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AIR SPARGING/SOIL VAPOR EXTRACTION TREATABILITY STUDY QUARTERLY REPORT
FOR JULY TO SEPTEMBER 2002 FOR BOCA CHICA FLYING CLUB WITH TRANSMITTAL
LETTER NAS KEY WEST FL
12/13/2002
TETRA TECH NUS



TETRA TECH NUS, INC

AIK-02-0402

December 13, 2002

Project Number HK 4087

via U.S. Mail

Commander
Department of the Navy
SOUTHDIV NAVFACENGCOM
ATTN: Byas Glover (Code ES24)
P.O. Box 190010
North Charleston, South Carolina 29419-9010

Reference: CLEAN Contract No. N62467-94-D-0888
Contract Task Order No. 0207

Subject: AS/SVE Treatability Study Quarterly Report for Boca Chica Flying Club
July to September 2002, Rev. 0,
Naval Air Facility, Key West, Florida

Dear Mr. Glover:

TtNUS is pleased to submit the enclosed PDF file for the AS/SVE Treatability Study Quarterly Report for Boca Chica Flying Club July to September 2002, Rev. 0, Naval Air Facility, Key West, Florida. At your request, a hard copy of this final report is being distributed to the Florida Department of Environmental Protection (FDEP) for their review and comment or concurrence. I am planning on receiving comments or concurrence on this document from FDEP within the next 30 days.

Please call me at (803) 649-7963, extension 345, if you have any questions regarding the enclosed CD.

Sincerely,

C. M. Bryan
Project Manager

CMB:spc

Enclosure

c: Ms. Debbie Wroblewski (Cover Letter Only)
Mr. R. Courtright, NAF Key West (CD/hard copy)
Ms. T. Vaught, FDEP (hard copy)

Mr. M. Perry/File
File 4087-7.3.1

**AS/SVE Treatability Study
Quarterly Report**

for

**Boca Chica Flying Club
July to September 2002**

**Naval Air Facility
Key West, Florida**



**Southern Division
Naval Facilities Engineering Command
Contract Number N62467-94-D-0888
Contract Task Order 0207**

December 2002

Rev. 0
12/13/02

**AS/SVE TREATABILITY STUDY QUARTERLY REPORT
FOR
BOCA CHICA FLYING CLUB
JULY TO SEPTEMBER 2002**

**NAVAL AIR FACILITY
KEY WEST, FLORIDA**

**COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT**

**Submitted to:
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29406**

**Submitted by:
Tetra Tech NUS, Inc.
661 Anderson Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220**

**CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0207**

DECEMBER 2002

PREPARED UNDER THE SUPERVISION OF:

**CHUCK BRYAN
TASK ORDER MANAGER
TETRA TECH NUS, INC.
AIKEN, SOUTH CAROLINA**

APPROVED FOR SUBMITTAL BY:



**DEBBIE WROBLEWSKI
PROGRAM MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA**

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ACRONYMS/ABBREVIATIONS

ABB	ABB Environmental Services, Inc.
AS	Air Sparging
AST	Aboveground storage tank
ASTM	American Society for Testing and Materials
AS/SVE	Air Sparging/Soil Vapor Extraction
AVGAS	Aviation Gas
BEI	Bechtel Environmental, Inc.
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
CAR	Contamination Assessment Report
cfm	Cubic feet per minute
CLEAN	Comprehensive Long-Term Environmental Action Navy
CompQAP	Comprehensive Quality Assurance Plan
CTO	Contract Task Order
EPA	United States Environmental Protection Agency
FC	Flying Club
FDEP	Florida Department of Environmental Protection
GCTL	Groundwater cleanup target level
KAG	Kerosene Analytical Group
µg/L	Micrograms per liter
mg/L	Milligrams per liter
MW	Monitoring well
OVA	Organic Vapor Analyzer
ppbv	Parts per billion volume
ppm	Parts per million
PVC	Polyvinyl chloride
RAP	Remedial Action Plan
TRPH	Total Recoverable Petroleum Hydrocarbons
TtNUS	Tetra Tech NUS, Inc.
UST	Underground storage tank
VES	Vapor Extraction System
VEW	Vapor extraction well
VOA	Volatile Organic Aromatic
VOC	Volatile Organic Compound

1.0 TREATABILITY STUDY REPORT

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit the Air Sparging/Soil Vapor Extraction (AS/SVE) Treatability Study Quarterly Report. This report has been prepared for the United States Navy Southern Division Naval Facilities Engineering Command under Contract Task Order (CTO) 0207, for the Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888. This report details the data collected during the quarterly period from July to September 2002.

1.1 SITE HISTORY OVERVIEW

The former Flying Club (FC) area is located along the northwest boundary of Taxiway H of Boca Chica Field, near Buildings A-133, A-126, A-127, and A-128. The former FC area includes a former motor pool refueling point that used underground storage tanks (USTs) to store and dispense gasoline. An aviation gasoline (AVGAS) aboveground storage tank (AST) area was located approximately 50 feet south of the former motor pool refueling area. The area is currently used as an electrical repair and maintenance facility (Building A-126) and a transformer storage area (Building A-133).

1.1.1 History of Assessment Activities

The AS/SVE system was installed to address subsurface soil and groundwater contaminated with volatile organic compounds (VOCs).

Soils in the site area were field-screened with an Organic Vapor Analyzer (OVA) to assess for the presence of contaminated soil during the Contamination Assessment Report (CAR) conducted in April 1994. A total of 71 soil borings were advanced, each to 6 feet deep. Screening results indicated the presence of excessively contaminated soils [greater than 50 parts per million (ppm)] in four areas. The largest area measured approximately 70 feet long by 40 feet wide and was located near Building A131. Smaller areas were noted near the former AVGAS dispenser, north of Building A-131 near monitoring well (MW)-8, and north of Building A-131 near MW-17. OVA readings greater than 500 ppm were identified in 20 samples.

Groundwater samples were collected from all existing wells and analyzed for Kerosene Analytical Group (KAG) parameters during the CAR that was conducted in April 1994. The applicable Class G-III aquifer cleanup goals were exceeded for the compounds of benzene and total volatile organic aromatics (VOAs). Two areas of VOAs were identified; one near the former AVGAS ASTs and dispenser and the other near the former motor pool USTs. The highest total VOA concentrations found were in MW-4, near the former AVGAS dispenser, at 1,300 micrograms per liter ($\mu\text{g/L}$). Total VOA concentrations were found in MW-6 and MW-20, near the former motor pool gasoline USTs, at 305 $\mu\text{g/L}$ and 156 $\mu\text{g/L}$, respectively.

The monitoring wells were resampled in August 1996, as part of the Remedial Action Plan (RAP) preparation. The 1996 data indicated significant changes in the degree and extent of contamination found during the CAR. Total VOAs in MW-4 was measured at 133 µg/L, putting the area of the former AVGAS dispenser within the Class III guidelines. The total VOA for MW-6 and MW-20 were 1,470 µg/L and 35 µg/L, respectively. Based on the most recent sampling results, the RAP recommended a remedial action consisting of excavation of contaminated soil (an estimated amount of 2,126 cubic yards). The largest area that was recommended for excavation was in the vicinity of the former motor pool USTs near Building A-133 [ABB Environmental Services, Inc. (ABB-ES), 1997].

In 1998, excavations of contaminated soil took place, based on recommendations in the RAP. Approximately 983 cubic yards of soil were excavated from the FC site. The ion collide process was used to treat a portion of the contaminated soil. The excavated areas at the FC site were then backfilled [Bechtel Environmental, Inc. (BEI), 1999].

A quarterly groundwater monitoring plan was implemented in August 1999. The most recent sampling results are dated April 11, 2001. Total VOA results for MW-6 and MW-20 were 51 µg/L and 11 µg/L, respectively. These VOA results are below the applicable cleanup guidelines. However, naphthalene and total recoverable petroleum hydrocarbons (TRPH) concentrations increased in MW-20. Due to the lack of substantial decreases in the concentrations of some contaminants following several quarters of groundwater monitoring, TtNUS recommended a treatability study be performed to investigate the efficacy of enhancing the degradation of contaminants under aerobic conditions.

1.2 MONITORING OBJECTIVES

In May 2002, an AS/SVE Treatability Study was initiated at the site to remediate residual hydrocarbon contaminants in the soil and groundwater (TtNUS, 2000). The study was conducted in two phases:

- Phase I involved a short-term test to evaluate the effectiveness of the system.
- Phase II is a long-term evaluation of the Treatability Study and involves monitoring of the system's effectiveness for a period of six months.

The objective of Phase II is to remediate in groundwater in the vicinity of MW-6 and former MW-20 (replaced by MW-22 due to damage) to Florida Department of Environmental Protection (FDEP) groundwater cleanup target levels (GCTLs).

1.3 SYSTEM DESCRIPTION

The remediation system design incorporates soil vapor extraction with air sparging (AS) to remove hydrocarbon contaminants from the soil and groundwater. AS is achieved by a Roots URAI 33,

7.5-horsepower injection blower. Sixteen 2-inch-diameter AS wells were installed in a 20-foot grid pattern in the vicinity of monitoring wells MW-6 and MW-22. The screen was placed at an interval of 18 to 20 feet, to ensure a depth of approximately 12 feet below the top of water table. Air is transferred between the blower and injection wells by 2-inch-diameter above ground schedule 40 polyvinyl chloride (PVC) pipes. These pipes are connected to the blowers with 2-inch hoses equipped with quick-disconnect camlocks.

Vapor extraction for the soil remediation portion of the system is provided by a Rotron EN 707 5-horsepower blower capable of 70 inches of water at 120 cubic feet per minute (cfm). The vapor extraction wells (VEWs) were installed in close proximity to MW-6 and MW-22. The screened interval was placed above and below the water table, which occurs between 5 and 6 feet. This allows for extracting vapors from the soil in the vadose zone. The VEWs were also attached to the blower via a 2-inch PVC pipe. Prior to entering the blower, the moisture in the vapor stream is treated by a Rotron MS 500 moisture separator. The condensate is automatically transferred to a knock out tank with a Zoellar 1/3-horsepower motor. The vapors then pass through a series of carbon treatment drums before being discharged into the atmosphere. A site map showing the system layout is presented in Figure 1-1.

1.4 FIRST QUARTER MONITORING

1.4.1 Air Monitoring

To monitor the effectiveness of the system, air/vapor samples were collected from the Vapor Extraction System (VES). The system was started on June 7, 2002 and a sample was collected to verify baseline results. Following startup, TtNUS personnel visited the site on July 13, August 20, and September 17, 2002, to collect air samples. Samples were collected from the sampling ports located before (influent) and after (effluent) the carbon canisters to evaluate the effectiveness of the carbon treatment. All sampling activities were conducted in accordance with the TtNUS Florida Regional Quality Assurance Program Manual (TtNUS, 2002).

Following collection, the air samples were shipped via overnight transport to Air Toxics, Ltd. They were analyzed for VOCs, by United States Environmental Protection Agency (EPA) Method TO-14, and carbon dioxide and oxygen using American Society for Testing and Materials (ASTM) Method D-1946. The analytical results of the quarterly air-sampling event are summarized in Table 1-1. Copies of the laboratory reports are provided in Appendix A.

Analytical results indicate that benzene, toluene, ethylbenzene, and total xylenes (BTEX) concentrations were detected in air samples collected during the startup and the August event from the effluent samples. Total BTEX effluent concentrations were 27.5 parts per billion volume (ppbv) and 3.10 ppbv for the samples collected during June and the August events. Effluent concentrations were below detection limits during the July and September events. Total BTEX concentrations for influent samples in June,

July, and August, were 4,670 ppbv, 9.7 ppbv, and 2.2 ppbv, respectively. Influent concentrations were not detected during the September sampling event. The total emissions for the quarter did not exceed the 13.7 pounds-per-day FDEP limit. Mass vapor emissions calculations for the highest effluent concentrations are presented in Table 1-2.

1.4.2 Groundwater Monitoring

On September 17, 2002, TtNUS personnel collected groundwater samples from three monitoring wells, FC-MW-05, FC-MW-06 and FC-MW-22. All sample activities were conducted in accordance with TtNUS, Florida Regional Quality Assurance Program Manual (TtNUS, 2002).

Immediately prior to the collection of the groundwater samples, water levels were recorded from each site monitoring well. The water level data was used to determine purge volumes. In addition, depth-to-water measurements, along with top-of-casing elevations, were used to calculate groundwater elevations. Based on these elevations, the groundwater was flowing primarily to the south-southeast at the time of the September sampling. Figure 1-2 depicts the groundwater elevations recorded on September 17, 2002. Depth-to-water measurements, top-of-casing elevations, and groundwater elevation data are provided in Table 1-3.

All monitoring wells were purged prior to collection of the groundwater samples. Purging and sampling were performed with a peristaltic pump using the low-flow quiescent method. Water sampling logs, which detail the purge process, are provided in Appendix B.

Following collection of the groundwater samples, the sample bottles were packed on ice and shipped via overnight transport to Katahdin Analytical Services in Westbrook, Maine. The groundwater samples were analyzed for compounds in the KAG. The analytical results are summarized in Table 1-4 and presented on Figure 1-3. A copy of the laboratory report is provided in Appendix A.

Benzene, naphthalene, lead and TRPH concentrations were detected in monitoring well FC-MW-06 at concentrations of 0.4 µg/L, 0.1 µg/L, 36.8 µg/L, and 150 µg/L, respectively. All petroleum hydrocarbon levels detected in the well during this quarterly sampling event were below GCTL concentrations.

Ethylbenzene, total xylenes, naphthalene, and TRPH concentrations were detected in FC-MW-22 at concentrations 95 µg/L, 12 µg/L, 360 µg/L, and 4,300 µg/L, respectively. Naphthalene concentrations were above the GCTL of 200 µg/L recommended for the site. In addition to the above constituents, 1-methylnaphthalene, 2-methylnaphthalene, acenaphthalene, and phenanthrene were also detected in the sample; however, all levels were below the GCTLs.

Hydrocarbon constituents of the KAG were not detected in the sample collected from FC-MW-05.

1.5 AS/SVE SYSTEM OPERATIONS

The remedial system has operated effectively during the entire quarter. TtNUS performed routine operation and maintenance during monthly site visits. The system operated during the three-month period, with approximately one-week of down time due to equipment repair.

1.6 CONCLUSIONS AND RECOMMENDATIONS

Total BTEX- and lead concentrations continued to be detected at low levels in the groundwater during the first quarterly event. Naphthalene was the only constituent detected above GCTLs.

Analytical results of the air samples indicated that the total emission of 13.7 pounds-per-day limit allowed by the FDEP was not exceeded. Overall, the system ran efficiently during the quarter.

Based on the continued low-level detections in the influent and effluent vapor samples, it is recommended that the long-term AS/SVE study be continued until January 2003. The treatability study can possibly be terminated at the end of January 2003 if the low levels of petroleum contaminants in the air sparge influent continue. The results indicate that the concentration of residual hydrocarbons is present in the soil and groundwater should reach GCTLs over time by natural attenuation processes.

