+09	138.4037067	2.8524
W/IN Wells	2.85E+08	16	17781250		df 5,16
Total	1.26E+10	21			

Variance				
Max	57000000	MaxVar	57000000
Min	1000000	Min(nonZero)	1000000
Variance	57	Variance	57

raw	rank
24000	3.5
21000	1
22000	2
24000	3.5
46000	13
46000	13
48000	16
46000	13
71000	18
67000	17
74000	19.5
74000	19.5
32000	5
33000	7
34000	9
38000	10
33000	7
33000	7
45000	11
47000	15
110000	22
100000	21

KW Rank forSodium-Total Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	3.5	13	18	5	7	22	
Qtr 2	1	13	17	7	7	21	
Qtr 3	2	16	19.5	9	11		
Qtr 4	3.5	13	19.5	10	15		
n	4	4	4	4	4	2	22
SUM(xi)	10	55	74	31	40	43	253
SUM(xi2)	29.5	763	1373.5	255	444	925	3790
StDev	1.224745	1.5	1.224745	2.217356	3.829708	0.707107	6.475228
CV	0.489898	0.109091	0.066202	0.28611	0.382971	0.032889	0.563063
MEAN	2.5	13.75	18.5	7.75	10	21.5	11.5
SS	4.5	6.75	4.5	14.75	44	0.5	880.5

Sodium-Total is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (57) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,16 degrees of freedom; suggesting possible groundwater contamination.
From KW: Calculated H exceeds 95% probable Hcrit with 5 degrees of freedom; suggesting possible groundwater contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	805.5	5	210.8333	19.10277	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	19344.25	26155.75	--	No
PAFB03-MW02	4.541	44229.5	48770.5	--	No
PAFB03-MW03	4.541	63969.6	79030.4	--	No
PAFB03-MW04	4.541	28278.69	40221.31	--	No
PAFB03-MW05	4.541	22358.1	56641.9	--	No
PAFB03-MW06	31.82	-54100	264100	--	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Sodium-Total.
No regulatory groundwater standard for Sodium-Total.

Styrene	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.5	--	
2	0.5	0.5	0.5	0.5	0.5	0.5	
3	0.5	0.5	0.5	0.5	0.5	0.5	
4	0.5	0.5	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	2	1.5	11.5
SUM(x2)	1	1	1	1	1	0.75	5.75
St.Dev.	0	0	0	0	0	0	0
Mean	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12

KW Rank forStyrene Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Styrene is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW LL	> Screen?
PAFB03-MW01	4.541	0.5	0.5	100	No
PAFB03-MW02	4.541	0.5	0.5	100	No
PAFB03-MW03	4.541	0.5	0.5	100	No
PAFB03-MW04	4.541	0.5	0.5	100	No
PAFB03-MW05	4.541	0.5	0.5	100	No
PAFB03-MW06	6.965	0.5	0.5	100	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Styrene.
No sampling results for Styrene exceeded the regulatory standard.

Sulfate	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	27	32	15	26	27	--	
2	23	33	11	21	27	--	
3	23	32	16	17	25	180	
4	23	29	17	12	25	160	
Count	4	4	4	4	4	2	22
SUM	96	126	59	76	104	340	801
SUM(x2)	2316	3978	891	1550	2708	58000	69443
St.Dev.	2	1.732051	2.629956	5.944185	1.154701	14.14214	43.79569
Mean	24	31.5	14.75	19	26	170	36.40909
SS	12	9	20.75	106	4	200	40279.32
Variance	4	3	6.916667	35.33333	1.333333	200	

Analyte ND?
No

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	39927.57	5	7985.514	363.2358726	2.8524
W/IN Wells	351.75	16	21.98438		df 5,16
Total	40279.32	21			

Variance				
Max	200	MaxVar	200
Min	1.333333	Min(nonZero)	1.333333
Variance	150	Variance	150

raw	rank
27	15
23	9
23	9
23	9
32	18.5
33	20
32	18.5
29	17
15	3
11	1
16	4
17	5.5
26	13
21	7
17	5.5
12	2
27	15
27	15
25	11.5
25	11.5
180	22
160	21

KW Rank forSulfate Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	15	18.5	3	13	15	22	
Qtr 2	9	20	1	7	15	21	
Qtr 3	9	18.5	4	5.5	11.5		
Qtr 4	9	17	5.5	2	11.5		
n	4	4	4	4	4	2	22
SUM(xi)	42	74	13.5	27.5	53	43	253
SUM(xi2)	468	1373.5	56.25	252.25	714.5	925	3789.5
StDev	3	1.224745	1.887459	4.58939	2.020726	0.707107	6.473389
CV	0.285714	0.066202	0.559247	0.667548	0.152508	0.032889	0.562903
MEAN	10.5	18.5	3.375	6.875	13.25	21.5	11.5
SS	27	4.5	10.6875	63.1875	12.25	0.5	880

Sulfate is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (150) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,16 degrees of freedom; suggesting possible groundwater contamination.
From KW: Calculated H exceeds 95% probable Hcrit with 5 degrees of freedom; suggesting possible groundwater contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	761.875	5	210.8333	18.06818	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW LL	> Screen?
PAFB03-MW01	4.541	19.459	28.541	250	No
PAFB03-MW02	4.541	27.56738	35.43262	250	No
PAFB03-MW03	4.541	8.778686	20.72131	250	No
PAFB03-MW04	4.541	5.503728	32.49627	250	No
PAFB03-MW05	4.541	23.37825	28.62175	250	No
PAFB03-MW06	31.82	-148.2	488.2	250	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Sulfate.
No sampling results for Sulfate exceeded the regulatory standard.

