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RESOURCE CONSERVATION AND RECOVERY ACT FACILITY ASSESSMENT FOR FORMER BOCA CHICA BLAST MEDIA DISPOSAL AREA REVISION 1 WITH TRANSMITTAL LETTER NAS KEY WEST FL

10/3/2003

TETRA TECH NUS

TETRA TECH NUS, INC.

AIK-03-0254

October 3, 2003

Project Number HK N2870 *via U.S. mail*

Commander
Department of the Navy
SOUTHDIV NAVFACENGCOM
ATTN: Jim Reed (Code ES33)
P.O. Box 190010
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Reference: CLEAN Contract No. N62467-94-D-0888
Contract Task Order No. 0188

Subject: Resource Conservation and Recovery Act Facility Assessment for the Former Boca Chica Blast Media Disposal Area, Rev. 1, Naval Air Station, Key West on Boca Chica Key, Florida

Dear Mr. Reed:

I have enclosed the PDF file for the final Resource Conservation and Recovery Act Facility Assessment for the Former Boca Chica Blast Media Disposal Area, Rev. 1, Naval Air Station, Key West on Boca Chica Key, Florida. The file is being distributed to the members of the NAF Key West Partnering Team via U.S. mail for their convenience and to meet TtNUS's contractual obligation under CTO 0188. This revision includes the results of the confirmation soil samples and an updated statistical analysis of the soil data. I am planning to receive approval on this report within the next 45 days from the Partnering Team members.

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

Sincerely,

C. M. Bryan
Project Manager

CMB:spc

Enclosure

c: Ms. Debbie Wroblewski (Cover Letter Only)
Mr. S. Bivone, CCI
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Rev. 1
10/3/03

Resource Conservation and Recovery Act Facility Assessment

For

Former Boca Chica Blast Media Disposal Area

Naval Air Station

Key West on Boca Chica Key, Florida

Southern Division
Naval Facilities Engineering Command

Contract Number N62467-94-D-0888
Contract Task Order 0188

October 2003

Rev. 1
10/3/03

RESOURCE CONSERVATION AND RECOVERY ACT FACILITY ASSESSMENT FOR FORMER BOCA CHICA BLAST MEDIA DISPOSAL AREA

NAVAL AIR STATION KEY WEST ON BOCA CHICA KEY, 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:
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CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0188

OCTOBER 2003

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LIST OF ACRONYMS AND ABBREVIATIONS

ABB	ABB Environmental Services, Inc.
AIMD	Aircraft Intermediate Maintenance Department
AOC	Area of Concern
B&RE	Brown and Root Environmental, Inc.
bls	Below Land Surface
CLEAN	Comprehensive Long-Term Environmental Action Navy
CMS	Corrective Measures Study
CTL	cleanup target level
CTO	Contract Task Order
FDEP	Florida Department of Environmental Protection
ft	Foot
IDW	Investigation-Derived Waste
IT	IT Corporation, Inc.
MDL	Method Detection Limit
mg/kg	Milligrams per Kilogram
µg/L	Micrograms per Liter
msl	Mean Sea Level
NAS	Naval Air Station
PVC	Polyvinyl Chloride
QA	Quality Assurance
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
SCTL	Soil Cleanup Target Level
SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
SWMU	Solid Waste Management Unit
TAL	Target Analyte List
TtNUS	Tetra Tech NUS, Inc.
UCL	Upper Confidence Limit

1.0 INTRODUCTION

1.1 INTRODUCTION

Tetra Tech NUS, Inc. (TtNUS) has been contracted by the Department of the Navy, Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to complete a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) for the Former Boca Chica Blast Media Disposal Area at Naval Air Station (NAS) Key West on Boca Chica Key, Florida. This RFA Report is part of an overall effort conducted under the Comprehensive Long-Term Environmental Action Navy (CLEAN) program administered through SOUTHNAVFACENGCOM. The RFA Report is being prepared under contract number N62467-94-D-0888, Contract Task Order (CTO) Number 0188.

1.2 PURPOSE

The RFA is the first of three phases of the RCRA Corrective Action Program, and is designed to identify releases or potential releases requiring further investigation. The RFA is a three-stage process for:

- Identifying and gathering information on releases at RCRA facilities.
- Evaluating Solid Waste Management Units (SWMUs) and other areas of concern for releases to all media and regulated units for releases to media other than groundwater.
- Making preliminary determinations regarding releases of concern and the need for further actions and interim measures at the facility.
- Screening from further investigation those SWMUs that do not pose a threat to human health or the environment.