TABLE 1-2

**MASS VAPOR EMISSIONS CALCULATIONS (JUNE 7, 2002)
AS/SVE TREATABILITY STUDY QUARTERLY REPORT
BOCA CHICA FLYING CLUB SITE, BUILDING A-127
NAVAL AIR FACILITY
KEY WEST, FLORIDA**

Parameter	Effluent Result ($\mu\text{g}/\text{m}^3$)*
Benzene	0
Toluene	7
Ethylbenzene	4
Total Xylenes	16
MTBE	0
TRPH	0
$\mu\text{g}/\text{m}^3$ of total (detectable) VOCs>>>	27.0
$\mu\text{g}/\text{ft}^3$ of total (detectable) VOCs>>>	0.76
$\text{ft}^3/\text{min. (cfm)}$ out of the carbon >>>	52
$\mu\text{g}/\text{min}$ out of the carbon >>>	40
minutes per day (24 hrs.)	1440
$\mu\text{g}/\text{day}$ >>>	5.72E+04
pounds/day	0.00
pounds/month based on 30 days>>>	0.00

* Only detectable results are used in calculations
 m^3 = cubic meters
 ft^3 = cubic feet
 cfm = cubic feet per minute
 MTBE = methyl-tertiary butyl ether
 TRPH = total recoverable petroleum hydrocarbons

TABLE 1-3

**TOP OF CASING ELEVATIONS, WATER TABLE ELEVATIONS, AND TOTAL DEPTHS
AS/SVE TREATABILITY STUDY QUARTERLY REPORT
BOCA CHICA FLYING CLUB SITE, BUILDING A-127
NAVAL AIR FACILITY
KEY WEST, FLORIDA**

Well ID	Date	Total Depth (ft³)	Top of Casing Elevation (ft)	Depth-to-water (ft below TOC)	Groundwater Elevation (ft)
FC-MW-5	9/17/2002	11.8	5.78	4.03	1.75
FC-MW-6	9/17/2002	14.1	4.86	3.04	1.82
FC-MW-22	9/17/2002	15	5.07	3.33	1.74

Top of Casing Elevations were surveyed by Donaldson, Garrett, and Associates in September 2002. Vertical datum is National Geodatic Vertical Datum of 1929 (NVGD 29).

TABLE 1-4

**GROUNDWATER MONITORING WELL ANALYTICAL RESULTS
AS/SVE TREATABILITY STUDY QUARTERLY REPORT
BOCA CHICA FLYING CLUB SITE, BUILDING A-127
NAVAL AIR FACILITY
KEY WEST, FLORIDA**

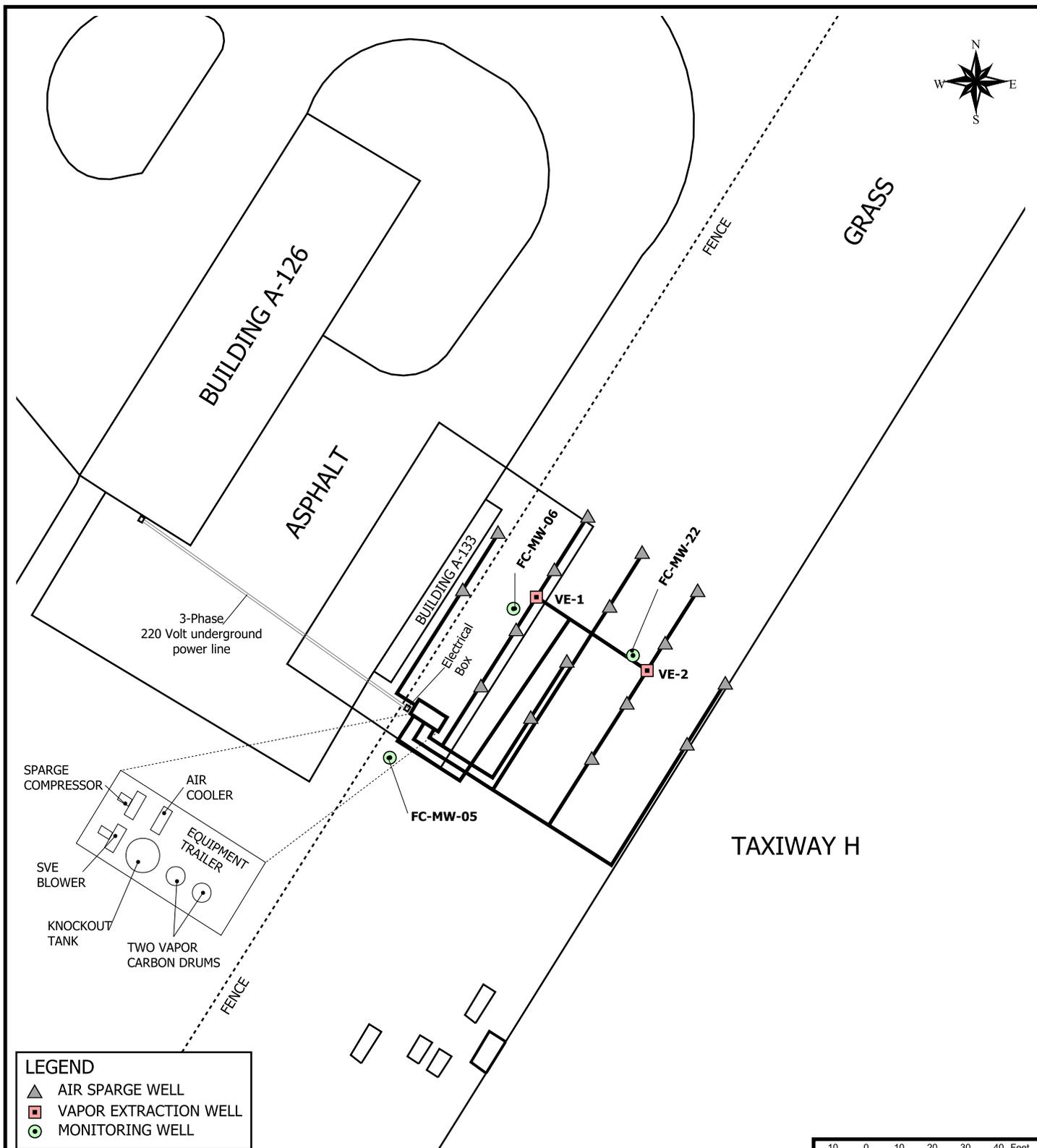
LOCATION	PARAMETER	RESULT	QUAL. ^(a)	GCTL ^(b)
LEAD (µg/L)				
FC-MW-06-0902	LEAD	36.8		150
VOLATILE ORGANIC COMPOUNDS (µg/L)				
FC-MW-06-0902	BENZENE	0.4	J	10
FC-MW-22-0902	ETHYLBENZENE	95		300
FC-MW-22-0902	TOTAL XYLENES	12		200
POLYNUCLEAR AROMATIC HYDROCARBONS (µg/L)				
FC-MW-22-0902	1-METHYLNAPHTHALENE	47		200
FC-MW-22-0902	2-METHYLNAPHTHALENE	100		200
FC-MW-22-0902	ACENAPHTHENE	0.1	J	200
FC-MW-06-0902	NAPHTHALENE	0.1	J	200
FC-MW-22-0902	NAPHTHALENE	360		
FC-MW-22-0902	PHENANTHRENE	0.08	J	2,100
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (µg/L)				
FC-MW-06-0902	TOTAL PETROLEUM HYDROCARBONS	150	J	50,000
FC-MW-22-0902	TOTAL PETROLEUM HYDROCARBONS	4,300		

Shading indicates a concentration in excess of the action level.

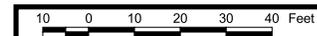
(a) Qualifier (Qual.) Codes:

J – The associated value is an estimated quantity.

(b) Groundwater Cleanup Target Level (GCTL) as listed in F.A.C. 62-777 Table I.

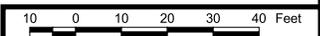
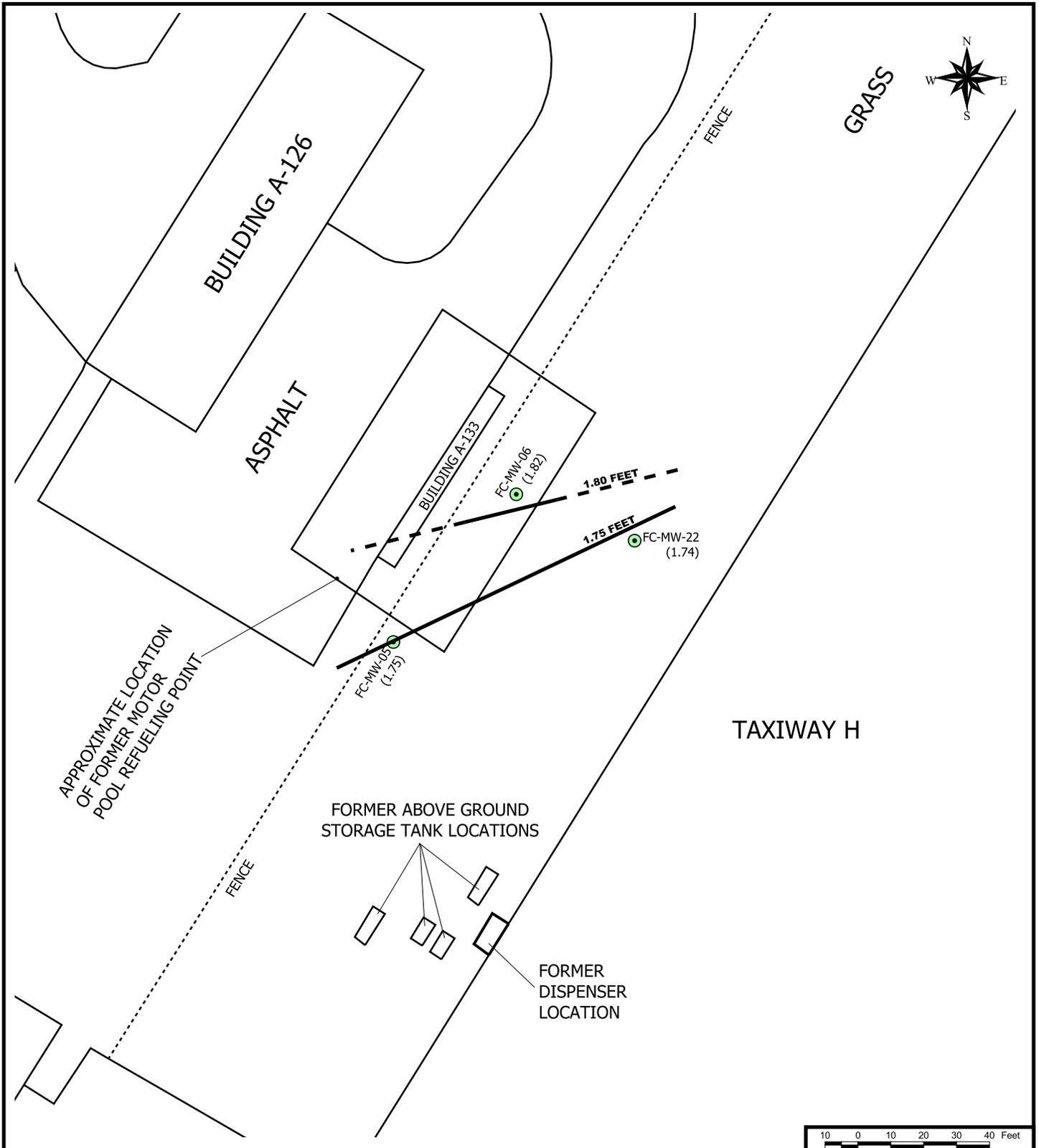


LEGEND		
	AIR SPARGE WELL	
	VAPOR EXTRACTION WELL	
	MONITORING WELL	



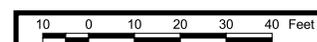
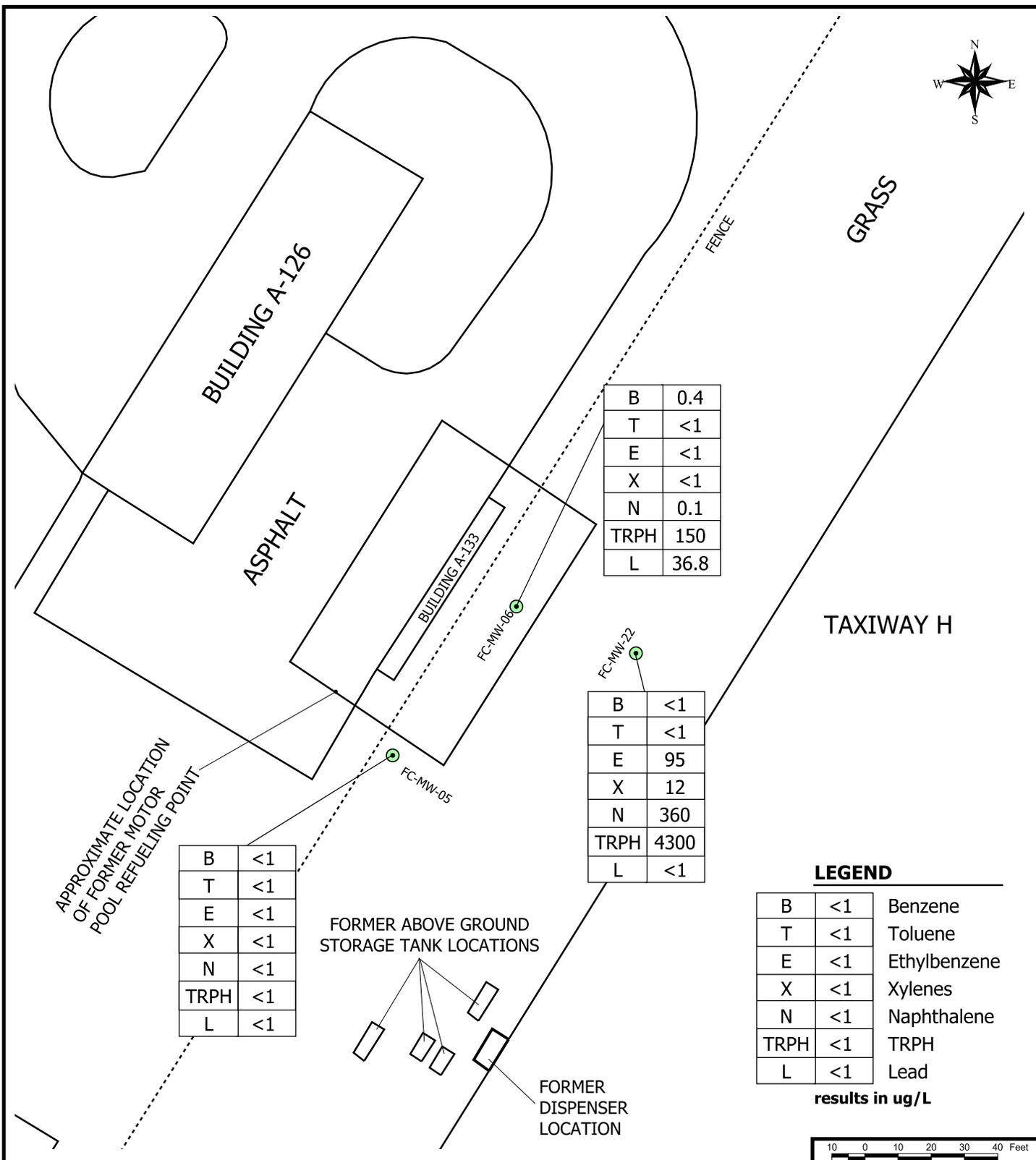
NO.			DATE			REVISIONS			DRAWN BY CM		DATE 11/26/2002				AS/SVE TREATABILITY STUDY QUARTERLY REPORT SITE MAP AND SYSTEM LAYOUT FLYING CLUB SITE, BLDG. A-127 NAVAL AIR FACILITY KEY WEST, FLORIDA		CONTRACT NO. 4087			
									CHECKED BY GB		DATE 11/26/2002						APPROVED BY CMB		DATE 11/26/2002	
									COST/SCHED-AREA								APPROVED BY		DATE	
									SCALE AS NOTED								DRAWING NO. FIGURE 1-1		REV. 0	