Tetrachloroethen	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.31	1.2	--	
2	0.5	0.5	0.5	0.21	1.1	0.5	
3	0.5	0.5	0.5	0.2	1.6	0.5	
4	0.5	0.16	0.5	0.25	2	0.5	
Count	4	4	4	4	4	3	23
SUM	2	1.66	2	0.97	5.9	1.5	14.03
SUM(x2)	1	0.7756	1	0.2427	9.21	0.75	12.9783
St.Dev.	0	0.17	0	0.049917	0.411299	0	0.448229
Mean	0.5	0.415	0.5	0.2425	1.475	0.5	0.61
SS	0	0.0867	0	0.007475	0.5075	0	4.42
Variance	0	0.0289	0	0.002492	0.169167	0	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	3.818325	5	0.763665	21.57693938	2.81
W/IN Wells	0.601675	17	0.035393		df 5,17
Total	4.42	22			

Variance				
Max	0.169167	MaxVar	0.169167
Min	0	Min(nonZero)	0.002492
Variance	--	Variance	67.89298

raw	rank
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.16	1
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.31	5
0.21	3
0.2	2
0.25	4
1.2	21
1.1	20
1.6	22
2	23
0.5	12.5
0.5	12.5
0.5	12.5

KW Rank forTetrachloroethene Concentration

WELL	PAFB03-M	PAFB03-M	PAFB03-M	PAFB03-M	PAFB03-M	PAFB03-M	Total
Qtr 1	12.5	12.5	12.5	5	21	12.5	
Qtr 2	12.5	12.5	12.5	3	20	12.5	
Qtr 3	12.5	12.5	12.5	2	22	12.5	
Qtr 4	12.5	1	12.5	4	23		
n	4	4	4	4	4	3	23
SUM(xi)	50	38.5	50	14	86	37.5	276
SUM(xi2)	625	469.75	625	54	1854	468.75	4096.5
StDev	0	5.75	0	1.290994	1.290994	0	5.971523
CV	0	0.597403	0	0.368856	0.060046	0	0.497627
MEAN	12.5	9.625	12.5	3.5	21.5	12.5	12
SS	0	99.1875	0	5	5	0	784.5

Tetrachloroethene is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (67.9) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
From ANOVA: Calculated F exceeds Fcrit with 5,17 degrees of freedom; suggesting possible groundwater contamination.
From KW: Calculated H exceeds 95% probable Hcrit with 5 degrees of freedom; suggesting possible groundwater contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	675.3125	5	230	14.68071	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	5	No
PAFB03-MW02	4.541	0.029015	0.800985	5	No
PAFB03-MW03	4.541	0.5	0.5	5	No
PAFB03-MW04	4.541	0.129164	0.355836	5	No
PAFB03-MW05	4.541	0.541146	2.408854	5	No
PAFB03-MW06	6.965	0.5	0.5	5	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Tetrachloroethene.
No sampling results for Tetrachloroethene exceeded the regulatory standard.

Thallium	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.05	0.083	0.025	0.1	0.14	--	
2	0.095	0.033	0.025	0.053	0.065	--	
3	0.1	0.1	0.1	0.1	0.1	0.1	
4	0.1	0.1	0.1	0.1	0.1	0.1	
Count	4	4	4	4	4	2	22
SUM	0.345	0.316	0.25	0.353	0.405	0.2	1.869
SUM(x2)	0.031525	0.027978	0.02125	0.032809	0.043825	0.02	0.177387
St.Dev.	0.024281	0.031696	0.043301	0.0235	0.030653	0	0.029767
Mean	0.08625	0.079	0.0625	0.08825	0.10125	0.1	0.084955
SS	0.001769	0.003014	0.005625	0.001657	0.002819	0	0.018607
Variance	0.00059	0.001005	0.001875	0.000552	0.00094	0	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.003724	5	0.000745	0.800621809	2.8524
W/IN Wells	0.014883	16	0.00093		df 5,16
Total	0.018607	21			

Variance				
Max	0.001875	MaxVar	0.001875
Min	0	Min(nonZero)	0.000552
Variance	--	Variance	3.395201

raw	rank
0.05	4
0.095	8
0.1	15
0.1	15
0.083	7
0.033	3
0.1	15
0.1	15
0.025	1.5
0.025	1.5
0.1	15
0.1	15
0.1	15
0.053	5
0.1	15
0.1	15
0.14	22
0.065	6
0.1	15
0.1	15
0.1	15
0.1	15

KW Rank forThallium Concentration

WELL	PAFB03-M	PAFB03-M	PAFB03-M	PAFB03-M	PAFB03-M	PAFB03-M	Total
Qtr 1	4	7	1.5	15	22	15	
Qtr 2	8	3	1.5	5	6	15	
Qtr 3	15	15	15	15	15		
Qtr 4	15	15	15	15	15		
n	4	4	4	4	4	2	22
SUM(xi)	42	40	33	50	58	30	253
SUM(xi2)	530	508	454.5	700	970	450	3612.5
StDev	5.446712	6	7.794229	5	6.557439	0	5.785861
CV	0.518734	0.6	0.944755	0.4	0.452237	0	0.503118
MEAN	10.5	10	8.25	12.5	14.5	15	11.5
SS	89	108	182.25	75	129	0	703

Thallium is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (3.4) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	119.75	5	210.8333	2.839921	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.031119	0.141381	2	No
PAFB03-MW02	4.541	0.007033	0.150967	2	No
PAFB03-MW03	4.541	-0.03582	0.160816	2	No
PAFB03-MW04	4.541	0.034893	0.141607	2	No
PAFB03-MW05	4.541	0.031653	0.170847	2	No
PAFB03-MW06	31.82	0.1	0.1	2	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Thallium.
No sampling results for Thallium exceeded the regulatory standard.