The three stages of the RFA process include (1) the preliminary review that focuses primarily on evaluating existing information, (2) the visual site inspection, and (3) the sampling visit. Each stage of the RFA process performed at the Former Boca Chica Blast Media Disposal Area is described in subsequent sections. Section 5.0 presents conclusions and recommendations for further action at the site.

2.0 PRELIMINARY REVIEW

2.1 SITE DESCRIPTION

The Former Boca Chica Blast Media Disposal Area was used to dispose of sandblasting material produced during the removal of paint from surfaces of ground-handling and ground-support vehicles and equipment, aircraft parts, and other metal objects and pieces of equipment. The sandblasting activities took place at SWMU 5, the Boca Chica Aircraft Intermediate Maintenance Department (AIMD) Sandblasting Building A-990.

2.2 ENVIRONMENTAL SETTING

2.2.1 Background

NAS Key West is located in southern Monroe County, Florida on Boca Chica Key, approximately five miles east of Key West. Key West and Boca Chica Key, the two westernmost major islands of the Florida Keys, are located approximately 150 miles southwest of Miami. The Overseas Highway (U.S. Highway 1) connects Key West and Boca Chica Key to the mainland. Figure 2-1 presents a regional map showing the locations of Boca Chica Key and Key West within the Florida Keys. Figure 2-2 presents the location of the Former Boca Chica Blast Media Disposal Area.

Several installations in various parts of the lower Florida Keys comprise what is known as NAS Key West. Most of these are on Key West and Boca Chica Key. Other parts of the base include Sigsbee Key (formerly Dredgers Key), Fleming Key, Demolition Key, and Big Coppitt Key. NAS Key West encompasses approximately 5,000 acres. Boca Chica Key is approximately 3 miles wide and 3 miles long, and the Navy property encompasses more than half of the island. With the exception of filled areas that underlie U.S. Highway 1, the elevations of Boca Chica Key are less than 5 feet (ft) above mean sea level (msl) [IT Corporation (IT), 1994].

2.2.2 Geology and Hydrogeology

The lower Keys, which are within the southern geomorphic division of Florida, were formed during the Pleistocene era. The Keys are known as the “Oolitic Keys,” a reference to the Oolitic Member of the Miami Limestone. The Oolitic Member consists of variably sandy, fossiliferous limestone composed primarily of ooids. The Oolitic Member is divided into two lithofacies, an ooid calcarenite and an oomolid-recrystalline facies. The Key Largo Limestone underlies the Miami Limestone. The Key Largo Limestone is a light gray to light yellow coralline limestone, comprised of coral heads encased in a matrix of