P:\GOVERNMENT\KEY WEST\EGIS\FLYINGCLUB_AS-SVE_QUARTERLY_REPORT.APR 11/26/2002 BY: CEM LAYOUT: TREATMENT SYSTEM



NO.	DATE	REVISIONS	DRAWN BY	DATE		CONTRACT NO.		
			CM	11/26/2002		AS/SVE TREATABILITY STUDY	4087	
			CHECKED BY	DATE		FIRST QUARTER GROUNDWATER	APPROVED BY	DATE
			GB	11/26/2002		ELEVATION MAP SEPT 17, 2002	CMB	11/26/2002
			COST/SCHED-AREA		FLYING CLUB SITE, BLDG. A-127	APPROVED BY	DATE	
			SCALE		NAVAL AIR FACILITY			
			AS NOTED		KEY WEST, FLORIDA	DRAWING NO.	REV.	
						FIGURE 2	0	

P:\GOVERNMENT\KEY WEST\EGIS\FLYINGCLUB_AS-SVE_QUARTERLY_REPORT.APR 11/26/2002 BY: CEM LAYOUT: GROUNDWATER ELEVATION CONTOUR MAP



NO.	DATE	REVISIONS	DRAWN BY CM	DATE 11/26/2002		AS/SVE TREATABILITY STUDY FIRST QUARTER GROUNDWATER ANALYTICAL RESULTS SEPT 17,2002 FLYING CLUB SITE, BLDG. A-127 NAVAL AIR FACILITY KEY WEST, FLORIDA	CONTRACT NO. 4087	
			CHECKED BY GB	DATE 11/26/2002			APPROVED BY CMB	DATE 11/26/2002
			COST/SCHED-AREA				APPROVED BY	DATE
			SCALE AS NOTED				DRAWING NO. FIGURE 3	REV. 0

P:\GOVERNMENT\KEY WEST \EGIS\FLYINGCLUB_AS-SVE_QUARTERLY_REPORT.APR 11/26/2002 BY: CEM LAYOUT: CONTAMINANT CONCENTRATION

REFERENCES

ABB-ES (Environmental Services, Inc.), 1997. Remedial Action Plan, Flying Club Site (UST Site 9), Naval Air Station, Key West, Florida, prepared for Southern Division Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), Charleston, South Carolina, August.

BEI (Bechtel Environmental, Inc.), 1999. Project Completion Report for Delivery Order No. 0094, Flying Club Site, Petroleum Remediation at Naval Air Station, Key West, Florida, prepared for Department of the Navy, Southern Division, Naval Facilities Engineering Command, Oak Ridge, Tennessee, January.

FDEP (Florida Department of Environmental Protection), 2000. Re: Annual Groundwater Monitoring Report for Flying Club Site, Key West, Florida, August 9.

TtNUS (Tetra Tech NUS, Inc.), 2000. Annual Groundwater Monitoring Plan Report for Flying Club UST Site 9, Naval Air Station, Key West, Florida, prepared for Southern Division Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), Charleston, South Carolina, July.

TtNUS (Tetra Tech NUS, Inc.), 2002. Florida Regional Quality Assurance Program Manual. Tallahassee, Florida, October.

APPENDIX A
LABORATORY REPORTS

TO: BRYAN, C. – PAGE 2
DATE: NOVEMBER 4, 2002

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."



Tetra Tech NUS
Ethan G. Lee
Environmental Scientist



Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
- D = MS/MSD Noncompliance
- E = LCS/LCSD Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = GFAA PDS - GFAA MSA's $r < 0.995$
- K = ICP Interference - include ICSAB % R's
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation
- N = Internal Standard Noncompliance
- N01 = Internal Standard Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ($< 2 \times$ IDL for inorganics and $<$ CRQL for organics)
- Q = Other problems (can encompass a number of issues)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = Pest/PCD% between columns for positive results
- V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $< 30\%$
- Z = Uncertainty at 2 sigma deviation is less than sample activity

PROJ_NO: 4087

SDG: WS3827 MEDIA: AIR DATA FRACTION: MISC

nsample FC-VBLANK-0902
 samp_date 9/17/2002
 lab_id 0209353B-03A
 qc_type NM
 Pct_Solids
 DUP_OF:

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	%	0.04		
OXYGEN	%	21		

nsample FC-VEFF-0902
 samp_date 9/17/2002
 lab_id 0209353B-02A
 qc_type NM
 Pct_Solids
 DUP_OF:

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	%	0.094		
OXYGEN	%	21		

nsample FC-VINF-0902
 samp_date 9/17/2002
 lab_id 0209353B-01A
 qc_type NM
 Pct_Solids
 DUP_OF:

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	%	0.18		
OXYGEN	%	20		

Sample aliquot and dilution factors were taken into consideration when applying the blank action levels. Positive results for methylene chloride, acetone, 2-butanone, and ethanol below the blank action level were qualified as non-detected, U.

Additional Comments: The effluent sample had a detection for tetrachloroethane but the influent did not have a detection for tetrachloroethane, this observation has been noted for the reader.

Results were reported in both ppbv and ug/m³ by the laboratory. Results presented in the database and on the spreadsheets were reported in ppbv.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Several target compounds were detected in the field blank.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99), and the NFESC guidelines IRCDQM (Sept., 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP)."


Tetra Tech NUS

Edward Sedlmyer
Chemist/Data Validator


Tetra Tech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

- Appendix A – Qualified Analytical Results
- Appendix B – Results as Reported by the Laboratory
- Appendix C – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

PROJ_NO: 4087

SDG: WS3827 MEDIA: AIR DATA FRACTION: OV

nsample FC-VBLANK-0902
 samp_date 9/17/2002
 lab_id 0209353A-03A
 qc_type NM
 units PPBV
 Pct_Solids
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	0.86	U	
1,1,2,2-TETRACHLOROETHANE	0.86	U	
1,1,2-TRICHLOROETHANE	0.86	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.86	U	
1,1-DICHLOROETHANE	0.86	U	
1,1-DICHLOROETHENE	0.86	U	
1,2,4-TRICHLOROENZENE	3.4	U	
1,2,4-TRIMETHYLBENZENE	0.86	U	
1,2-DIBROMOETHANE	0.86	U	
1,2-DICHLOROBENZENE	0.86	U	
1,2-DICHLOROETHANE	0.86	U	
1,2-DICHLOROPROPANE	0.86	U	
1,2-DICHLOROTETRAFLUROETHANE	0.86	U	
1,3,5-TRIMETHYLBENZENE	0.86	U	
1,3-BUTADIENE	3.4	U	
1,3-DICHLOROBENZENE	0.86	U	
1,4-DICHLOROBENZENE	0.86	U	
1,4-DIOXANE	3.4	U	
1-ETHYL-4-METHYL BENZENE	3.4	U	
2-BUTANONE	3.4		
2-HEXANONE	3.4	U	
4-METHYL-2-PENTANONE	3.4	U	
ACETONE	20		
BENZENE	0.86	U	
BENZYL CHLORIDE	0.86	U	
BROMODICHLOROMETHANE	3.4	U	
BROMOFORM	3.4	U	
BROMOMETHANE	0.86	U	
CARBON DISULFIDE	3.4	U	
CARBON TETRACHLORIDE	0.86	U	

nsample FC-VBLANK-0902
 samp_date 9/17/2002
 lab_id 0209353A-03A
 qc_type NM
 units PPBV
 Pct_Solids
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
CHLOROBENZENE	0.86	U	
CHLORODIBROMOMETHANE	3.4	U	
CHLOROETHANE	0.86	U	
CHLOROFORM	0.86	U	
CHLOROMETHANE	2		
CIS-1,2-DICHLOROETHENE	0.86	U	
CIS-1,3-DICHLOROPROPENE	0.86	U	
CYCLOHEXANE	3.4	U	
DICHLORODIFLUOROMETHANE	0.86	U	
ETHANOL	4		
ETHYLBENZENE	0.86	U	
HEXACHLOROBUTADIENE	3.4	U	
HEXANE	3.4	U	
ISOPROPANOL	3.4	U	
M+P-XYLENES	0.86	U	
METHYL TERT-BUTYL ETHER	3.4	U	
METHYLENE CHLORIDE	1		
N-HEPTANE	3.4	U	
O-XYLENE	0.86	U	
PROPYLENE	3.4	U	
STYRENE	0.86	U	
TETRACHLOROETHENE	0.86	U	
TETRAHYDROFURAN	3.4	U	
TOLUENE	0.86	U	
TRANS-1,2-DICHLOROETHENE	3.4	U	
TRANS-1,3-DICHLOROPROPENE	0.86	U	
TRICHLOROETHENE	0.86	U	
TRICHLOROFLUOROMETHANE	0.86	U	
VINYL ACETATE	3.4	U	
VINYL CHLORIDE	0.86	U	

nsample FC-VEFF-0902
 samp_date 9/17/2002
 lab_id 0209353A-02A
 qc_type NM
 units PPBV
 Pct_Solids
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	0.84	U	
1,1,2,2-TETRACHLOROETHANE	0.84	U	
1,1,2-TRICHLOROETHANE	0.84	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.84	U	
1,1-DICHLOROETHANE	0.84	U	
1,1-DICHLOROETHENE	0.84	U	
1,2,4-TRICHLOROENZENE	3.4	U	
1,2,4-TRIMETHYLBENZENE	0.84	U	
1,2-DIBROMOETHANE	0.84	U	
1,2-DICHLOROBENZENE	0.84	U	
1,2-DICHLOROETHANE	0.84	U	
1,2-DICHLOROPROPANE	0.84	U	
1,2-DICHLOROTETRAFLUROETHANE	0.84	U	
1,3,5-TRIMETHYLBENZENE	0.84	U	
1,3-BUTADIENE	3.4	U	
1,3-DICHLOROBENZENE	0.84	U	
1,4-DICHLOROBENZENE	0.84	U	
1,4-DIOXANE	3.4	U	
1-ETHYL-4-METHYL BENZENE	3.4	U	
2-BUTANONE	3.4	U	
2-HEXANONE	3.4	U	
4-METHYL-2-PENTANONE	3.4	U	
ACETONE	6.6	U	B
BENZENE	0.84	U	
BENZYL CHLORIDE	0.84	U	
BROMODICHLOROMETHANE	3.4	U	
BROMOFORM	3.4	U	
BROMOMETHANE	0.84	U	
CARBON DISULFIDE	3.4	U	
CARBON TETRACHLORIDE	0.84	U	

PROJ_NO: 4087

SDG: WS3827 MEDIA: AIR DATA FRACTION: OV

nsample FC-VEFF-0902
 samp_date 9/17/2002
 lab_id 0209353A-02A
 qc_type NM
 units PPBV
 Pct_Solids
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
CHLOROBENZENE	0.84	U	
CHLORODIBROMOMETHANE	3.4	U	
CHLOROETHANE	0.84	U	
CHLOROFORM	0.84	U	
CHLOROMETHANE	0.84	U	
CIS-1,2-DICHLOROETHENE	0.84	U	
CIS-1,3-DICHLOROPROPENE	0.84	U	
CYCLOHEXANE	3.4	U	
DICHLORODIFLUOROMETHANE	0.84	U	
ETHANOL	4.8	U	B
ETHYLBENZENE	0.84	U	
HEXACHLOROBUTADIENE	3.4	U	
HEXANE	3.4	U	
ISOPROPANOL	3.4	U	
M+P-XYLENES	0.84	U	
METHYL TERT-BUTYL ETHER	3.4	U	
METHYLENE CHLORIDE	1.2	U	B
N-HEPTANE	3.4	U	
O-XYLENE	0.84	U	
PROPYLENE	3.4	U	
STYRENE	0.84	U	
TETRACHLOROETHENE	0.85		
TETRAHYDROFURAN	3.4	U	
TOLUENE	0.84	U	
TRANS-1,2-DICHLOROETHENE	3.4	U	
TRANS-1,3-DICHLOROPROPENE	0.84	U	
TRICHLOROETHENE	0.84	U	
TRICHLOROFLUOROMETHANE	0.84	U	
VINYL ACETATE	3.4	U	
VINYL CHLORIDE	0.84	U	

nsample FC-VINF-0902
 samp_date 9/17/2002
 lab_id 0209353A-01A
 qc_type NM
 units PPBV
 Pct_Solids
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	0.88	U	
1,1,2,2-TETRACHLOROETHANE	0.88	U	
1,1,2-TRICHLOROETHANE	0.88	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.88	U	
1,1-DICHLOROETHANE	0.88	U	
1,1-DICHLOROETHENE	0.88	U	
1,2,4-TRICHLOROBENZENE	3.5	U	
1,2,4-TRIMETHYLBENZENE	0.88	U	
1,2-DIBROMOETHANE	0.88	U	
1,2-DICHLOROBENZENE	0.88	U	
1,2-DICHLOROETHANE	0.88	U	
1,2-DICHLOROPROPANE	0.88	U	
1,2-DICHLOROTETRAFLUROETHANE	0.88	U	
1,3,5-TRIMETHYLBENZENE	0.88	U	
1,3-BUTADIENE	3.5	U	
1,3-DICHLOROBENZENE	0.88	U	
1,4-DICHLOROBENZENE	0.88	U	
1,4-DIOXANE	3.5	U	
1-ETHYL-4-METHYL BENZENE	3.5	U	
2-BUTANONE	11	U	B
2-HEXANONE	3.5	U	
4-METHYL-2-PENTANONE	3.5	U	
ACETONE	13	U	B
BENZENE	0.88	U	
BENZYL CHLORIDE	0.88	U	
BROMODICHLOROMETHANE	3.5	U	
BROMOFORM	3.5	U	
BROMOMETHANE	0.88	U	
CARBON DISULFIDE	3.5	U	
CARBON TETRACHLORIDE	0.88	U	

nsample FC-VINF-0902
 samp_date 9/17/2002
 lab_id 0209353A-01A
 qc_type NM
 units PPBV
 Pct_Solids
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
CHLOROBENZENE	0.88	U	
CHLORODIBROMOMETHANE	3.5	U	
CHLOROETHANE	0.88	U	
CHLOROFORM	0.88	U	
CHLOROMETHANE	0.88	U	
CIS-1,2-DICHLOROETHENE	0.88	U	
CIS-1,3-DICHLOROPROPENE	0.88	U	
CYCLOHEXANE	3.5	U	
DICHLORODIFLUOROMETHANE	0.88	U	
ETHANOL	4.2	U	B
ETHYLBENZENE	0.88	U	
HEXACHLOROBUTADIENE	3.5	U	
HEXANE	3.5	U	
ISOPROPANOL	4.6		
M+P-XYLENES	0.88	U	
METHYL TERT-BUTYL ETHER	3.5	U	
METHYLENE CHLORIDE	1.7	U	B
N-HEPTANE	3.5	U	
O-XYLENE	0.88	U	
PROPYLENE	3.5	U	
STYRENE	0.88	U	
TETRACHLOROETHENE	0.88	U	
TETRAHYDROFURAN	23		
TOLUENE	0.88	U	
TRANS-1,2-DICHLOROETHENE	3.5	U	
TRANS-1,3-DICHLOROPROPENE	0.88	U	
TRICHLOROETHENE	0.88	U	
TRICHLOROFLUOROMETHANE	0.88	U	
VINYL ACETATE	3.5	U	
VINYL CHLORIDE	0.88	U	

Sample FC-VINF-01 was analyzed at a dilution because of the concentration of target analytes present. The sample was not analyzed un-diluted. This accounts for the elevated reporting limits for all non-detected parameters.