Thallium-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.45	0.34	0.11	0.3	0.55	--	
2	0.43	0.17	0.1	0.18	0.37	--	
3	0.36	0.1	0.88	0.38	0.33	0.37	
4	0.38	0.36	0.1	0.1	0.45	0.33	
Count	4	4	4	4	4	2	22
SUM	1.62	0.97	1.19	0.96	1.7	0.7	7.14
SUM(x2)	0.6614	0.2841	0.8065	0.2768	0.7508	0.2458	3.0254
St.Dev.	0.042032	0.127639	0.388362	0.124365	0.097125	0.028284	0.183633
Mean	0.405	0.2425	0.2975	0.24	0.425	0.35	0.324545
SS	0.0053	0.048875	0.452475	0.0464	0.0283	0.0008	0.708145
Variance	0.001767	0.016292	0.150825	0.015467	0.009433	0.0008	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.125995	5	0.025199	0.692580013	2.8524
W/IN Wells	0.58215	16	0.036384		df 5,16
Total	0.708145	21			

Variance				
Max	0.150825	MaxVar	0.150825
Min	0.0008	Min(nonZero)	0.0008
Variance	188.5312	Variance	188.5312

raw	rank
0.45	19.5
0.43	18
0.36	12.5
0.38	16.5
0.34	11
0.17	6
0.1	2.5
0.36	12.5
0.11	5
0.1	2.5
0.88	22
0.1	2.5
0.3	8
0.18	7
0.38	16.5
0.1	2.5
0.55	21
0.37	14.5
0.33	9.5
0.45	19.5
0.37	14.5
0.33	9.5

KW Rank forThallium-Total Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	19.5	11	5	8	21	14.5	
Qtr 2	18	6	2.5	7	14.5	9.5	
Qtr 3	12.5	2.5	22	16.5	9.5		
Qtr 4	16.5	12.5	2.5	2.5	19.5		
n	4	4	4	4	4	2	22
SUM(xi)	66.5	32	32	34	64.5	24	253
SUM(xi2)	1132.75	319.5	521.5	391.5	1121.75	300.5	3787.5
StDev	3.010399	4.600725	9.407444	5.845226	5.218157	3.535534	6.466028
CV	0.181077	0.575091	1.17593	0.687674	0.323607	0.294628	0.562263
MEAN	16.625	8	8	8.5	16.125	12	11.5
SS	27.1875	63.5	265.5	102.5	81.6875	12.5	878

Thallium-Total is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (188.5) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	325.125	5	210.8333	7.710474	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.309567	0.500433	2	No
PAFB03-MW02	4.541	-0.0473	0.532304	2	No
PAFB03-MW03	4.541	-0.58428	1.179276	2	No
PAFB03-MW04	4.541	-0.04237	0.522371	2	No
PAFB03-MW05	4.541	0.204477	0.645523	2	No
PAFB03-MW06	31.82	-0.2864	0.9864	2	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Thallium-Total.
No sampling results for Thallium-Total exceeded the regulatory standard.

Toluene	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.5	--	
2	0.5	0.5	0.5	0.5	0.5	0.079	
3	0.5	0.5	0.5	0.5	0.5	0.5	
4	0.5	0.5	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	2	1.079	11.079
SUM(x2)	1	1	1	1	1	0.506241	5.506241
St.Dev.	0	0	0	0	0	0.243064	0.087785
Mean	0.5	0.5	0.5	0.5	0.5	0.359667	0.481696
SS	0	0	0	0	0	0.118161	0.169535
Variance	0	0	0	0	0	0.05908	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.051374	5	0.010275	1.47826087	2.81
W/IN Wells	0.118161	17	0.006951		df 5,17
Total	0.169535	22			

Variance			
Max	0.05908	MaxVar	0.05908
Min	0	Min(nonZero)	0.05908
Variance	--	Variance	1

raw	rank
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.5	12.5
0.079	1
0.5	12.5
0.5	12.5

KW Rank forToluene Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12.5	12.5	12.5	12.5	12.5	1	
Qtr 2	12.5	12.5	12.5	12.5	12.5	12.5	
Qtr 3	12.5	12.5	12.5	12.5	12.5	12.5	
Qtr 4	12.5	12.5	12.5	12.5	12.5		
n	4	4	4	4	4	3	23
SUM(xi)	50	50	50	50	50	26	276
SUM(xi2)	625	625	625	625	625	313.5	3438.5
StDev	0	0	0	0	0	6.639528	2.397916
CV	0	0	0	0	0	0.766099	0.199826
MEAN	12.5	12.5	12.5	12.5	12.5	8.666667	12
SS	0	0	0	0	0	88.16667	126.5

Toluene is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (1) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results applicable.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	38.33333	5	230	0.833333	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	560	No
PAFB03-MW02	4.541	0.5	0.5	560	No
PAFB03-MW03	4.541	0.5	0.5	560	No
PAFB03-MW04	4.541	0.5	0.5	560	No
PAFB03-MW05	4.541	0.5	0.5	560	No
PAFB03-MW06	6.965	-0.61776	1.337088	560	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Toluene.
No sampling results for Toluene exceeded the regulatory standard.