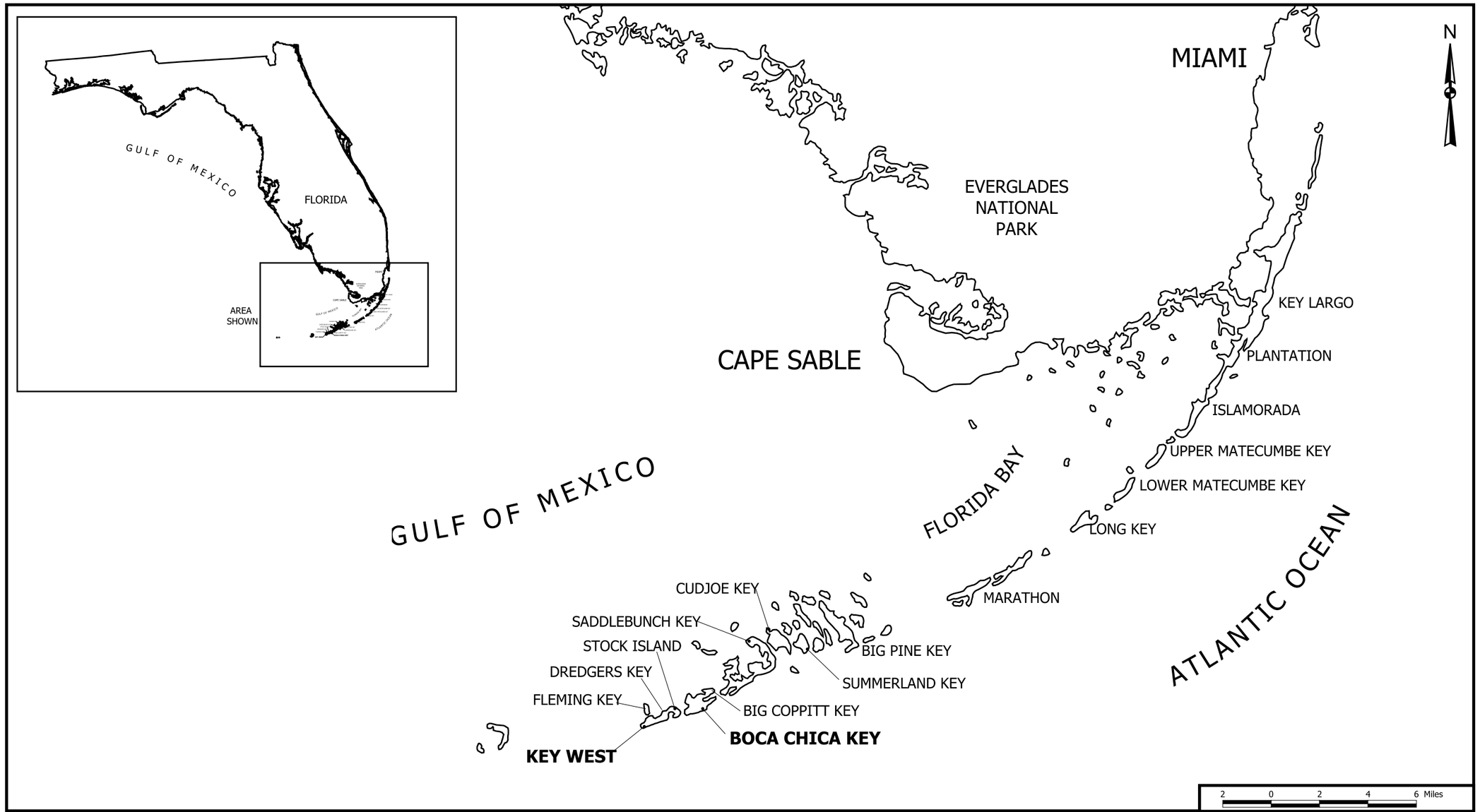
calcarenite. In the Key West area, the Miami Limestone is approximately 27 ft thick and the Key Largo Limestone is more than 270 ft thick [ABB Environmental Services, Inc. (ABB), 1994].

The surficial aquifer system in the lower Keys is an unconfined, porous, highly permeable unit with solution cavities. Rainfall recharge seeps quickly into the ocean and saltwater intrusion is common. The water table ranges in depth from less than 1 ft above msl to approximately 2.5 ft below msl and fluctuates diurnally, due to tidal effects.

2.3 SITE CHARACTERISTICS

The Former Boca Chica Blast Media Disposal Area, an unnumbered area of concern (AOC), is located on the central western portion of Boca Chica Key (Figure 2-2). The site was used to dispose of sandblasting material produced during the removal of paint from surfaces of ground-handling and ground-support vehicles and equipment, aircraft parts, and other metal objects and pieces of equipment. The sandblasting took place at SWMU 5, the Boca Chica AIMD Sandblasting Building A-990, located at the western end of the airfield on Boca Chica Key (Figure 2-2). A large mound of concrete and metal debris, roughly 600 feet by 300 feet, dominates the Disposal Area. This elevated area is covered by soil, pine straw and 20-foot tall Australian Pine Trees.

Prior to the RFA, no investigative activities were conducted at the Former Blast Media Disposal Area. SWMU 5 was used as a sandblasting area from the early 1970s until 1995. A conservative assumption is that the sandblasting material was disposed at the site during this entire time period. The Supplemental RCRA Facility Investigation (RFI)/Remedial Investigation (RI) and Corrective Measures Study (CMS) at SWMU 5 identified metals in the soil and groundwater [Brown and Root Environmental (B&RE), 1998a; 1999]. Therefore, potential metals contamination of soil, groundwater, and sediment was also the concern at the Former Boca Chica Blast Media Disposal Area.