Results were reported in ppb(v) and in ug/m³. The results in the database were presented in ppb(v) units.

EXECUTIVE SUMMARY

Laboratory Performance Issues: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and the NFESC guidelines. The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP)."



Tetra Tech NUS
Bernard F. Spada III
Chemist/Data Validator



TetraTech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C - Support Documentation

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
- D = MS/MSD Noncompliance
- E = LCS/LCSD Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = GFAA PDS - GFAA MSA's $r < 0.995$
- K = ICP Interference - include ICSAB % R's
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation
- N = Internal Standard Noncompliance
- N01 = Internal Standard Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-line drifting)
- P = Uncertainty near detection limit ($< 2 \times$ IDL for inorganics and $<$ CRQL for organics)
- Q = Other problems (can encompass a number of issues)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = Pest/PCD% between columns for positive results
- V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $< 30\%$
- Z = Uncertainty at 2 sigma deviation is less than sample activity

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

PROJ_NO: 4087

SDG: WS1473 MEDIA: AIR DATA FRACTION: OV

nsample FC-BLK-01
 samp_date 6/20/02
 lab_id 0206423A-03A
 qc_type NM
 units PPBV
 Pct_Solids
 DUP_OF:

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	0.84	U	
1,1,2,2-TETRACHLOROETHANE	0.84	U	
1,1,2-TRICHLOROETHANE	0.84	U	
1,1,2-TRICHLOROTRIFLUOROE	0.84	U	
1,1-DICHLOROETHANE	0.84	U	
1,1-DICHLOROETHENE	0.84	U	
1,2,4-TRICHLOROBENZENE	3.4	U	
1,2,4-TRIMETHYLBENZENE	0.84	U	
1,2-DIBROMOETHANE	0.84	U	
1,2-DICHLOROBENZENE	0.84	U	
1,2-DICHLOROETHANE	0.84	U	
1,2-DICHLOROPROPANE	0.84	U	
1,2-DICHLOROTETRAFLUORO	0.84	U	
1,3,5-TRIMETHYLBENZENE	0.84	U	
1,3-BUTADIENE	3.4	U	
1,3-DICHLOROBENZENE	0.84	U	
1,4-DICHLOROBENZENE	0.84	U	
1,4-DIOXANE	3.4	U	
1-ETHYL-4-METHYL BENZENE	3.4	U	
2-BUTANONE	3.4	U	
2-HEXANONE	3.4	U	
4-METHYL-2-PENTANONE	3.4	U	
ACETONE	12		
BENZENE	0.84	U	
BENZYL CHLORIDE	0.84	U	
BROMODICHLOROMETHANE	3.4	U	
BROMOFORM	3.4	U	
BROMOMETHANE	0.84	U	
CARBON DISULFIDE	3.4	U	
CARBON TETRACHLORIDE	0.84	U	

nsample FC-BLK-01
 samp_date 6/20/02
 lab_id 0206423A-03A
 qc_type NM
 units PPBV
 Pct_Solids
 DUP_OF:

Parameter	Result	ValQual	QualCode
CHLOROBENZENE	0.84	U	
CHLORODIBROMOMETHANE	3.4	U	
CHLOROETHANE	0.84	U	
CHLOROFORM	0.84	U	
CHLOROMETHANE	0.84	U	
CIS-1,2-DICHLOROETHENE	0.84	U	
CIS-1,3-DICHLOROPROPENE	0.84	U	
CYCLOHEXANE	3.4	U	
DICHLORODIFLUOROMETHAN	0.84	U	
ETHANOL	3.4	U	
ETHYLBENZENE	0.84	U	
HEXACHLOROBUTADIENE	3.4	U	
HEXANE	3.4	U	
ISOPROPANOL	3.4	U	
M+P-XYLENES	0.84	U	
METHYL TERT-BUTYL ETHER	3.4	U	
METHYLENE CHLORIDE	0.91		
N-HEPTANE	3.4	U	
O-XYLENE	0.84	U	
PROPYLENE	3.4	U	
STYRENE	0.84	U	
TETRACHLOROETHENE	0.84	U	
TETRAHYDROFURAN	3.4	U	
TOLUENE	0.84	U	
TRANS-1,2-DICHLOROETHENE	3.4	U	
TRANS-1,3-DICHLOROPROPEN	0.84	U	
TRICHLOROETHENE	0.84	U	
TRICHLOROFLUOROMETHANE	0.84	U	
VINYL ACETATE	3.4	U	
VINYL CHLORIDE	0.84	U	

nsample FC-VEFF-01
 samp_date 6/20/02
 lab_id 0206423A-02A
 qc_type NM
 units PPBV
 Pct_Solids
 DUP_OF:

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	0.92	U	
1,1,2,2-TETRACHLOROETHANE	0.92	U	
1,1,2-TRICHLOROETHANE	0.92	U	
1,1,2-TRICHLOROTRIFLUOROE	0.92	U	
1,1-DICHLOROETHANE	0.92	U	
1,1-DICHLOROETHENE	0.92	U	
1,2,4-TRICHLOROBENZENE	3.7	U	
1,2,4-TRIMETHYLBENZENE	13		
1,2-DIBROMOETHANE	0.92	U	
1,2-DICHLOROBENZENE	0.92	U	
1,2-DICHLOROETHANE	0.92	U	
1,2-DICHLOROPROPANE	0.92	U	
1,2-DICHLOROTETRAFLUORO	0.92	U	
1,3,5-TRIMETHYLBENZENE	3.6		
1,3-BUTADIENE	3.7	U	
1,3-DICHLOROBENZENE	0.92	U	
1,4-DICHLOROBENZENE	1.5		
1,4-DIOXANE	3.7	U	
1-ETHYL-4-METHYL BENZENE	7.8		
2-BUTANONE	3.7	U	
2-HEXANONE	3.7	U	
4-METHYL-2-PENTANONE	3.7	U	
ACETONE	61	U	B
BENZENE	0.92	U	
BENZYL CHLORIDE	0.92	U	
BROMODICHLOROMETHANE	3.7	U	
BROMOFORM	3.7	U	
BROMOMETHANE	0.92	U	
CARBON DISULFIDE	3.7	U	
CARBON TETRACHLORIDE	0.92	U	

PROJ_NO: 4087

SDG: WS1473 MEDIA: AIR DATA FRACTION: OV

nsample FC-VEFF-01
 samp_date 6/20/02
 lab_id 0206423A-02A
 qc_type NM
 units PPBV
 Pct_Solids
 DUP_OF:

Parameter	Result	ValQual	QualCode
CHLORO BENZENE	0.92	U	
CHLORODIBROMOMETHANE	3.7	U	
CHLOROETHANE	0.92	U	
CHLOROFORM	0.92	U	
CHLOROMETHANE	0.92	U	
CIS-1,2-DICHLOROETHENE	0.92	U	
CIS-1,3-DICHLOROPROPENE	0.92	U	
CYCLOHEXANE	36		
DICHLORODIFLUOROMETHAN	0.92	U	
ETHANOL	5.4		
ETHYLBENZENE	3.7		
HEXACHLOROBUTADIENE	3.7	U	
HEXANE	59		
ISOPROPANOL	3.7	U	
M+P-XYLENES	12		
METHYL TERT-BUTYL ETHER	3.7	U	
METHYLENE CHLORIDE	1.5	U	B
N-HEPTANE	55		
O-XYLENE	4.4		
PROPYLENE	3.7	U	
STYRENE	0.92	U	
TETRACHLOROETHENE	2.8		
TETRAHYDROFURAN	3.7	U	
TOLUENE	7.4		
TRANS-1,2-DICHLOROETHENE	3.7	U	
TRANS-1,3-DICHLOROPROPEN	0.92	U	
TRICHLOROETHENE	0.92	U	
TRICHLOROFLUOROMETHANE	0.92	U	
VINYL ACETATE	3.7	U	
VINYL CHLORIDE	0.92	U	

nsample FC-VINF-01
 samp_date 6/20/02
 lab_id 0206423A-01A
 qc_type NM
 units PPBV
 Pct_Solids
 DUP_OF:

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	340	U	
1,1,2,2-TETRACHLOROETHANE	340	U	
1,1,2-TRICHLOROETHANE	340	U	
1,1,2-TRICHLOROTRIFLUOROE	340	U	
1,1-DICHLOROETHANE	340	U	
1,1-DICHLOROETHENE	340	U	
1,2,4-TRICHLOROBENZENE	1400	U	
1,2,4-TRIMETHYLBENZENE	340	U	
1,2-DIBROMOETHANE	340	U	
1,2-DICHLOROBENZENE	340	U	
1,2-DICHLOROETHANE	340	U	
1,2-DICHLOROPROPANE	340	U	
1,2-DICHLOROTETRAFLUORO	340	U	
1,3,5-TRIMETHYLBENZENE	340	U	
1,3-BUTADIENE	1400	U	
1,3-DICHLOROBENZENE	340	U	
1,4-DICHLOROBENZENE	340	U	
1,4-DIOXANE	1400	U	
1-ETHYL-4-METHYL BENZENE	1400	U	
2-BUTANONE	1400	U	
2-HEXANONE	1400	U	
4-METHYL-2-PENTANONE	1400	U	
ACETONE	1400	U	
BENZENE	340	U	
BENZYL CHLORIDE	340	U	
BROMODICHLOROMETHANE	1400	U	
BROMOFORM	1400	U	
BROMOMETHANE	340	U	
CARBON DISULFIDE	1400	U	
CARBON TETRACHLORIDE	340	U	

nsample FC-VINF-01
 samp_date 6/20/02
 lab_id 0206423A-01A
 qc_type NM
 units PPBV
 Pct_Solids
 DUP_OF:

Parameter	Result	ValQual	QualCode
CHLORO BENZENE	340	U	
CHLORODIBROMOMETHANE	1400	U	
CHLOROETHANE	340	U	
CHLOROFORM	340	U	
CHLOROMETHANE	340	U	
CIS-1,2-DICHLOROETHENE	340	U	
CIS-1,3-DICHLOROPROPENE	340	U	
CYCLOHEXANE	71000		
DICHLORODIFLUOROMETHAN	340	U	
ETHANOL	1400	U	
ETHYLBENZENE	4100		
HEXACHLOROBUTADIENE	1400	U	
HEXANE	79000		
ISOPROPANOL	1400	U	
M+P-XYLENES	570		
METHYL TERT-BUTYL ETHER	1400	U	
METHYLENE CHLORIDE	340	U	
N-HEPTANE	110000		
O-XYLENE	340	U	
PROPYLENE	1400	U	
STYRENE	340	U	
TETRACHLOROETHENE	340	U	
TETRAHYDROFURAN	1400	U	
TOLUENE	340	U	
TRANS-1,2-DICHLOROETHENE	1400	U	
TRANS-1,3-DICHLOROPROPEN	340	U	
TRICHLOROETHENE	340	U	
TRICHLOROFLUOROMETHANE	340	U	
VINYL ACETATE	1400	U	
VINYL CHLORIDE	340	U	

Sample BCFC-VINF-0702 was analyzed at a dilution because of the concentration of target analytes present. The sample was not analyzed un-diluted. This accounts for the elevated reporting limits for all non-detected parameters.

Results were reported in ppb(v) and in ug/m³. The results in the database were presented in ppb(v) units.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Qualifications were made based on field blank contamination.

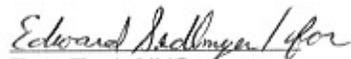
Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and the NFESC guidelines. The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP)."



Tetra Tech NUS
Bernard F. Spada III
Chemist/Data Validator



TetraTech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
- D = MS/MSD Noncompliance
- E = LCS/LCSD Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = GFAA PDS - GFAA MSA's $r < 0.995$
- K = ICP Interference - include ICSAB % R's
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation
- N = Internal Standard Noncompliance
- N01 = Internal Standard Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ($< 2 \times$ IDL for inorganics and $<$ CRQL for organics)
- Q = Other problems (can encompass a number of issues)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = Pest/PCD% between columns for positive results
- V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $< 30\%$
- Z = Uncertainty at 2 sigma deviation is less than sample activity

PROJ_NO: 4087

SDG: WS1692 MEDIA: AIR DATA FRACTION: OV

nsample BCFC-BLK-0702
 samp_date 7/22/2002
 lab_id 0207487A-03A
 qc_type NM
 units PPBV
 Pct_Solids 100
 DUP_OF:

nsample BCFC-BLK-0702
 samp_date 7/22/2002
 lab_id 0207487A-03A
 qc_type NM
 units PPBV
 Pct_Solids 100
 DUP_OF:

nsample BCFC-VEFF-0702
 samp_date 7/22/2002
 lab_id 0207487A-02A
 qc_type NM
 units PPBV
 Pct_Solids 100
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	0.94	U	
1,1,2,2-TETRACHLOROETHANE	0.94	U	
1,1,2-TRICHLOROETHANE	0.94	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.94	U	
1,1-DICHLOROETHANE	0.94	U	
1,1-DICHLOROETHENE	0.94	U	
1,2,4-TRICHLOROBENZENE	3.7	U	
1,2,4-TRIMETHYLBENZENE	0.94	U	
1,2-DIBROMOETHANE	0.94	U	
1,2-DICHLOROBENZENE	0.94	U	
1,2-DICHLOROETHANE	0.94	U	
1,2-DICHLOROPROPANE	0.94	U	
1,2-DICHLOROTETRAFLUROETHANE	0.94	U	
1,3,5-TRIMETHYLBENZENE	0.94	U	
1,3-BUTADIENE	3.7	U	
1,3-DICHLOROBENZENE	0.94	U	
1,4-DICHLOROBENZENE	0.94	U	
1,4-DIOXANE	3.7	U	
1-ETHYL-4-METHYL BENZENE	3.7	U	
2-BUTANONE	8.2		
2-HEXANONE	3.7	U	
4-METHYL-2-PENTANONE	3.7	U	
ACETONE	110		
BENZENE	0.94	U	
BENZYL CHLORIDE	0.94	U	
BROMODICHLOROMETHANE	3.7	U	
BROMOFORM	3.7	U	
BROMOMETHANE	0.94	U	
CARBON DISULFIDE	3.7	U	
CARBON TETRACHLORIDE	0.94	U	