Total Organic Carl	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	3.8	1	1.8	1	1.5	--	
2	1.4	2.9	1.5	1.6	4	--	
3	0.94	3.3	2.6	1.3	1.8	2.6	
4	1.6	1.1	1.2	1.1	1.7	2.4	
Count	4	4	4	4	4	2	22
SUM	7.74	8.3	7.1	5	9	5	42.14
SUM(x2)	19.8436	21.51	13.69	6.46	24.38	12.52	98.4036
St.Dev.	1.273669	1.195478	0.60208	0.264575	1.173314	0.141421	0.917718
Mean	1.935	2.075	1.775	1.25	2.25	2.5	1.915455
SS	4.8667	4.2875	1.0875	0.21	4.13	0.02	17.68635
Variance	1.622233	1.429167	0.3625	0.07	1.376667	0.02	

Analyte ND?
No

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	3.084645	5	0.616929	0.676007962	2.8524
W/IN Wells	14.6017	16	0.912606		df 5,16
Total	17.68635	21			

Variance				
Max	1.622233	MaxVar	1.622233
Min	0.02	Min(nonZero)	0.02
Variance	81.11167	Variance	81.11167

raw	rank
3.8	21
1.4	8
0.94	1
1.6	11.5
1	2.5
2.9	19
3.3	20
1.1	4.5
1.8	14.5
1.5	9.5
2.6	17.5
1.2	6
1	2.5
1.6	11.5
1.3	7
1.1	4.5
1.5	9.5
4	22
1.8	14.5
1.7	13
2.6	17.5
2.4	16

KW Rank forTotal Organic Carbon Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	21	2.5	14.5	2.5	9.5	17.5	
Qtr 2	8	19	9.5	11.5	22	16	
Qtr 3	1	20	17.5	7	14.5		
Qtr 4	11.5	4.5	6	4.5	13		
n	4	4	4	4	4	2	22
SUM(xi)	41.5	46	47.5	25.5	59	33.5	253
SUM(xi2)	638.25	787.5	642.75	207.75	953.5	562.25	3792
StDev	8.320407	9.2826	5.121442	3.881044	5.267827	1.06066	6.482577
CV	0.801967	0.807183	0.431279	0.608791	0.357141	0.063323	0.563702
MEAN	10.375	11.5	11.875	6.375	14.75	16.75	11.5
SS	207.6875	258.5	78.6875	45.1875	83.25	1.125	882.5

Total Organic Carbon is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (81.1) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	208.0625	5	210.8333	4.934289	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-0.95687	4.826866	--	No
PAFB03-MW02	4.541	-0.63933	4.789332	--	No
PAFB03-MW03	4.541	0.407978	3.142022	--	No
PAFB03-MW04	4.541	0.649282	1.850718	--	No
PAFB03-MW05	4.541	-0.41401	4.91401	--	No
PAFB03-MW06	31.82	-0.682	5.682	--	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Total Organic Carbon.
No regulatory groundwater standard for Total Organic Carbon.

trans-1,2-Dichlorc	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.5	--	
2	0.5	0.5	0.5	0.5	0.5	0.5	
3	0.5	0.5	0.5	0.5	0.5	0.5	
4	0.5	0.5	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	2	1.5	11.5
SUM(x2)	1	1	1	1	1	0.75	5.75
St.Dev.	0	0	0	0	0	0	0
Mean	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance			
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12

KW Rank fortrans-1,2-Dichloroethene Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

trans-1,2-Dichloroethene is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	100	No
PAFB03-MW02	4.541	0.5	0.5	100	No
PAFB03-MW03	4.541	0.5	0.5	100	No
PAFB03-MW04	4.541	0.5	0.5	100	No
PAFB03-MW05	4.541	0.5	0.5	100	No
PAFB03-MW06	6.965	0.5	0.5	100	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for trans-1,2-Dichloroethene.
No sampling results for trans-1,2-Dichloroethene exceeded the regulatory standard.

trans-1,3-Dichlorc	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.5	--	
2	0.5	0.5	0.5	0.5	0.5	0.5	
3	0.5	0.5	0.5	0.5	0.5	0.5	
4	0.5	0.5	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	2	1.5	11.5
SUM(x2)	1	1	1	1	1	0.75	5.75
St.Dev.	0	0	0	0	0	0	0
Mean	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND? Yes

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
	Max	0	MaxVar	0
	Min	0	Min(nonZero)	0
	Variance	--	Variance	--

trans-1,3-Dichloropropene is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

raw	rank
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12

KW — Rank fortrans-1,3-Dichloropropene Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	3.5	No
PAFB03-MW02	4.541	0.5	0.5	3.5	No
PAFB03-MW03	4.541	0.5	0.5	3.5	No
PAFB03-MW04	4.541	0.5	0.5	3.5	No
PAFB03-MW05	4.541	0.5	0.5	3.5	No
PAFB03-MW06	6.965	0.5	0.5	3.5	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for trans-1,3-Dichloropropene.
No sampling results for trans-1,3-Dichloropropene exceeded the regulatory standard.

trans-1,4-Dichlorc	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	1.5	1.5	1.5	1.5	1.5	--	
2	1.5	1.5	1.5	1.5	1.5	1.5	
3	1.5	1.5	1.5	1.5	1.5	1.5	
4	1.5	1.5	1.5	1.5	1.5	1.5	
Count	4	4	4	4	4	3	23
SUM	6	6	6	6	6	4.5	34.5
SUM(x2)	9	9	9	9	9	6.75	51.75
St.Dev.	0	0	0	0	0	0	0
Mean	1.5	1.5	1.5	1.5	1.5	1.5	1.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND? Yes

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
	Max	0	MaxVar	0
	Min	0	Min(nonZero)	0
	Variance	--	Variance	--

trans-1,4-Dichloro-2-butene is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

raw	rank
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12

KW — Rank fortrans-1,4-Dichloro-2-butene Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	1.5	1.5	--	No
PAFB03-MW02	4.541	1.5	1.5	--	No
PAFB03-MW03	4.541	1.5	1.5	--	No
PAFB03-MW04	4.541	1.5	1.5	--	No
PAFB03-MW05	4.541	1.5	1.5	--	No
PAFB03-MW06	6.965	1.5	1.5	--	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for trans-1,4-Dichloro-2-butene.
No regulatory groundwater standard for trans-1,4-Dichloro-2-butene.