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY CM	DATE 10/01/2003
CHECKED BY EHM	DATE 10/01/2003
COST/SCHED-AREA	
SCALE AS NOTED	

RFA REPORT
FIGURE 2-1
LOCATION MAP
NAVAL AIR STATION
KEY WEST, FLORIDA

CONTRACT NO. 2870	
APPROVED BY CMB	DATE 10/01/2003
APPROVED BY _____	DATE ___
DRAWING NO. _____	REV. 1

P:/GOVERNMENT/KEYWEST/EGIS/RFA_REPORT.APR LAYOUT: FIG 2-1
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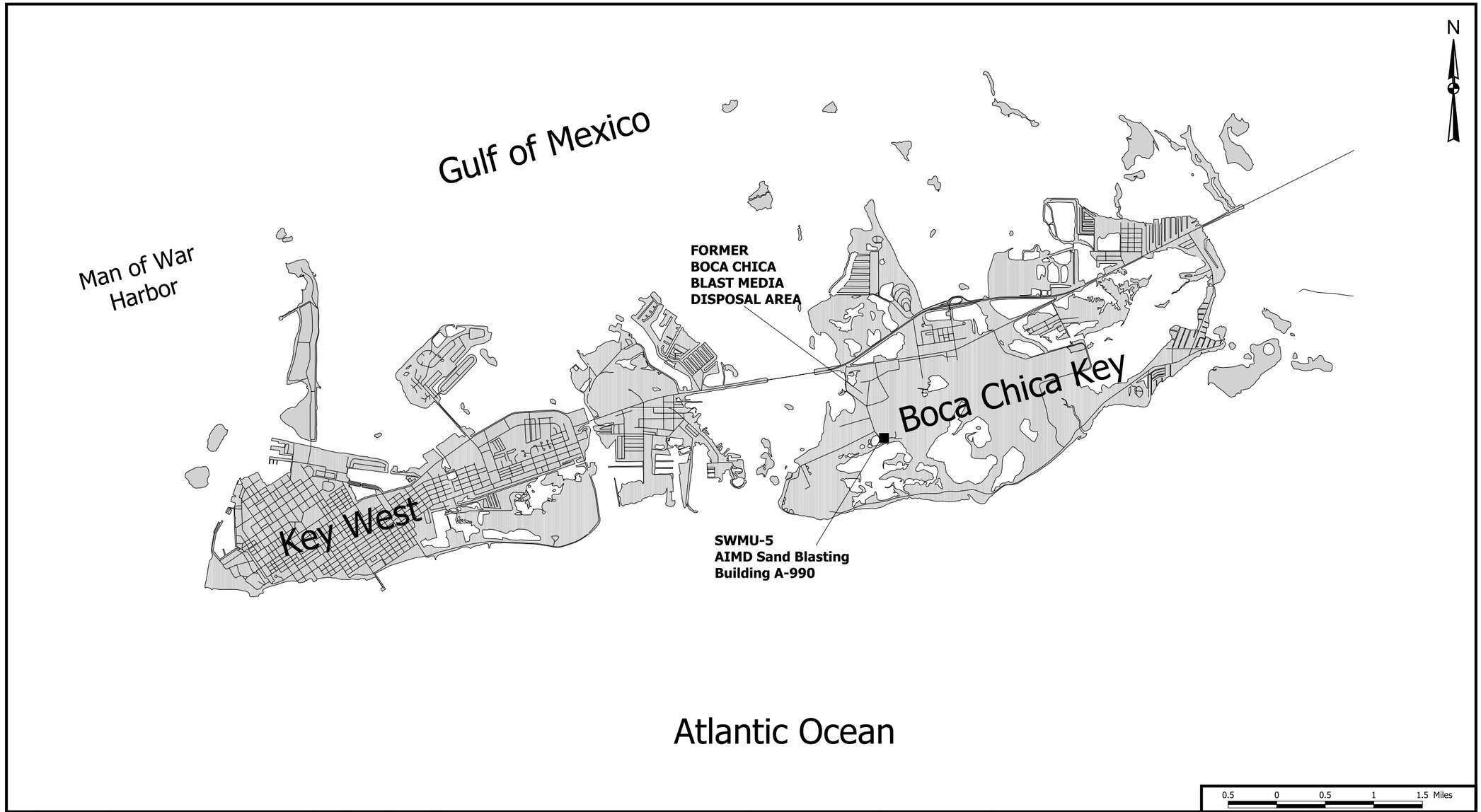

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY CM	DATE 10/01/2003
CHECKED BY EHM	DATE 10/01/2003
COST/SCHED-AREA	
SCALE AS NOTED	