Parameter	Result	Val Qual	Qual Code
CHLOROBENZENE	0.94	U	
CHLORODIBROMOMETHANE	3.7	U	
CHLOROETHANE	0.94	U	
CHLOROFORM	0.94	U	
CHLOROMETHANE	0.94	U	
CIS-1,2-DICHLOROETHENE	0.94	U	
CIS-1,3-DICHLOROPROPENE	0.94	U	
CYCLOHEXANE	3.7	U	
DICHLORODIFLUOROMETHANE	0.94	U	
ETHANOL	5.4		
ETHYLBENZENE	0.94	U	
HEXACHLOROBUTADIENE	3.7	U	
HEXANE	3.7	U	
ISOPROPANOL	3.7	U	
M+P-XYLENES	0.94	U	
METHYL TERT-BUTYL ETHER	3.7	U	
METHYLENE CHLORIDE	1.1		
N-HEPTANE	3.7	U	
O-XYLENE	0.94	U	
PROPYLENE	3.7	U	
STYRENE	0.94	U	
TETRACHLOROETHENE	0.94	U	
TETRAHYDROFURAN	3.7	U	
TOLUENE	0.94	U	
TRANS-1,2-DICHLOROETHENE	3.7	U	
TRANS-1,3-DICHLOROPROPENE	0.94	U	
TRICHLOROETHENE	0.94	U	
TRICHLOROFLUOROMETHANE	0.94	U	
VINYL ACETATE	3.7	U	
VINYL CHLORIDE	0.94	U	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	0.88	U	
1,1,2,2-TETRACHLOROETHANE	0.88	U	
1,1,2-TRICHLOROETHANE	0.88	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.88	U	
1,1-DICHLOROETHANE	0.88	U	
1,1-DICHLOROETHENE	0.88	U	
1,2,4-TRICHLOROBENZENE	3.5	U	
1,2,4-TRIMETHYLBENZENE	0.88	U	
1,2-DIBROMOETHANE	0.88	U	
1,2-DICHLOROBENZENE	0.88	U	
1,2-DICHLOROETHANE	0.88	U	
1,2-DICHLOROPROPANE	0.88	U	
1,2-DICHLOROTETRAFLUROETHANE	0.88	U	
1,3,5-TRIMETHYLBENZENE	0.88	U	
1,3-BUTADIENE	3.5	U	
1,3-DICHLOROBENZENE	0.88	U	
1,4-DICHLOROBENZENE	0.88	U	
1,4-DIOXANE	3.5	U	
1-ETHYL-4-METHYL BENZENE	3.5	U	
2-BUTANONE	3.5	U	
2-HEXANONE	3.5	U	
4-METHYL-2-PENTANONE	3.5	U	
ACETONE	19	U	A
BENZENE	0.88	U	
BENZYL CHLORIDE	0.88	U	
BROMODICHLOROMETHANE	3.5	U	
BROMOFORM	3.5	U	
BROMOMETHANE	0.88	U	
CARBON DISULFIDE	3.5	U	
CARBON TETRACHLORIDE	0.88	U	

PROJ_NO: 4087

SDG: WS1692 MEDIA: AIR DATA FRACTION: OV

nsample BCFC-VEFF-0702
 samp_date 7/22/2002
 lab_id 0207487A-02A
 qc_type NM
 units PPBV
 Pct_Solids 100
 DUP_OF:

nsample BCFC-VINF-0702
 samp_date 7/22/2002
 lab_id 0207487A-01A
 qc_type NM
 units PPBV
 Pct_Solids 100
 DUP_OF:

nsample BCFC-VINF-0702
 samp_date 7/22/2002
 lab_id 0207487A-01A
 qc_type NM
 units PPBV
 Pct_Solids 100
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
CHLORO BENZENE	0.88	U	
CHLORODIBROMOMETHANE	3.5	U	
CHLOROETHANE	0.88	U	
CHLOROFORM	0.88	U	
CHLOROMETHANE	0.88	U	
CIS-1,2-DICHLOROETHENE	0.88	U	
CIS-1,3-DICHLOROPROPENE	0.88	U	
CYCLOHEXANE	3.5	U	
DICHLORODIFLUOROMETHANE	0.88	U	
ETHANOL	3.5	U	
ETHYLBENZENE	0.88	U	
HEXACHLOROBUTADIENE	3.5	U	
HEXANE	4.5		
ISOPROPANOL	3.5	U	
M+P-XYLENES	0.88	U	
METHYL TERT-BUTYL ETHER	3.5	U	
METHYLENE CHLORIDE	1.1	U	A
N-HEPTANE	20		
O-XYLENE	0.88	U	
PROPYLENE	3.5	U	
STYRENE	0.88	U	
TETRACHLOROETHENE	0.88	U	
Tetrahydrofuran	3.5	U	
TOLUENE	0.88	U	
TRANS-1,2-DICHLOROETHENE	3.5	U	
TRANS-1,3-DICHLOROPROPENE	0.88	U	
TRICHLOROETHENE	0.88	U	
TRICHLOROFUOROMETHANE	0.88	U	
VINYL ACETATE	3.5	U	
VINYL CHLORIDE	0.88	U	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	6.2	U	
1,1,2,2-TETRACHLOROETHANE	6.2	U	
1,1,2-TRICHLOROETHANE	6.2	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	6.2	U	
1,1-DICHLOROETHANE	6.2	U	
1,1-DICHLOROETHENE	6.2	U	
1,2,4-TRICHLOROBENZENE	25	U	
1,2,4-TRIMETHYLBENZENE	6.2	U	
1,2-DIBROMOETHANE	6.2	U	
1,2-DICHLOROBENZENE	6.2	U	
1,2-DICHLOROETHANE	6.2	U	
1,2-DICHLOROPROPANE	6.2	U	
1,2-DICHLOROTETRAFLUROETHANE	6.2	U	
1,3,5-TRIMETHYLBENZENE	6.2	U	
1,3-BUTADIENE	25	U	
1,3-DICHLOROBENZENE	6.2	U	
1,4-DICHLOROBENZENE	6.2	U	
1,4-DIOXANE	25	U	
1-ETHYL-4-METHYL BENZENE	25	U	
2-BUTANONE	25	U	
2-HEXANONE	25	U	
4-METHYL-2-PENTANONE	25	U	
ACETONE	190	U	A
BENZENE	6.2	U	
BENZYL CHLORIDE	6.2	U	
BROMODICHLOROMETHANE	25	U	
BROMOFORM	25	U	
BROMOMETHANE	6.2	U	
CARBON DISULFIDE	25	U	
CARBON TETRACHLORIDE	6.2	U	

Parameter	Result	Val Qual	Qual Code
CHLORO BENZENE	6.2	U	
CHLORODIBROMOMETHANE	25	U	
CHLOROETHANE	6.2	U	
CHLOROFORM	6.2	U	
CHLOROMETHANE	6.2	U	
CIS-1,2-DICHLOROETHENE	6.2	U	
CIS-1,3-DICHLOROPROPENE	6.2	U	
CYCLOHEXANE	800		
DICHLORODIFLUOROMETHANE	6.2	U	
ETHANOL	25	U	
ETHYLBENZENE	9.7		
HEXACHLOROBUTADIENE	25	U	
HEXANE	1000		
ISOPROPANOL	25	U	
M+P-XYLENES	6.2	U	
METHYL TERT-BUTYL ETHER	25	U	
METHYLENE CHLORIDE	6.2	U	
N-HEPTANE	1300		
O-XYLENE	6.2	U	
PROPYLENE	25	U	
STYRENE	6.2	U	
TETRACHLOROETHENE	6.2	U	
Tetrahydrofuran	25	U	
TOLUENE	6.2	U	
TRANS-1,2-DICHLOROETHENE	25	U	
TRANS-1,3-DICHLOROPROPENE	6.2	U	
TRICHLOROETHENE	6.2	U	
TRICHLOROFUOROMETHANE	6.2	U	
VINYL ACETATE	25	U	
VINYL CHLORIDE	6.2	U	

PROJ_NO: 4087

SDG: WS1692 MEDIA: AIR DATA FRACTION: MISC

nsample BCFC-BLK-0702
 samp_date 7/22/2002
 lab_id 0207487B-03A
 qc_type NM
 Pct_Solids 100
 DUP_OF:

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	%	0.04		
OXYGEN	%	22		

nsample BCFC-VEFF-0702
 samp_date 7/22/2002
 lab_id 0207487B-02A
 qc_type NM
 Pct_Solids 100
 DUP_OF:

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	%	0.07		
OXYGEN	%	22		

nsample BCFC-VINF-0702
 samp_date 7/22/2002
 lab_id 0207487B-01A
 qc_type NM
 Pct_Solids 100
 DUP_OF:

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	%	0.065		
OXYGEN	%	22		

EXECUTIVE SUMMARY

Laboratory Performance Issues: Hexane and n-heptane exceeded the linear calibration range of the instrument.

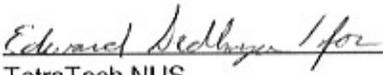
Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October, 1999), and the NFESC guidelines IRCDQM (September, 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP)."


Tetra Tech NUS

Seth C. Staffen
Environmental Scientist/Data Validator


TetraTech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
- D = MS/MSD Noncompliance
- E = LCS/LCSD Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = GFAA PDS - GFAA MSA's $r < 0.995$
- K = ICP Interference - include ICSAB % R's
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation
- N = Internal Standard Noncompliance
- N01 = Internal Standard Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ($< 2 \times$ IDL for inorganics and $<$ CRQL for organics)
- Q = Other problems (can encompass a number of issues)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = Pest/PCD% between columns for positive results
- V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $< 30\%$
- Z = Uncertainty at 2 sigma deviation is less than sample activity

PROJ_NO: 4087

SDG: WS1812 MEDIA: AIR DATA FRACTION: OV

nsample BCFC-VBLANK-0802
 samp_date 8/21/2002
 lab_id 0208461A-03A
 qc_type NM
 units PPBV
 Pct_Solids 100
 DUP_OF:

nsample BCFC-VBLANK-0802
 samp_date 8/21/2002
 lab_id 0208461A-03A
 qc_type NM
 units PPBV
 Pct_Solids 100
 DUP_OF:

nsample BCFC-VEFF-0802
 samp_date 8/21/2002
 lab_id 0208461A-02A
 qc_type NM
 units PPBV
 Pct_Solids 100
 DUP_OF:

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	1.2	U	
1,1,2,2-TETRACHLOROETHAN	1.2	U	
1,1,2-TRICHLOROETHANE	1.2	U	
1,1,2-TRICHLOROTRIFLUOROE	1.2	U	
1,1-DICHLOROETHANE	1.2	U	
1,1-DICHLOROETHENE	1.2	U	
1,2,4-TRICHLOROBENZENE	5	U	
1,2,4-TRIMETHYLBENZENE	1.2	U	
1,2-DIBROMOETHANE	1.2	U	
1,2-DICHLOROBENZENE	1.2	U	
1,2-DICHLOROETHANE	1.2	U	
1,2-DICHLOROPROPANE	1.2	U	
1,2-DICHLOROTETRAFLUROO	1.2	U	
1,3,5-TRIMETHYLBENZENE	1.2	U	
1,3-BUTADIENE	5	U	
1,3-DICHLOROBENZENE	1.2	U	
1,4-DICHLOROBENZENE	1.2	U	
1,4-DIOXANE	5	U	
1-ETHYL-4-METHYL BENZENE	5	U	
2-BUTANONE	5	U	
2-HEXANONE	5	U	
4-METHYL-2-PENTANONE	5	U	
ACETONE	7.4		
BENZENE	1.2	U	
BENZYL CHLORIDE	1.2	U	
BROMODICHLOROMETHANE	5	U	
BROMOFORM	5	U	
BROMOMETHANE	1.2	U	
CARBON DISULFIDE	5	U	
CARBON TETRACHLORIDE	1.2	U	

Parameter	Result	ValQual	QualCode
CHLOROBENZENE	1.2	U	
CHLORODIBROMOMETHANE	5	U	
CHLOROETHANE	1.2	U	
CHLOROFORM	1.2	U	
CHLOROMETHANE	1.2	U	
CIS-1,2-DICHLOROETHENE	1.2	U	
CIS-1,3-DICHLOROPROPENE	1.2	U	
CYCLOHEXANE	5	U	
DICHLORODIFLUOROMETHAN	1.2	U	
ETHANOL	5	U	
ETHYLBENZENE	1.2	U	
HEXACHLOROBUTADIENE	5	U	
HEXANE	5	U	
ISOPROPANOL	5	U	
M+P-XYLENES	1.2	U	
METHYL TERT-BUTYL ETHER	5	U	
METHYLENE CHLORIDE	2.1		
N-HEPTANE	5	U	
O-XYLENE	1.2	U	
PROPYLENE	5	U	
STYRENE	1.2	U	
TETRACHLOROETHENE	1.2	U	
TETRAHYDROFURAN	5	U	
TOLUENE	1.2	U	
TRANS-1,2-DICHLOROETHENE	5	U	
TRANS-1,3-DICHLOROPROPEN	1.2	U	
TRICHLOROETHENE	1.2	U	
TRICHLOROFLUOROMETHANE	1.2	U	
VINYL ACETATE	5	U	
VINYL CHLORIDE	1.2	U	

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	2.7	U	
1,1,2,2-TETRACHLOROETHAN	2.7	U	
1,1,2-TRICHLOROETHANE	2.7	U	
1,1,2-TRICHLOROTRIFLUOROE	2.7	U	
1,1-DICHLOROETHANE	2.7	U	
1,1-DICHLOROETHENE	2.7	U	
1,2,4-TRICHLOROBENZENE	11	U	
1,2,4-TRIMETHYLBENZENE	2.7	U	
1,2-DIBROMOETHANE	2.7	U	
1,2-DICHLOROBENZENE	2.7	U	
1,2-DICHLOROETHANE	2.7	U	
1,2-DICHLOROPROPANE	2.7	U	
1,2-DICHLOROTETRAFLUROO	2.7	U	
1,3,5-TRIMETHYLBENZENE	2.7	U	
1,3-BUTADIENE	11	U	
1,3-DICHLOROBENZENE	2.7	U	
1,4-DICHLOROBENZENE	2.7	U	
1,4-DIOXANE	11	U	
1-ETHYL-4-METHYL BENZENE	11	U	
2-BUTANONE	11	U	
2-HEXANONE	11	U	
4-METHYL-2-PENTANONE	11	U	
ACETONE	11	U	
BENZENE	2.7	U	
BENZYL CHLORIDE	2.7	U	
BROMODICHLOROMETHANE	11	U	
BROMOFORM	11	U	
BROMOMETHANE	2.7	U	
CARBON DISULFIDE	11	U	
CARBON TETRACHLORIDE	2.7	U	

PROJ_NO: 4087

SDG: WS1812 MEDIA: AIR DATA FRACTION: OV

nsample BCFC-VEFF-0802
 samp_date 8/21/2002
 lab_id 0208461A-02A
 qc_type NM
 units PPBV
 Pct_Solids 100
 DUP_OF:

Parameter	Result	ValQual	QualCode
CHLORO BENZENE	2.7	U	
CHLORODIBROMOMETHANE	11	U	
CHLOROETHANE	2.7	U	
CHLOROFORM	2.7	U	
CHLOROMETHANE	2.7	U	
CIS-1,2-DICHLOROETHENE	2.7	U	
CIS-1,3-DICHLOROPROPENE	2.7	U	
CYCLOHEXANE	30		
DICHLORODIFLUOROMETHAN	2.7	U	
ETHANOL	58		
ETHYLBENZENE	2.7	U	
HEXACHLOROBUTADIENE	11	U	
HEXANE	52		
ISOPROPANOL	11	U	
M+P-XYLENES	2.7	U	
METHYL TERT-BUTYL ETHER	11	U	
METHYLENE CHLORIDE	2.7	U	
N-HEPTANE	97		
O-XYLENE	2.7	U	
PROPYLENE	11	U	
STYRENE	2.7	U	
TETRACHLOROETHENE	2.7	U	
TETRAHYDROFURAN	11	U	
TOLUENE	3.1		
TRANS-1,2-DICHLOROETHENE	11	U	
TRANS-1,3-DICHLOROPROPEN	2.7	U	
TRICHLOROETHENE	2.7	U	
TRICHLOROFLUOROMETHANE	2.7	U	
VINYL ACETATE	11	U	
VINYL CHLORIDE	2.7	U	

nsample BCFC-VINF-0802
 samp_date 8/21/2002
 lab_id 0208461A-01A
 qc_type NM
 units PPBV
 Pct_Solids 100
 DUP_OF:

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	2.1	U	
1,1,2,2-TETRACHLOROETHAN	2.1	U	
1,1,2-TRICHLOROETHANE	4.4		
1,1,2-TRICHLOROTRIFLUOROE	2.1	U	
1,1-DICHLOROETHANE	2.1	U	
1,1-DICHLOROETHENE	2.1	U	
1,2,4-TRICHLORO BENZENE	8.3	U	
1,2,4-TRIMETHYLBENZENE	2.1	U	
1,2-DIBROMOETHANE	2.1	U	
1,2-DICHLORO BENZENE	2.1	U	
1,2-DICHLOROETHANE	2.1	U	
1,2-DICHLOROPROPANE	2.1	U	
1,2-DICHLOROTETRAFLUROO	2.1	U	
1,3,5-TRIMETHYLBENZENE	2.1	U	
1,3-BUTADIENE	8.3	U	
1,3-DICHLORO BENZENE	2.1	U	
1,4-DICHLORO BENZENE	2.1	U	
1,4-DIOXANE	8.3	U	
1-ETHYL-4-METHYL BENZENE	8.3	U	
2-BUTANONE	8.3	U	
2-HEXANONE	8.3	U	
4-METHYL-2-PENTANONE	8.3	U	
ACETONE	92	J	A
BENZENE	2.2		
BENZYL CHLORIDE	2.1	U	
BROMODICHLOROMETHANE	8.3	U	
BROMOFORM	8.3	U	
BROMOMETHANE	2.1	U	
CARBON DISULFIDE	8.3	U	
CARBON TETRACHLORIDE	2.1	U	

nsample BCFC-VINF-0802
 samp_date 8/21/2002
 lab_id 0208461A-01A
 qc_type NM
 units PPBV
 Pct_Solids 100
 DUP_OF:

Parameter	Result	ValQual	QualCode
CHLORO BENZENE	2.1	U	
CHLORODIBROMOMETHANE	8.3	U	
CHLOROETHANE	2.1	U	
CHLOROFORM	2.1	U	
CHLOROMETHANE	2.1	U	
CIS-1,2-DICHLOROETHENE	2.1	U	
CIS-1,3-DICHLOROPROPENE	2.1	U	
CYCLOHEXANE	220		
DICHLORODIFLUOROMETHAN	2.1	U	
ETHANOL	10		
ETHYLBENZENE	2.1	U	
HEXACHLOROBUTADIENE	8.3	U	
HEXANE	240		
ISOPROPANOL	8.3	U	
M+P-XYLENES	2.1	U	
METHYL TERT-BUTYL ETHER	8.3	U	
METHYLENE CHLORIDE	2.4	U	A
N-HEPTANE	8.3		
O-XYLENE	2.1	U	
PROPYLENE	8.3	U	
STYRENE	2.1	U	
TETRACHLOROETHENE	2.1	U	
TETRAHYDROFURAN	8.3	U	
TOLUENE	2.1	U	
TRANS-1,2-DICHLOROETHENE	8.3	U	
TRANS-1,3-DICHLOROPROPEN	2.1	U	
TRICHLOROETHENE	2.1	U	
TRICHLOROFLUOROMETHANE	2.1	U	
VINYL ACETATE	8.3	U	
VINYL CHLORIDE	2.1	U	

PROJ_NO: 4087

SDG: WS1812 MEDIA: AIR DATA FRACTION: MISC

nsample BCFC-VBLANK-0802
 samp_date 8/21/2002
 lab_id 0208461B-03A
 qc_type NM
 Pct_Solids 100
 DUP_OF:

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	%	0.038		
OXYGEN	%	21		

nsample BCFC-VEFF-0802
 samp_date 8/21/2002
 lab_id 0208461B-02A
 qc_type NM
 Pct_Solids 100
 DUP_OF:

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	%	0.039		
OXYGEN	%	20		

nsample BCFC-VINF-0802
 samp_date 8/21/2002
 lab_id 0208461B-01A
 qc_type NM
 Pct_Solids 100
 DUP_OF:

Parameter	units	Result	Val Qual	Qual Code
CARBON DIOXIDE	%	0.068		
OXYGEN	%	20		



Tetra Tech NUS

INTERNAL CORRESPONDENCE

TO: C. BRYAN ✓ DATE: NOVEMBER 22, 2002
FROM: ETHAN G. LEE COPIES: DV FILE
SUBJECT: INORGANIC DATA VALIDATION – LEAD AND MISCELLANEOUS
PARAMETERS
NAS KEY WEST – CTO 254
SAMPLE DELIVERY GROUP (SDG) – 254-7

SAMPLES: 9/AQUEOUS/

AIC-MW-01-0902	AIC-MW-02-0902	AIC-MW-03-0902
AIC-MW-04-0902	AIC-MW-05D-0902	DUP-01-0902
FC-MW-05-0902	FC-MW-06-0902	FC-MW-20-0902

Overview

The sample set for NAS Key West, CTO 254, SDG 254-7, consists of nine (9) aqueous environmental samples. One (1) field duplicate pair (DUP-01-0902 / AIC-MW-02-0902) is included in this SDG.

All samples were analyzed for lead. Samples AIC-MW-03-0902 and AIC-MW-05D-0902 were analyzed for nitrate and sulfate. The samples were collected by Tetra Tech NUS September 17-18, 2002 and analyzed by Katahdin Analytical Services. Lead analyses were conducted using method SW846 6010B. Nitrate analyses were conducted using method EPA 353.2. Sulfate analyses were conducted using method EPA 300.

Lead analyses were conducted using Trace Inductively Coupled Plasma (ICP) methodology.

These data were evaluated based on the following parameters:

- * • Data Completeness
 - * • Holding Times
 - * • Calibration Recoveries
 - Laboratory Blank Analyses
 - * • Field Duplicate Results
 - * • Detection Limits
- * - All quality control criteria were met for this parameter.

TO: BRYAN, C. – PAGE 2
DATE: NOVEMBER 22, 2002

Laboratory Blank Analyses

The following contaminant was detected in the laboratory preparation blank at the following maximum concentration:

<u>Analyte</u>	<u>Maximum Concentration</u>	<u>Action Level</u>
Lead	2.26 ug/L	11.3 ug/L

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Positive results < Action Level for lead were qualified as nondetected (U) due to blank contamination.

Additional Comments

The positive result for nitrate was greater than the measured detection limit (MDL) but less than the practical quantitation limit (PQL). The result was qualified as estimated (J) due to uncertainty near the detection limit.

Dilutions were performed for lead in samples AIC-MW-04-0902 and AIC-MW-05D-0902 because high levels of calcium and magnesium in the samples caused the internal standard to be suppressed. This accounts for the elevated detection limits in the samples.

Executive Summary

Laboratory Performance: Lead was present in the laboratory preparation blank.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy IRCDQM" (September 1999).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."



Tetra Tech NUS
Ethan G. Lee
Environmental Scientist



Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

TO: BRYAN, C. – PAGE 3
DATE: NOVEMBER 22, 2002

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
- D = MS/MSD Noncompliance
- E = LCS/LCSD Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = GFAA PDS - GFAA MSA's $r < 0.995$
- K = ICP Interference - include ICSAB % R's
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation
- N = Internal Standard Noncompliance
- N01 = Internal Standard Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ($< 2 \times$ IDL for inorganics and $<$ CRQL for organics)
- Q = Other problems (can encompass a number of issues)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = Pest/PCD% between columns for positive results
- V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $< 30\%$
- Z = Uncertainty at 2 sigma deviation is less than sample activity

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: M

nsample AIC-MW-01-0902
 samp_date 9/18/2002
 lab_id WS3715-002
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
LEAD	2.18		U

nsample AIC-MW-02-0902
 samp_date 9/17/2002
 lab_id WS3701-006
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
LEAD	2.18		U

nsample AIC-MW-03-0902
 samp_date 9/17/2002
 lab_id WS3701-005
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
LEAD	2.18		U

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: M

nsample AIC-MW-04-0902
 samp_date 9/17/2002
 lab_id WS3701-004
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
LEAD	10.9	U	U

nsample AIC-MW-05D-0902
 samp_date 9/18/2002
 lab_id WS3715-001
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
LEAD	10.9	U	U

nsample DUP-01-0902
 samp_date 9/17/2002
 lab_id WS3701-007
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF: AIC-MW-02-0902

Parameter	Result	Val Qual	Qual Code
LEAD	2.18	U	U

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: M

nsample FC-MW-05-0902
 samp_date 9/17/2002
 lab_id WS3701-002
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
LEAD	4.6	U	A

nsample FC-MW-06-0902
 samp_date 9/17/2002
 lab_id WS3701-003
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
LEAD	36.8		

nsample FC-MW-20-0902
 samp_date 9/17/2002
 lab_id WS3701-001
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
LEAD	2.18	U	U

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: MISC

nsample AIC-MW-03-0902
samp_date 9/17/2002
lab_id WS3701-5
qc_type NM
Pct_Solids 0
DUP_OF:

Parameter	units	Result	Val Qual	Qual Code
NITRATE	MG/L	0.009	J	P
SULFATE	MG/L	300		

nsample AIC-MW-05D-0902
samp_date 9/18/2002
lab_id WS3715-1
qc_type NM
Pct_Solids 0
DUP_OF:

Parameter	units	Result	Val Qual	Qual Code
NITRATE	MG/L	0.10	U	
SULFATE	MG/L	2400		



Tetra Tech NUS

INTERNAL CORRESPONDENCE

TO: C. BRYAN ✓ DATE: NOVEMBER 21, 2002
FROM: SETH C. STAFFEN COPIES: DV FILE
SUBJECT: ORGANIC DATA VALIDATION – VOA/EDB/PAH/TPH/OVG
CTO-254, NAS KEY WEST
SDG: 254-7
SAMPLES: 11/Aqueous/VOA/EDB/PAH/TPH/OVG

AIC-MW-01-0902	AIC-MW-02-0902	AIC-MW-03-0902
AIC-MW-04-0902	AIC-MW-05D-0902	DUP-01-0902
FC-MW-05-0902	FC-MW-06-0902	FC-MW-20-0902
TB-091702	TB-091802	

OVERVIEW

The sample set for CTO 254, NAS Key West; SDG 254-7 consists of nine (9) aqueous environmental samples and two (2) trip blanks. The environmental samples were analyzed for volatile organic compounds (VOCs), EDB, and polynuclear aromatic hydrocarbons (PAH), and total petroleum hydrocarbons (TPH). In addition, samples AIC-MW-03-0902 and AIC-MW-05D-0902 were analyzed for methane. Samples TB-091702 and TB-091802 were analyzed for VOCs only. One field duplicate sample pair was included in this SDG: AIC-MW-02-0902 / DUP-01-0902.

The samples were collected by TetraTech NUS on September 17-18, 2002 and analyzed by Katahdin Analytical Services. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using analytical methods SW-846 Methods 8260B, 8270-SIM, Florida-PRO, RSK-175, and EPA Method 504.1 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters:

- * • Data Completeness
- * • Holding Times/Preservation/Collection
- Initial and Continuing Calibration
- Blank Results
- * • Field Duplicate Precision
- Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

VOLATILE

Continuing calibration percent differences (%Ds) on 09/21/02 at 0844 on instrument GCMS-S exceeded the 25% quality control limit for 2-chloroethylvinyl ether (>50%), chloromethane (<50%), and carbon tetrachloride(>50%). Since only nondetected results were reported, 2-chloroethylvinyl ether and carbon tetrachloride were qualified as estimated, UJ, in the associated samples. No qualification action was taken on chloromethane in the associated samples since the exceedance was less than 50%.

Continuing calibration %D on 09/21/02 at 0803 on instrument GCMS-M exceeded the 25% quality control limit for 2-chloroethylvinyl ether. No qualification action was taken on the aforementioned compound in the associated sample since the exceedance was less than 50%.

Continuing calibration %D on 09/24/02 at 0957 on instrument GCMS-F exceeded the 25% quality control limit for chloroethane. No qualification action was taken on the aforementioned compound in the associated sample, since the exceedance was less than 50%.

The following compounds were detected in the laboratory method blank at the maximum concentration indicated below:

<u>Compound</u>	<u>Maximum Concentration</u>	<u>Action Level</u>
Chloroform	0.4 ug/L	2.0 ug/L
Toluene	0.4 ug/L	2.0 ug/L
Ethylbenzene	0.2 ug/L	1.0 ug/L
m+p xylenes	0.3 ug/L	1.5 ug/L
Xylenes (total)	0.3 ug/L	1.5 ug/L
Methylene chloride	0.4 ug/L	4.0 ug/L

Blank Actions

- Value < Reporting limit (RL); report RL followed by a U.
- Value > RL and < Action level; report value followed by a U.
- Value > RL and > Action level; report value unqualified.

Action levels of 5X and 10X the maximum contaminant concentrations were established to evaluate laboratory blank contamination. Dilution factors and sample aliquots were taken into consideration during the application of all action levels. Positive results less than the action levels were qualified as nondetected, U, as a result of method blank contamination. Quality control samples were not qualified due to blank contamination.

The laboratory control sample (LCS) percent recovery (%R) for carbon tetrachloride (302%) exceeded the upper quality control limit (137%) on 09/21/02. No qualification action was taken.

The LCS %R for 2-chloroethylvinyl ether (14%) fell below the lower quality control limit (50%) but was greater than 10% on 09/23/02. No qualification action was taken.

The LCS %R for chloroethane (156%) exceeded the upper quality control limit (134%) on 09/24/02. No qualification action was taken.

Several samples in the EDB analysis contained surrogate %Rs of tetrachloro-M-xylene that fell outside of the quality control range. No qualification action was taken.

PAH

Continuing calibration %Ds on 09/25/02 at 1129 on instrument GCMS-X exceeded the 25% quality control limit for naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, fluorene, benzo(a)anthracene, and chrysene. No qualification action was taken on the aforementioned compounds in the associated samples, since the exceedances were less than 50%.

Continuing calibration %D on 10/03/02 at 1532 on instrument GCMS-X exceeded the 25% quality control limit for phenanthrene. No qualification action was taken on the aforementioned compound in the associated sample, since the exceedance was less than 50%.

The surrogate recovery of nitrobenzene-d5 was zero percent for sample FC-MW-20-0902. The zero percent recovery was attributed to a matrix interference by the laboratory. No qualification action was taken on the basis of the low surrogate recovery.