Trichloroethene	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.49	--	
2	0.5	0.5	0.5	0.5	0.56	0.5	
3	0.5	0.5	0.5	0.5	0.68	0.5	
4	0.11	0.5	0.5	0.5	0.83	0.5	
Count	4	4	4	4	4	3	23
SUM	1.61	2	2	2	2.56	1.5	11.67
SUM(x2)	0.7621	1	1	1	1.705	0.75	6.2171
St.Dev.	0.195	0	0	0	0.148997	0	0.115963
Mean	0.4025	0.5	0.5	0.5	0.64	0.5	0.507391
SS	0.114075	0	0	0	0.0666	0	0.295843
Variance	0.038025	0	0	0	0.0222	0	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.115168	5	0.023034	2.167277299	2.81
W/IN Wells	0.180675	17	0.010628		df 5,17
Total	0.295843	22			

Variance				
Max	0.038025	MaxVar	0.038025
Min	0	Min(nonZero)	0.0222
Variance	--	Variance	1.712838

raw	rank
0.5	11.5
0.5	11.5
0.5	11.5
0.11	1
0.5	11.5
0.5	11.5
0.5	11.5
0.5	11.5
0.5	11.5
0.5	11.5
0.5	11.5
0.5	11.5
0.5	11.5
0.5	11.5
0.49	2
0.56	21
0.68	22
0.83	23
0.5	11.5
0.5	11.5
0.5	11.5

KW Rank forTrichloroethene Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	11.5	11.5	11.5	11.5	2	11.5	
Qtr 2	11.5	11.5	11.5	11.5	21	11.5	
Qtr 3	11.5	11.5	11.5	11.5	22	11.5	
Qtr 4	1	11.5	11.5	11.5	23		
n	4	4	4	4	4	3	23
SUM(xi)	35.5	46	46	46	68	34.5	276
SUM(xi2)	397.75	529	529	529	1458	396.75	3839.5
StDev	5.25	0	0	0	10.03328	0	4.896659
CV	0.591549	0	0	0	0.590193	0	0.408055
MEAN	8.875	11.5	11.5	11.5	17	11.5	12
SS	82.6875	0	0	0	302	0	527.5

Trichloroethene is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (1.7) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	142.8125	5	230	3.10462	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-0.04025	0.845248	5	No
PAFB03-MW02	4.541	0.5	0.5	5	No
PAFB03-MW03	4.541	0.5	0.5	5	No
PAFB03-MW04	4.541	0.5	0.5	5	No
PAFB03-MW05	4.541	0.301703	0.978297	5	No
PAFB03-MW06	6.965	0.5	0.5	5	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Trichloroethene.
No sampling results for Trichloroethene exceeded the regulatory standard.

Trichlorofluorome	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.36	0.5	0.5	0.5	--	
2	0.5	0.43	0.5	0.5	0.5	0.5	
3	0.5	0.26	0.5	0.5	0.5	0.5	
4	0.5	0.54	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	1.59	2	2	2	1.5	11.09
SUM(x2)	1	0.6737	1	1	1	0.75	5.4237
St.Dev.	0	0.117863	0	0	0	0	0.058926
Mean	0.5	0.3975	0.5	0.5	0.5	0.5	0.482174
SS	0	0.041675	0	0	0	0	0.076391
Variance	0	0.013892	0	0	0	0	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0.034716	5	0.006943	2.832283978	2.81
W/IN Wells	0.041675	17	0.002451		df 5,17
Total	0.076391	22			

Variance				
Max	0.013892	MaxVar	0.013892
Min	0	Min(nonZero)	0.013892
Variance	--	Variance	1

raw	rank
0.5	13
0.5	13
0.5	13
0.5	13
0.36	2
0.43	3
0.26	1
0.54	23
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13
0.5	13

KW Rank forTrichlorofluoromethane Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	13	2	13	13	13	13	
Qtr 2	13	3	13	13	13	13	
Qtr 3	13	1	13	13	13	13	
Qtr 4	13	23	13	13	13		
n	4	4	4	4	4	3	23
SUM(xi)	52	29	52	52	52	39	276
SUM(xi2)	676	543	676	676	676	507	3754
StDev	0	10.5317	0	0	0	0	4.482288
CV	0	1.452648	0	0	0	0	0.373524
MEAN	13	7.25	13	13	13	13	12
SS	0	332.75	0	0	0	0	442

Trichlorofluoromethane is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (1) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results applicable.
From ANOVA: Calculated F exceeds Fcrit with 5,17 degrees of freedom; suggesting possible groundwater contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	109.25	5	230	2.375	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	0.5	0.5	2100	No
PAFB03-MW02	4.541	0.129892	0.665108	2100	No
PAFB03-MW03	4.541	0.5	0.5	2100	No
PAFB03-MW04	4.541	0.5	0.5	2100	No
PAFB03-MW05	4.541	0.5	0.5	2100	No
PAFB03-MW06	6.965	0.5	0.5	2100	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Trichlorofluoromethane.
No sampling results for Trichlorofluoromethane exceeded the regulatory standard.