RFA REPORT
FIGURE 2-2
SITE LOCATION MAP
NAVAL AIR STATION
KEY WEST, FLORIDA

CONTRACT NO. 2870	
APPROVED BY DSF	DATE 10/01/2003
APPROVED BY	DATE
DRAWING NO.	REV. 1

P:/GOVERNMENT/KEYWEST/EGIS/RFA_REPORT.APR LAYOUT: FIG 2-2
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3.0 VISUAL SITE INSPECTION

A visual site inspection of the Former Boca Chica Blast Media Disposal Area was performed by TtNUS in January 2002 to look for evidence of hazardous releases and to develop sampling recommendations for the area.

3.1 VISUAL SITE INSPECTION ACTIVITIES AND OBSERVATIONS

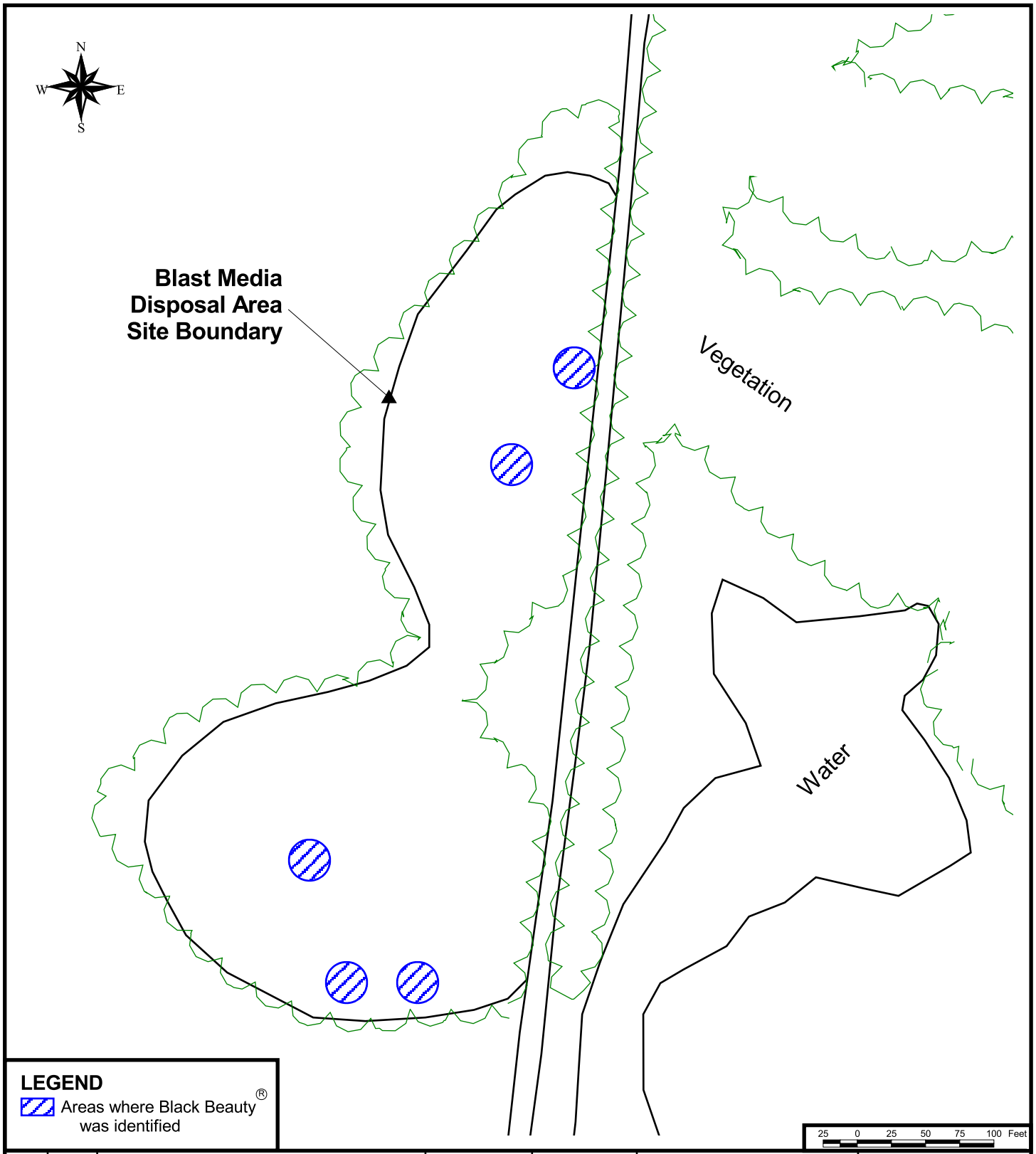
The visual site inspection included a site walk through the property to identify areas where sandblasting material had been disposed. Black Beauty®, the brand name for a coal slag abrasive used in sandblasting, was identified found on the surface of the mound at five different locations as shown in Figure 3-1. Because sandblasting material was discovered at the site during the visual inspection, a sampling plan was created to fully characterize the nature and extent of potential contamination (TtNUS, 2002). No threatened or endangered species were observed at the Blast Media Disposal Area during the visual site inspection.