The surrogate recovery of nitrobenzene-d5 exceeded the upper quality control limit in sample AIC-MC-03-0902. No qualification action was taken.

The LCS and LCSD %Rs exceeded the upper quality control limit for phenanthrene on 09/25/02. No qualification action was taken.

Naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene exceeded the linear calibration range of the instrument in sample FC-MW-20-0902. The results for the aforementioned compounds were transposed over from the 200X dilution analysis and used for data validation purposes.

Two-one liter amber bottles were broken for sample AIC-MW-02-0902 and one bottle was broken for FC-MW-05-0902. No qualification action was taken.

TPH

All quality control parameters were met for this fraction.

METHANE

The initial calibration contained a percent relative standard deviation (%RSD) that exceeded the 20% quality control limit for methane. No qualification action was taken, since the exceedance was less than 50%.

The continuing calibration on 09/23/02 contained a %D that exceeded the 15% quality control limit for methane. No qualification action was taken, since the exceedance was less than 50%.

The temperature was greater than 4°C when the samples were received at the laboratory. In addition, the headspace was greater than 5mm. No qualification action was taken because the volatile analysis was completed within the seven days of sample collection.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Several compounds were detected in the laboratory method blank in the volatile fraction. Several compounds did not meet initial and/or continuing calibration criteria.

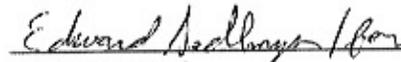
Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October, 1999), and the NFESC guidelines IRCDQM (September, 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP)."


Tetra Tech NUS

Seth C. Staffen
Environmental Scientist/Data Validator


TetraTech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
- D = MS/MSD Noncompliance
- E = LCS/LCSD Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = GFAA PDS - GFAA MSA's $r < 0.995$
- K = ICP Interference - include ICSAB % R's
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation
- N = Internal Standard Noncompliance
- N01 = Internal Standard Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ($< 2 \times$ IDL for inorganics and $<$ CRQL for organics)
- Q = Other problems (can encompass a number of issues)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = Pest/PCD% between columns for positive results
- V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $< 30\%$
- Z = Uncertainty at 2 sigma deviation is less than sample activity

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: OV

nsample AIC-MW-01-0902
 samp_date 9/18/2002
 lab_id WS3715-2
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	U
1,1,2,2-TETRACHLOROETHANE	1	U	U
1,1,2-TRICHLOROETHANE	1	U	U
1,1-DICHLOROETHANE	1	U	U
1,1-DICHLOROETHENE	1	U	U
1,2-DIBROMOETHANE	0.02	U	U
1,2-DICHLOROETHANE	1	U	U
1,2-DICHLOROPROPANE	1	U	U
2-CHLOROETHYL VINYL ETHER	1	UJ	C
BENZENE	1	U	U
BROMODICHLOROMETHANE	1	U	U
BROMOFORM	1	U	U
BROMOMETHANE	2	U	U
CARBON TETRACHLORIDE	1	UJ	C
CHLOROBENZENE	1	U	U
CHLORODIBROMOMETHANE	1	U	U
CHLOROETHANE	2	U	U
CHLOROFORM	1	U	U
CHLOROMETHANE	2	U	U
CIS-1,2-DICHLOROETHENE	1	U	U
CIS-1,3-DICHLOROPROPENE	1	U	U
ETHYLBENZENE	1	U	U
M+P-XYLENES	2	U	U
METHYL TERT-BUTYL ETHER	2	U	U
METHYLENE CHLORIDE	1	U	U
O-XYLENE	1	U	U
TETRACHLOROETHENE	1	U	U
TOLUENE	1	U	U
TOTAL XYLENES	3	U	U
TRANS-1,2-DICHLOROETHENE	1	U	U

nsample AIC-MW-01-0902
 samp_date 9/18/2002
 lab_id WS3715-2
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
TRANS-1,3-DICHLOROPROPENE	1	U	U
TRICHLOROETHENE	1	U	U
VINYL CHLORIDE	2	U	U

nsample AIC-MW-02-0902
 samp_date 9/17/2002
 lab_id WS3701-6
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	U
1,1,2,2-TETRACHLOROETHANE	1	U	U
1,1,2-TRICHLOROETHANE	1	U	U
1,1-DICHLOROETHANE	1	U	U
1,1-DICHLOROETHENE	1	U	U
1,2-DIBROMOETHANE	0.02	U	U
1,2-DICHLOROETHANE	1	U	U
1,2-DICHLOROPROPANE	1	U	U
2-CHLOROETHYL VINYL ETHER	1	U	U
BENZENE	1	U	U
BROMODICHLOROMETHANE	1	U	U
BROMOFORM	1	U	U
BROMOMETHANE	2	U	U
CARBON TETRACHLORIDE	1	U	U
CHLOROBENZENE	1	U	U
CHLORODIBROMOMETHANE	1	U	U
CHLOROETHANE	2	U	U
CHLOROFORM	1	U	U
CHLOROMETHANE	2	U	U
CIS-1,2-DICHLOROETHENE	1	U	U
CIS-1,3-DICHLOROPROPENE	1	U	U
ETHYLBENZENE	1	U	A
M+P-XYLENES	2	U	U
METHYL TERT-BUTYL ETHER	2	U	U
METHYLENE CHLORIDE	1	U	U
O-XYLENE	1	U	U
TETRACHLOROETHENE	1	U	U
TOLUENE	1	U	U
TOTAL XYLENES	3	U	U
TRANS-1,2-DICHLOROETHENE	1	U	U

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: OV

nsample AIC-MW-02-0902
 samp_date 9/17/2002
 lab_id WS3701-6
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
TRANS-1,3-DICHLOROPROPENE	1	U	U
TRICHLOROETHENE	1	U	U
VINYL CHLORIDE	2	U	U

nsample AIC-MW-03-0902
 samp_date 9/17/2002
 lab_id WS3701-5
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	U
1,1,2,2-TETRACHLOROETHANE	1	U	U
1,1,2-TRICHLOROETHANE	1	U	U
1,1-DICHLOROETHANE	1	U	U
1,1-DICHLOROETHENE	1	U	U
1,2-DIBROMOETHANE	0.02	U	U
1,2-DICHLOROETHANE	1	U	U
1,2-DICHLOROPROPANE	1	U	U
2-CHLOROETHYL VINYL ETHER	1	U	U
BENZENE	1	U	U
BROMODICHLOROMETHANE	1	U	U
BROMOFORM	1	U	U
BROMOMETHANE	2	U	U
CARBON TETRACHLORIDE	1	U	U
CHLOROBENZENE	1	U	U
CHLORODIBROMOMETHANE	1	U	U
CHLOROETHANE	2	U	U
CHLOROFORM	1	U	U
CHLOROMETHANE	2	U	U
CIS-1,2-DICHLOROETHENE	1	U	U
CIS-1,3-DICHLOROPROPENE	1	U	U
ETHYLBENZENE	1	U	A
M+P-XYLENES	2	U	U
METHYL TERT-BUTYL ETHER	0.9	J	P
METHYLENE CHLORIDE	1	U	U
O-XYLENE	1	U	U
TETRACHLOROETHENE	1	U	U
TOLUENE	1	U	U
TOTAL XYLENES	3	U	U
TRANS-1,2-DICHLOROETHENE	1	U	U

nsample AIC-MW-03-0902
 samp_date 9/17/2002
 lab_id WS3701-5
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
TRANS-1,3-DICHLOROPROPENE	1	U	U
TRICHLOROETHENE	1	U	U
VINYL CHLORIDE	2	U	U

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: OV

nsample AIC-MW-04-0902
 samp_date 9/17/2002
 lab_id WS3701-4
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	U
1,1,2,2-TETRACHLOROETHANE	1	U	U
1,1,2-TRICHLOROETHANE	1	U	U
1,1-DICHLOROETHANE	1	U	U
1,1-DICHLOROETHENE	1	U	U
1,2-DIBROMOETHANE	0.02	U	U
1,2-DICHLOROETHANE	1	U	U
1,2-DICHLOROPROPANE	1	U	U
2-CHLOROETHYL VINYL ETHER	1	U	U
BENZENE	1	U	U
BROMODICHLOROMETHANE	1	U	U
BROMOFORM	1	U	U
BROMOMETHANE	2	U	U
CARBON TETRACHLORIDE	1	U	U
CHLOROBENZENE	1	U	U
CHLORODIBROMOMETHANE	1	U	U
CHLOROETHANE	2	U	U
CHLOROFORM	1	U	U
CHLOROMETHANE	2	U	U
CIS-1,2-DICHLOROETHENE	1	U	U
CIS-1,3-DICHLOROPROPENE	1	U	U
ETHYLBENZENE	1	U	U
M+P-XYLENES	2	U	U
METHYL TERT-BUTYL ETHER	2	U	U
METHYLENE CHLORIDE	1	U	U
O-XYLENE	1	U	U
TETRACHLOROETHENE	1	U	U
TOLUENE	1	U	U
TOTAL XYLENES	3	U	U
TRANS-1,2-DICHLOROETHENE	1	U	U

nsample AIC-MW-04-0902
 samp_date 9/17/2002
 lab_id WS3701-4
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
TRANS-1,3-DICHLOROPROPENE	1	U	U
TRICHLOROETHENE	1	U	U
VINYL CHLORIDE	2	U	U

nsample AIC-MW-05D-0902
 samp_date 9/18/2002
 lab_id WS3715-1
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	U
1,1,2,2-TETRACHLOROETHANE	1	U	U
1,1,2-TRICHLOROETHANE	1	U	U
1,1-DICHLOROETHANE	1	U	U
1,1-DICHLOROETHENE	1	U	U
1,2-DIBROMOETHANE	0.02	U	U
1,2-DICHLOROETHANE	1	U	U
1,2-DICHLOROPROPANE	1	U	U
2-CHLOROETHYL VINYL ETHER	1	U	C
BENZENE	1	U	U
BROMODICHLOROMETHANE	1	U	U
BROMOFORM	1	U	U
BROMOMETHANE	2	U	U
CARBON TETRACHLORIDE	1	U	C
CHLOROBENZENE	1	U	U
CHLORODIBROMOMETHANE	1	U	U
CHLOROETHANE	2	U	U
CHLOROFORM	1	U	U
CHLOROMETHANE	2	U	U
CIS-1,2-DICHLOROETHENE	1	U	U
CIS-1,3-DICHLOROPROPENE	1	U	U
ETHYLBENZENE	1	U	A
M+P-XYLENES	2	U	U
METHYL TERT-BUTYL ETHER	2	U	U
METHYLENE CHLORIDE	1	U	U
O-XYLENE	1	U	U
TETRACHLOROETHENE	1	U	U
TOLUENE	1	U	U
TOTAL XYLENES	3	U	U
TRANS-1,2-DICHLOROETHENE	1	U	U

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: OV

nsample AIC-MW-05D-0902
 samp_date 9/18/2002
 lab_id WS3715-1
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
TRANS-1,3-DICHLOROPROPENE	1	U	U
TRICHLOROETHENE	1	U	U
VINYL CHLORIDE	2	U	U

nsample DUP-01-0902
 samp_date 9/17/2002
 lab_id WS3701-7
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF: AIC-MW-02-0902

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	U
1,1,2,2-TETRACHLOROETHANE	1	U	U
1,1,2-TRICHLOROETHANE	1	U	U
1,1-DICHLOROETHANE	1	U	U
1,1-DICHLOROETHENE	1	U	U
1,2-DIBROMOETHANE	0.02	U	U
1,2-DICHLOROETHANE	1	U	U
1,2-DICHLOROPROPANE	1	U	U
2-CHLOROETHYL VINYL ETHER	1	U	U
BENZENE	1	U	U
BROMODICHLOROMETHANE	1	U	U
BROMOFORM	1	U	U
BROMOMETHANE	2	U	U
CARBON TETRACHLORIDE	1	U	U
CHLOROBENZENE	1	U	U
CHLORODIBROMOMETHANE	1	U	U
CHLOROETHANE	2	U	U
CHLOROFORM	1	U	U
CHLOROMETHANE	2	U	U
CIS-1,2-DICHLOROETHENE	1	U	U
CIS-1,3-DICHLOROPROPENE	1	U	U
ETHYLBENZENE	1	U	U
M+P-XYLENES	2	U	A
METHYL TERT-BUTYL ETHER	2	U	U
METHYLENE CHLORIDE	1	U	U
O-XYLENE	1	U	U
TETRACHLOROETHENE	1	U	U
TOLUENE	1	U	U
TOTAL XYLENES	3	U	U
TRANS-1,2-DICHLOROETHENE	1	U	U

nsample DUP-01-0902
 samp_date 9/17/2002
 lab_id WS3701-7
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF: AIC-MW-02-0902

Parameter	Result	Val Qual	Qual Code
TRANS-1,3-DICHLOROPROPENE	1	U	U
TRICHLOROETHENE	1	U	U
VINYL CHLORIDE	2	U	U

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: OV

nsample FC-MW-05-0902
 samp_date 9/17/2002
 lab_id WS3701-2
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	U
1,1,2,2-TETRACHLOROETHANE	1	U	U
1,1,2-TRICHLOROETHANE	1	U	U
1,1-DICHLOROETHANE	1	U	U
1,1-DICHLOROETHENE	1	U	U
1,2-DIBROMOETHANE	0.02	U	U
1,2-DICHLOROETHANE	1	U	U
1,2-DICHLOROPROPANE	1	U	U
2-CHLOROETHYL VINYL ETHER	1	U	U
BENZENE	1	U	U
BROMODICHLOROMETHANE	1	U	U
BROMOFORM	1	U	U
BROMOMETHANE	2	U	U
CARBON TETRACHLORIDE	1	U	U
CHLOROBENZENE	1	U	U
CHLORODIBROMOMETHANE	1	U	U
CHLOROETHANE	2	U	U
CHLOROFORM	1	U	U
CHLOROMETHANE	2	U	U
CIS-1,2-DICHLOROETHENE	1	U	U
CIS-1,3-DICHLOROPROPENE	1	U	U
ETHYLBENZENE	1	U	U
M+P-XYLENES	2	U	U
METHYL TERT-BUTYL ETHER	2	U	U
METHYLENE CHLORIDE	1	U	U
O-XYLENE	1	U	U
TETRACHLOROETHENE	1	U	U
TOLUENE	1	U	U
TOTAL XYLENES	3	U	U
TRANS-1,2-DICHLOROETHENE	1	U	U

nsample FC-MW-05-0902
 samp_date 9/17/2002
 lab_id WS3701-2
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
TRANS-1,3-DICHLOROPROPENE	1	U	U
TRICHLOROETHENE	1	U	U
VINYL CHLORIDE	2	U	U

nsample FC-MW-06-0902
 samp_date 9/17/2002
 lab_id WS3701-3
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	U
1,1,2,2-TETRACHLOROETHANE	1	U	U
1,1,2-TRICHLOROETHANE	1	U	U
1,1-DICHLOROETHANE	1	U	U
1,1-DICHLOROETHENE	1	U	U
1,2-DIBROMOETHANE	0.02	U	U
1,2-DICHLOROETHANE	1	U	U
1,2-DICHLOROPROPANE	1	U	U
2-CHLOROETHYL VINYL ETHER	1	U	U
BENZENE	0.4	J	P
BROMODICHLOROMETHANE	1	U	U
BROMOFORM	1	U	U
BROMOMETHANE	2	U	U
CARBON TETRACHLORIDE	1	U	U
CHLOROBENZENE	1	U	U
CHLORODIBROMOMETHANE	1	U	U
CHLOROETHANE	2	U	U
CHLOROFORM	1	U	U
CHLOROMETHANE	2	U	U
CIS-1,2-DICHLOROETHENE	1	U	U
CIS-1,3-DICHLOROPROPENE	1	U	U
ETHYLBENZENE	1	U	A
M+P-XYLENES	2	U	A
METHYL TERT-BUTYL ETHER	2	U	U
METHYLENE CHLORIDE	1	U	U
O-XYLENE	1	U	U
TETRACHLOROETHENE	1	U	U
TOLUENE	1	U	U
TOTAL XYLENES	3	U	A
TRANS-1,2-DICHLOROETHENE	1	U	U