Vanadium	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	7	20	1.2	1.3	18	--	
2	9.4	2.1	2.2	1.8	6.1	--	
3	1.3	1.5	1.7	5	1.2	5	
4	5	5	1.7	5	5	5	
Count	4	4	4	4	4	2	22
SUM	22.7	28.6	6.8	13.1	30.3	10	111.5
SUM(x2)	164.05	431.66	12.06	54.93	387.65	50	1100.35
St.Dev.	3.426733	8.701915	0.408248	2.00229	7.260108	0	5.048563
Mean	5.675	7.15	1.7	3.275	7.575	5	5.068182
SS	35.2275	227.17	0.5	12.0275	158.1275	0	535.2477
Variance	11.7425	75.72333	0.166667	4.009167	52.70917	0	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	102.1952	5	20.43905	0.755161851	2.8524
W/IN Wells	433.0525	16	27.06578		df 5,16
Total	535.2477	21			

Variance				
Max	75.72333	MaxVar	75.72333
Min	0	Min(nonZero)	0.166667
Variance	--	Variance	454.34

raw	rank
7	19
9.4	20
1.3	3.5
5	14
20	22
2.1	9
1.5	5
5	14
1.2	1.5
2.2	10
1.7	6.5
1.7	6.5
1.3	3.5
1.8	8
5	14
5	14
18	21
6.1	18
1.2	1.5
5	14
5	14
5	14

KW	Rank forVanadium Concentration						
WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	19	22	1.5	3.5	21	14	
Qtr 2	20	9	10	8	18	14	
Qtr 3	3.5	5	6.5	14	1.5		
Qtr 4	14	14	6.5	14	14		
n	4	4	4	4	4	2	22
SUM(xi)	56.5	50	24.5	39.5	54.5	28	253
SUM(xi2)	969.25	786	186.75	468.25	963.25	392	3765.5
StDev	7.553972	7.325754	3.497023	5.105144	8.576858	0	6.384505
CV	0.534795	0.58606	0.570942	0.516977	0.629494	0	0.555174
MEAN	14.125	12.5	6.125	9.875	13.625	14	11.5
SS	171.1875	161	36.6875	78.1875	220.6875	0	856

Vanadium is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (454.3) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	188.25	5	210.8333	4.464427	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-2.1054	13.4554	100	No
PAFB03-MW02	4.541	-12.6077	26.9077	100	No
PAFB03-MW03	4.541	0.773072	2.626928	100	No
PAFB03-MW04	4.541	-1.2712	7.8212	100	No
PAFB03-MW05	4.541	-8.90907	24.05907	100	No
PAFB03-MW06	31.82	5	5	100	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Vanadium.
No sampling results for Vanadium exceeded the regulatory standard.

Vanadium-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	22	51	11	63	270	--	
2	95	21	11	36	61	--	
3	81	15	98	61	48	67	
4	85	36	15	27	62	58	
Count	4	4	4	4	4	2	22
SUM	283	123	135	187	441	125	1294
SUM(x2)	23295	4563	10071	9715	82769	7853	138266
St.Dev.	33.02903	16.13227	42.87482	18.00694	106.6908	6.363961	54.40381
Mean	70.75	30.75	33.75	46.75	110.25	62.5	58.81818
SS	3272.75	780.75	5514.75	972.75	34148.75	40.5	62155.27
Variance	1090.917	260.25	1838.25	324.25	11382.92	40.5	

Analyte ND?
No

ANOVA	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	17425.02	5	3485.005	1.246585314	2.8524
W/IN Wells	44730.25	16	2795.641		df 5,16
Total	62155.27	21			

Variance				
Max	11382.92	MaxVar	11382.92
Min	40.5	Min(nonZero)	40.5
Variance	281.0597	Variance	281.0597

raw	rank
22	6
95	20
81	18
85	19
51	11
21	5
15	3.5
36	8.5
11	1.5
11	1.5
98	21
15	3.5
63	16
36	8.5
61	13.5
27	7
270	22
61	13.5
48	10
62	15
67	17
58	12

KW	Rank forVanadium-Total Concentration						
WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	6	11	1.5	16	22	17	
Qtr 2	20	5	1.5	8.5	13.5	12	
Qtr 3	18	3.5	21	13.5	10		
Qtr 4	19	8.5	3.5	7	15		
n	4	4	4	4	4	2	22
SUM(xi)	63	28	27.5	45	60.5	29	253
SUM(xi2)	1121	230.5	457.75	559.5	991.25	433	3793
StDev	6.551081	3.391165	9.463747	4.213075	5.039428	3.535534	6.486249
CV	0.415942	0.484452	1.376545	0.374496	0.333185	0.24383	0.564022
MEAN	15.75	7	6.875	11.25	15.125	14.5	11.5
SS	128.75	34.5	268.6875	53.25	76.1875	12.5	883.5

Vanadium-Total is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (281.1) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Kruskal-Wallis	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	309.625	5	210.8333	7.342885	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-4.24241	145.7424	100	No
PAFB03-MW02	4.541	-5.87831	67.37831	100	No
PAFB03-MW03	4.541	-63.5973	131.0973	100	No
PAFB03-MW04	4.541	5.865236	87.63476	100	No
PAFB03-MW05	4.541	-131.991	352.4914	100	No
PAFB03-MW06	31.82	-80.69	205.69	100	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Vanadium-Total.
Please note that 1 sampling results exceeded the regulatory standard for Vanadium-Total.

Vinyl acetate	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	1.5	1.5	1.5	1.5	1.5	--	
2	1.5	1.5	1.5	1.5	1.5	1.5	
3	1.5	1.5	1.5	1.5	1.5	1.5	
4	1.5	1.5	1.5	1.5	1.5	1.5	
Count	4	4	4	4	4	3	23
SUM	6	6	6	6	6	4.5	34.5
SUM(x2)	9	9	9	9	9	6.75	51.75
St.Dev.	0	0	0	0	0	0	0
Mean	1.5	1.5	1.5	1.5	1.5	1.5	1.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12
1.5	12

KW Rank forVinyl acetate Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Vinyl acetate is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW LL	> Screen?
PAFB03-MW01	4.541	1.5	1.5	7000	No
PAFB03-MW02	4.541	1.5	1.5	7000	No
PAFB03-MW03	4.541	1.5	1.5	7000	No
PAFB03-MW04	4.541	1.5	1.5	7000	No
PAFB03-MW05	4.541	1.5	1.5	7000	No
PAFB03-MW06	6.965	1.5	1.5	7000	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Vinyl acetate.
No sampling results for Vinyl acetate exceeded the regulatory standard.