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: OV

nsample FC-MW-06-0902
 samp_date 9/17/2002
 lab_id WS3701-3
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

nsample FC-MW-20-0902
 samp_date 9/17/2002
 lab_id WS3701-1
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	1	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	95		
M-P-XYLENES	11		
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	2	U	A
O-XYLENE	1		
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	A
TOTAL XYLENES	12		
TRANS-1,2-DICHLOROETHENE	1	U	

nsample FC-MW-20-0902
 samp_date 9/17/2002
 lab_id WS3701-1
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: OV

nsample TB-091702
 samp_date 9/11/2002
 lab_id WS3701-8
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

nsample TB-091702
 samp_date 9/11/2002
 lab_id WS3701-8
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

nsample TB-091802
 samp_date 9/11/2002
 lab_id WS3715-3
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	1	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	
M+P-XYLENES	2	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	1	U	
O-XYLENE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	3	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	

Parameter	Result	Val Qual	Qual Code
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	1	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	
M+P-XYLENES	2	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	1	U	
O-XYLENE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	3	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: OV

nSAMPLE TB-091802
SAMP_DATE 9/11/2002
LAB_ID WS3715-3
QC_TYPE NM
UNITS UG/L
PCT_SOLIDS 0
DUP_OF:

Parameter	Result	Val Qual	Qual Code
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: PAH

nsample AIC-MW-01-0902
 samp_date 9/18/2002
 lab_id WS3715-2
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

nsample AIC-MW-02-0902
 samp_date 9/17/2002
 lab_id WS3701-6
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

nsample AIC-MW-03-0902
 samp_date 9/17/2002
 lab_id WS3701-5
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	0.5		
2-METHYLNAPHTHALENE	0.2	U	
ACENAPHTHENE	0.1	J	P
ACENAPHTHYLENE	0.2	U	
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.2	U	
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.2	U	
PHENANTHRENE	0.2	U	
PYRENE	0.2	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1		
2-METHYLNAPHTHALENE	0.4		
ACENAPHTHENE	0.9		
ACENAPHTHYLENE	0.2	U	
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.7		
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.2		
PHENANTHRENE	0.4		
PYRENE	0.2	J	P

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	0.1	J	P
2-METHYLNAPHTHALENE	0.1	J	P
ACENAPHTHENE	0.3		
ACENAPHTHYLENE	0.07	J	P
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.2	U	
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.3		
PHENANTHRENE	0.2	J	P
PYRENE	0.2	U	

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: PAH

nsample
samp_date
lab_id
qc_type
units
Pct_Solids
DUP_OF:

AIC-MW-04-0902
9/17/2002
WS3701-4
NM
UG/L
0

nsample
samp_date
lab_id
qc_type
units
Pct_Solids
DUP_OF:

AIC-MW-05D-0902
9/18/2002
WS3715-1
NM
UG/L
0

nsample
samp_date
lab_id
qc_type
units
Pct_Solids
DUP_OF:

DUP-01-0902
9/17/2002
WS3701-7
NM
UG/L
0
AIC-MW-02-0902

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	0.2	U	
2-METHYLNAPHTHALENE	0.2	U	
ACENAPHTHENE	0.2	U	
ACENAPHTHYLENE	0.2	U	
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.2	U	
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.2	U	
PHENANTHRENE	0.2	U	
PYRENE	0.2	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	0.9		
2-METHYLNAPHTHALENE	0.8		
ACENAPHTHENE	0.2	J	P
ACENAPHTHYLENE	0.2	U	
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.2	J	P
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.1	J	P
PHENANTHRENE	0.1	J	P
PYRENE	0.2	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	2		
2-METHYLNAPHTHALENE	0.8		
ACENAPHTHENE	0.9		
ACENAPHTHYLENE	0.2	U	
ANTHRACENE	0.2	J	P
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.7		
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.4		
PHENANTHRENE	0.2	J	P
PYRENE	0.1	J	P

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: PAH

nsample FC-MW-05-0902
 samp_date 9/17/2002
 lab_id WS3701-2
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

nsample FC-MW-06-0902
 samp_date 9/17/2002
 lab_id WS3701-3
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

nsample FC-MW-20-0902
 samp_date 9/17/2002
 lab_id WS3701-1
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	0.2	U	U
2-METHYLNAPHTHALENE	0.2	U	U
ACENAPHTHENE	0.2	U	U
ACENAPHTHYLENE	0.2	U	U
ANTHRACENE	0.2	U	U
BENZO(A)ANTHRACENE	0.2	U	U
BENZO(A)PYRENE	0.2	U	U
BENZO(B)FLUORANTHENE	0.2	U	U
BENZO(G,H,I)PERYLENE	0.2	U	U
BENZO(K)FLUORANTHENE	0.2	U	U
CHRYSENE	0.2	U	U
DIBENZO(A,H)ANTHRACENE	0.2	U	U
FLUORANTHENE	0.2	U	U
FLUORENE	0.2	U	U
INDENO(1,2,3-CD)PYRENE	0.2	U	U
NAPHTHALENE	0.2	U	U
PHENANTHRENE	0.2	U	U
PYRENE	0.2	U	U

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	0.2	U	U
2-METHYLNAPHTHALENE	0.2	U	U
ACENAPHTHENE	0.2	U	U
ACENAPHTHYLENE	0.2	U	U
ANTHRACENE	0.2	U	U
BENZO(A)ANTHRACENE	0.2	U	U
BENZO(A)PYRENE	0.2	U	U
BENZO(B)FLUORANTHENE	0.2	U	U
BENZO(G,H,I)PERYLENE	0.2	U	U
BENZO(K)FLUORANTHENE	0.2	U	U
CHRYSENE	0.2	U	U
DIBENZO(A,H)ANTHRACENE	0.2	U	U
FLUORANTHENE	0.2	U	U
FLUORENE	0.2	U	U
INDENO(1,2,3-CD)PYRENE	0.2	U	U
NAPHTHALENE	0.1	J	P
PHENANTHRENE	0.2	U	U
PYRENE	0.2	U	U

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	47		
2-METHYLNAPHTHALENE	100		
ACENAPHTHENE	0.1	J	P
ACENAPHTHYLENE	0.2	U	U
ANTHRACENE	0.2	U	U
BENZO(A)ANTHRACENE	0.2	U	U
BENZO(A)PYRENE	0.2	U	U
BENZO(B)FLUORANTHENE	0.2	U	U
BENZO(G,H,I)PERYLENE	0.2	U	U
BENZO(K)FLUORANTHENE	0.2	U	U
CHRYSENE	0.2	U	U
DIBENZO(A,H)ANTHRACENE	0.2	U	U
FLUORANTHENE	0.2	U	U
FLUORENE	0.2	U	U
INDENO(1,2,3-CD)PYRENE	0.2	U	U
NAPHTHALENE	360		
PHENANTHRENE	0.08	J	P
PYRENE	0.2	U	U

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: PET

nsample AIC-MW-01-0902
 samp_date 9/18/2002
 lab_id WS3715-2
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	240	J	P

nsample AIC-MW-02-0902
 samp_date 9/17/2002
 lab_id WS3701-6
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	640		

nsample AIC-MW-03-0902
 samp_date 9/17/2002
 lab_id WS3701-5
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	820		

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: PET

nsample AIC-MW-04-0902
 samp_date 9/17/2002
 lab_id WS3701-4
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	200	J	P

nsample AIC-MW-05D-0902
 samp_date 9/18/2002
 lab_id WS3715-1
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	240	J	P

nsample AIC-MW-02-0902
 samp_date 9/17/2002
 lab_id WS3701-7
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	680		

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: PET

nsample FC-MW-05-0902
 samp_date 9/17/2002
 lab_id WS3701-2
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	500	U	

nsample FC-MW-06-0902
 samp_date 9/17/2002
 lab_id WS3701-3
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	150	J	P

nsample FC-MW-20-0902
 samp_date 9/17/2002
 lab_id WS3701-1
 qc_type NM
 units UG/L
 Pct_Solids 0
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	4300		

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: OVG

nsample AIC-MW-03-0902
samp_date 9/17/2002
lab_id 0209412-01A
qc_type NM
units UG/ML
Pct_Solids 0
DUP_OF:

Parameter	Result	Val Qual	Qual Code
METHANE	3.2		

nsample AIC-MW-05D-0902
samp_date 9/18/2002
lab_id 0209411-01A
qc_type NM
units UG/ML
Pct_Solids 0
DUP_OF:

Parameter	Result	Val Qual	Qual Code
METHANE	0.37		

APPENDIX B
WATER SAMPLING LOGS



Project Site Name: Flyng Club
 Project No.: 04087

Sample ID No.: FL-MW-05-0962

Sample Location: Flyng Club

Sampled By: SKPL

C.O.C. No.: 285

- Domestic Well Data
 Monitoring Well Data
 Other Well Type:
 QA Sample Type:

- Type of Sample:
 Low Concentration
 High Concentration

SAMPLING DATA:

Date:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
091702	Clean	6.1	6.18	28.7	10	2.5	.02	

PURGE DATA:

Date:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
091702	1	6.1	6.18	28.7	10	2.5	.02	
Method: Peristaltic		6.4	5.7	28.9	8	2.6	.02	
Monitor Reading (ppm):		6.4	1.600	29.0	8	2.6	.02	
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 16.8								
Static Water Level (WL): 4.03								
One Casing Volume (gal/L): 1.25								
Start Purge (hrs):								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOL	HCL	40ml	3
LEAD	HNO3	250ml	1
PAH		1L	2
TRPH	HCL	1L	2
EDB	HCL	40ml	2

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):



GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Flying Gls
Project No.: 74087

Sample ID No.: FL-MW-06-0910
Sample Location: Flying Gls
Sampled By: Skiper
C.O.C. No.: 3807

- Domestic Well Data
- Monitoring Well Data
- Other Well Type: _____
- QA Sample Type: _____

- Type of Sample:
- Low Concentration
- High Concentration

SAMPLING DATA:

Date:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
<u>091702</u>		<u>6.7</u>	<u>.49</u>	<u>28.6</u>	<u>999</u>	<u>2.4</u>	<u>.02</u>	
Time:								
Method:	<u>Pacostat/hc</u>							

PURGE DATA:

Date:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
<u>0917.02</u>								
Method:	<u>Pacostat/hc</u>							
Monitor Reading (ppm):	<u>2</u>	<u>6.6</u>	<u>.50</u>	<u>28.8</u>	<u>722</u>	<u>2.3</u>	<u>.02</u>	
Well Casing Diameter & Material	<u>3</u>	<u>6.6</u>	<u>.50</u>	<u>28.8</u>	<u>253</u>	<u>2.7</u>	<u>.02</u>	
Type: <u>2" PVC</u>	<u>4</u>	<u>6.6</u>	<u>.51</u>	<u>28.9</u>	<u>178</u>	<u>2.2</u>	<u>.02</u>	
Total Well Depth (TD): <u>14.1</u>	<u>5</u>	<u>6.6</u>	<u>.52</u>	<u>29.0</u>	<u>197</u>	<u>2.4</u>	<u>.02</u>	
Static Water Level (WL): <u>3.04</u>	<u>6</u>	<u>6.6</u>	<u>.52</u>	<u>29.0</u>	<u>204</u>	<u>2.5</u>	<u>.02</u>	
One Casing Volume(gal/L): <u>1.76</u>	<u>7</u>	<u>6.6</u>	<u>.53</u>	<u>29.1</u>	<u>209</u>	<u>2.5</u>	<u>.02</u>	
Start Purge (hrs):	<u>8</u>	<u>6.6</u>	<u>.52</u>	<u>29.1</u>	<u>209</u>	<u>2.5</u>	<u>.02</u>	
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
<u>VOC</u>	<u>HCL</u>	<u>40ml</u>	<u>3</u>
<u>LEAD</u>	<u>HNO3</u>	<u>250ml</u>	<u>1</u>
<u>PAH</u>	<u>---</u>	<u>1L</u>	<u>2</u>
<u>TEPH</u>	<u>HCL</u>	<u>1L</u>	<u>2</u>
<u>PDI3</u>	<u>HCL</u>	<u>40ml</u>	<u>2</u>

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):



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GROUNDWATER SAMPLE LOG SHEET

Page 1 of 1

EHM

Project Site Name: Fly (1) Old
 Project No.: N 4087

Sample ID No.: FL-MG-20-001²²
 Sample Location: Fly (1) Old
 Sampled By: SL
 C.O.C. No.: 3809
 Type of Sample:
 Low Concentration
 High Concentration

- Domestic Well Data
 Monitoring Well Data
 Other Well Type:
 QA Sample Type:

SAMPLING DATA:

Date:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: <u>091702</u>								
Time:								
Method: <u>Percutaneous</u>	<u>milky</u>	<u>6.6</u>	<u>.46</u>	<u>23.5</u>	<u>235</u>	<u>1.9</u>	<u>.01</u>	

PURGE DATA:

Date:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: <u>091702</u>								
Method: <u>Percutaneous</u>	<u>1</u>	<u>6.6</u>	<u>.46</u>	<u>23.5</u>	<u>235</u>	<u>1.9</u>	<u>.01</u>	
Monitor Reading (ppm):	<u>2</u>	<u>6.5</u>	<u>.46</u>	<u>27.7</u>	<u>235</u>	<u>1.5</u>	<u>.01</u>	
Well Casing Diameter & Material	<u>3</u>	<u>6.0</u>	<u>.50</u>	<u>27.8</u>	<u>399</u>	<u>1.5</u>	<u>.01</u>	
Type: <u>2" PVC</u>	<u>4</u>	<u>6.0</u>	<u>.55</u>	<u>27.9</u>	<u>39</u>	<u>1.5</u>	<u>.01</u>	
Total Well Depth (TD): <u>15</u>	<u>5</u>	<u>6.0</u>	<u>.55</u>	<u>27.9</u>	<u>10</u>	<u>1.5</u>	<u>.01</u>	
Static Water Level (WL): <u>3.23</u>								
One Casing Volume (gal/L): <u>1.96</u>								
Start Purge (hrs):								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
<u>VOL</u>	<u>HCL</u>	<u>40ml</u>	<u>2</u>
<u>LEAD</u>	<u>HNO3</u>	<u>200ml</u>	<u>1</u>
<u>PAH</u>	<u>---</u>	<u>1L</u>	<u>2</u>
<u>TRPH</u>	<u>HCL</u>	<u>1L</u>	<u>2</u>
<u>BOD</u>	<u>HCL</u>	<u>40ml</u>	<u>2</u>

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):