Vinyl chloride	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.5	--	
2	0.5	0.5	0.5	0.5	0.5	0.5	
3	0.5	0.5	0.5	0.5	0.5	0.5	
4	0.5	0.5	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	2	1.5	11.5
SUM(x2)	1	1	1	1	1	0.75	5.75
St.Dev.	0	0	0	0	0	0	0
Mean	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12

KW Rank forVinyl chloride Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Vinyl chloride is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW LL	> Screen?
PAFB03-MW01	4.541	0.5	0.5	0.023	Yes
PAFB03-MW02	4.541	0.5	0.5	0.023	Yes
PAFB03-MW03	4.541	0.5	0.5	0.023	Yes
PAFB03-MW04	4.541	0.5	0.5	0.023	Yes
PAFB03-MW05	4.541	0.5	0.5	0.023	Yes
PAFB03-MW06	6.965	0.5	0.5	0.023	Yes

Since the lower limit of the mean is greater than the regulatory limit, there is statistically significant evidence of contamination by Vinyl chloride.
Please note that 23 sampling results exceeded the regulatory standard for Vinyl chloride.

Xylene-m,p	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	1	1	1	1	1	--	
2	1	1	1	1	1	1	
3	1	1	1	1	1	1	
4	1	1	1	1	1	1	
Count	4	4	4	4	4	3	23
SUM	4	4	4	4	4	3	23
SUM(x2)	4	4	4	4	4	3	23
St.Dev.	0	0	0	0	0	0	0
Mean	1	1	1	1	1	1	1
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA					
SS	dFreedom	MeanSq	F		Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12

KW — Rank forXylene-m,p Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Xylene-m,p is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis					
	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval	t-crit	LowerLim	UpperLim	CDPHE GW LL	> Screen?
PAFB03-MW01	4.541	1	1	1400	No
PAFB03-MW02	4.541	1	1	1400	No
PAFB03-MW03	4.541	1	1	1400	No
PAFB03-MW04	4.541	1	1	1400	No
PAFB03-MW05	4.541	1	1	1400	No
PAFB03-MW06	6.965	1	1	1400	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Xylene-m,p.
No sampling results for Xylene-m,p exceeded the regulatory standard.

Xylene-o	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	0.5	0.5	0.5	0.5	0.5	--	
2	0.5	0.5	0.5	0.5	0.5	0.5	
3	0.5	0.5	0.5	0.5	0.5	0.5	
4	0.5	0.5	0.5	0.5	0.5	0.5	
Count	4	4	4	4	4	3	23
SUM	2	2	2	2	2	1.5	11.5
SUM(x2)	1	1	1	1	1	0.75	5.75
St.Dev.	0	0	0	0	0	0	0
Mean	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Analyte ND?
Yes

ANOVA					
SS	dFreedom	MeanSq	F		Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12
0.5	12

KW — Rank forXylene-o Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Xylene-o is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Kruskal-Wallis					
	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval	t-crit	LowerLim	UpperLim	CDPHE GW LL	> Screen?
PAFB03-MW01	4.541	0.5	0.5	1400	No
PAFB03-MW02	4.541	0.5	0.5	1400	No
PAFB03-MW03	4.541	0.5	0.5	1400	No
PAFB03-MW04	4.541	0.5	0.5	1400	No
PAFB03-MW05	4.541	0.5	0.5	1400	No
PAFB03-MW06	6.965	0.5	0.5	1400	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Xylene-o.
No sampling results for Xylene-o exceeded the regulatory standard.

Xylenes (total)	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	1	1	1	1	1	--	
2	1	1	1	1	1	1	
3	1	1	1	1	1	1	
4	1	1	1	1	1	1	
Count	4	4	4	4	4	3	23
SUM	4	4	4	4	4	3	23
SUM(x2)	4	4	4	4	4	3	23
St.Dev.	0	0	0	0	0	0	0
Mean	1	1	1	1	1	1	1
SS	0	0	0	0	0	0	0
Variance	0	0	0	0	0	0	

Xylenes (total) is a nondetected analyte.
Since analyte is not detected, ANOVA and KW analysis are immaterial. The confidence interval will be evaluated.

Analyte ND?
Yes

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	0	5	0	1	2.81
W/IN Wells	0	17	0		df 5,17
Total	0	22			

Variance				
Max	0	MaxVar	0
Min	0	Min(nonZero)	0
Variance	--	Variance	--

raw	rank
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12
1	12

KW Rank forXylenes (total) Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	12	12	12	12	12	12	
Qtr 2	12	12	12	12	12	12	
Qtr 3	12	12	12	12	12	12	
Qtr 4	12	12	12	12	12		
n	4	4	4	4	4	3	23
SUM(xi)	48	48	48	48	48	36	276
SUM(xi2)	576	576	576	576	576	432	3312
StDev	0	0	0	0	0	0	0
CV	0	0	0	0	0	0	0
MEAN	12	12	12	12	12	12	12
SS	0	0	0	0	0	0	0

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	0	5	230	0	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW LL	> Screen?
PAFB03-MW01	4.541	1	1	1400	No
PAFB03-MW02	4.541	1	1	1400	No
PAFB03-MW03	4.541	1	1	1400	No
PAFB03-MW04	4.541	1	1	1400	No
PAFB03-MW05	4.541	1	1	1400	No
PAFB03-MW06	6.965	1	1	1400	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Xylenes (total).
No sampling results for Xylenes (total) exceeded the regulatory standard.

Zinc	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	21	40	5.6	14	57	--	
2	26	10	5.8	6	13	--	
3	10	10	10	10	12	10	
4	10	10	10	10	4.9	4.9	
Count	4	4	4	4	4	2	22
SUM	67	70	31.4	40	86.9	14.9	310.2
SUM(x2)	1317	1900	265	432	3586.01	124.01	7624.02
St.Dev.	8.057088	15	2.483948	3.265986	23.79151	3.606245	12.44072
Mean	16.75	17.5	7.85	10	21.725	7.45	14.1
SS	194.75	675	18.51	32	1698.108	13.005	3250.2
Variance	64.91667	225	6.17	10.66667	566.0358	13.005	

Analyte ND?
No

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	618.8275	5	123.7655	0.752553278	2.8524
W/IN Wells	2631.373	16	164.4608		df 5,16
Total	3250.2	21			

Variance				
Max	566.0358	MaxVar	566.0358
Min	6.17	Min(nonZero)	6.17
Variance	91.74001	Variance	91.74001

raw	rank
21	19
26	20
10	10.5
10	10.5
40	21
10	10.5
10	10.5
10	10.5
5.6	3
5.8	4
10	10.5
10	10.5
14	18
6	5
10	10.5
10	10.5
57	22
13	17
12	16
4.9	1.5
10	10.5
4.9	1.5

KW Rank forZinc Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	19	21	3	18	22	10.5	
Qtr 2	20	10.5	4	5	17	1.5	
Qtr 3	10.5	10.5	10.5	10.5	16		
Qtr 4	10.5	10.5	10.5	10.5	1.5		
n	4	4	4	4	4	2	22
SUM(xi)	60	52.5	28	44	56.5	12	253
SUM(xi2)	981.5	771.75	245.5	569.5	1031.25	112.5	3712
StDev	5.212165	5.25	4.062019	5.338539	8.816415	6.363961	6.18177
CV	0.347478	0.4	0.580288	0.485322	0.624171	1.06066	0.537545
MEAN	15	13.125	7	11	14.125	6	11.5
SS	81.5	82.6875	49.5	85.5	233.1875	40.5	802.5

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	229.625	5	210.8333	5.445652	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Zinc is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (91.7) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-1.54362	35.04362	2000	No
PAFB03-MW02	4.541	-16.5575	51.5575	2000	No
PAFB03-MW03	4.541	2.210195	13.48981	2000	No
PAFB03-MW04	4.541	2.584578	17.41542	2000	No
PAFB03-MW05	4.541	-32.2936	75.74362	2000	No
PAFB03-MW06	31.82	-73.691	88.591	2000	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Zinc.
No sampling results for Zinc exceeded the regulatory standard.

Zinc-Total	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	PAFB03-I	Total
1	29	110	21	110	650	--	
2	140	42	21	60	100	--	
3	130	37	210	120	96	130	
4	150	85	33	50	110	100	
Count	4	4	4	4	4	2	22
SUM	449	274	285	340	956	230	2534
SUM(x2)	59841	22458	46071	32600	453816	26900	641686
St.Dev.	56.09739	35.0666	92.67281	35.11885	274.0633	21.2132	129.0654
Mean	112.25	68.5	71.25	85	239	115	115.1818
SS	9440.75	3689	25764.75	3700	225332	450	349815.3
Variance	3146.917	1229.667	8588.25	1233.333	75110.67	450	

Analyte ND?
No

ANOVA

	SS	dFreedom	MeanSq	F	Fcrit
BTWN Wells	81438.77	5	16287.75	0.971039091	2.8524
W/IN Wells	268376.5	16	16773.53		df 5,16
Total	349815.3	21			

Variance				
Max	75110.67	MaxVar	75110.67
Min	450	Min(nonZero)	450
Variance	166.9126	Variance	166.9126

raw	rank
29	3
140	19
130	17.5
150	20
110	14
42	6
37	5
85	9
21	1.5
21	1.5
210	21
33	4
110	14
60	8
120	16
50	7
650	22
100	11.5
96	10
110	14
130	17.5
100	11.5

KW Rank forZinc-Total Concentration

WELL	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	PAFB03-M'	Total
Qtr 1	3	14	1.5	14	22	17.5	
Qtr 2	19	6	1.5	8	11.5	11.5	
Qtr 3	17.5	5	21	16	10		
Qtr 4	20	9	4	7	14		
n	4	4	4	4	4	2	22
SUM(xi)	59.5	34	28	45	57.5	29	253
SUM(xi2)	1076.25	338	461.5	565	912.25	438.5	3791.5
StDev	7.983055	4.041452	9.407444	4.425306	5.34439	4.242641	6.480741
CV	0.536676	0.475465	1.343921	0.393361	0.371784	0.292596	0.563543
MEAN	14.875	8.5	7	11.25	14.375	14.5	11.5
SS	191.1875	49	265.5	58.75	85.6875	18	882

Kruskal-Wallis

	SS	dFreedom	Mean Distribution	H	Hcrit
BTWN Wel	213.875	5	210.8333	5.072134	11.0705

Hcrit with 95% probability and 5 degrees of freedom

Zinc-Total is a detected analyte.
Since all wells do not have the same number of samples, the variance ratio (166.9) should be less than 1.5 for ANOVA to provide a good measure; ANOVA results ignored.
Fcalc is less than Fcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.
From KW: Hcalc is less than Hcrit; the assumption of equal variances holds true and there is no evidence of significant contamination.

Confidence Interval

	t-crit	LowerLim	UpperLim	CDPHE GW	LL > Screen?
PAFB03-MW01	4.541	-15.1191	239.6191	2000	No
PAFB03-MW02	4.541	-11.1187	148.1187	2000	No
PAFB03-MW03	4.541	-139.164	281.6636	2000	No
PAFB03-MW04	4.541	5.262661	164.7373	2000	No
PAFB03-MW05	4.541	-383.261	861.2606	2000	No
PAFB03-MW06	31.82	-362.3	592.3	2000	No

Since the lower limit of the mean confidence interval is less than the regulatory limit, the unit remains in compliance for Zinc-Total.