3.2 SAMPLING AND ANALYSIS ACTIVITIES

The RFA Work Plan (TtNUS, 2001) describes sampling objectives, quality assurance (QA) objectives, sampling techniques and equipment, sampling handling and analysis, surveying, investigation-derived waste (IDW) management, decontamination, and QA reports and performance system audits. The sampling plan provides specifics regarding the scope of field work.

The primary objective of the sampling activities at the Boca Chica Blast Media Disposal Area was to determine if corrective action was necessary by delineating contamination at the site. Using hand augers, surface and subsurface soil samples were collected from locations surrounding and within the mound of debris. At each soil sample location, a groundwater-screening sample was also collected to determine placement of permanent monitoring wells at the site. Sediment samples were collected from low-lying areas surrounding the mound.

Using soil, groundwater screening, and sediment results from the preliminary round of sampling, permanent monitoring wells were placed at the site. Six shallow [12-15 ft below land surface (bls)] monitoring wells were installed at the Former Boca Chica Blast Media Disposal Area and sampled to delineate groundwater contamination. All sample results are reported in Section 4.0 of this report.



NO.	DATE	REVISIONS

DRAWN BY CM	DATE 10/01/2003
CHECKED BY EHM	DATE 10/01/2003
COST/SCHED-AREA	
SCALE AS NOTED	

RFA REPORT
FIGURE 3-1
BLAST MEDIA DISPOSAL AREA
VISUAL SITE INSPECTION FINDINGS
NAVAL AIR STATION
KEY WEST, FLORIDA

CONTRACT NO. 2870	
APPROVED BY CMB	DATE 10/01/2003
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DRAWING NO.	REV. 1

P:/GOVERNMENT/KEYWEST/EGIS/RFA_REPORT.APR LAYOUT: FIG 3-1
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4.0 SAMPLE RESULTS

The nature and extent of contamination at the Former Boca Chica Blast Media Disposal Area were characterized by collecting soil, sediment, and groundwater samples at the site. The sampling activities were performed in two phases. The first phase included the collection of surface soil, subsurface soil, sediment, and groundwater screening samples. The second phase included the collection of surface soil, subsurface soil, and permanent monitoring well groundwater samples. Phase I and II sample results are reported in Sections 4.1 and 4.2, respectively. Katahdin Analytical Services analyzed samples collected during Phases I and II. Due to exceedances of action levels during Phase I, confirmation sampling was also performed, as reported in Section 4.3. Accura Analytical Laboratory conducted analyses of the confirmation samples. Validation reports are included in Appendix B, and field log sheets are included in Appendix C.

4.1 PHASE I SAMPLE RESULTS

Phase I sampling included the collection of surface soil samples (0-2 ft bls) from 11 locations (BCBM-SO-01 through 05 and BCBM-SO-07 through -12), and subsurface soil samples (2-4 ft bls) from 3 locations (BCBM-SO-04, -10, and -12). A surface soil sample was not collected from BCBM-SO-06 because the surface was saturated, and a sediment sample was collected in the immediate vicinity. Subsurface soil was only collected where groundwater was greater than 4 ft bls. Three sediment samples (BCBM-SD-01 through -03) were also collected from the south, west, and north sides of the debris mound. Groundwater screening samples were collected from 11 locations by inserting a 2-inch polyvinyl chloride (PVC) casing into the hand auger holes and using a peristaltic pump to obtain a sample. Groundwater could not be collected from one location (BCBM-SO-04) due to the presence of debris. Soil, sediment, and groundwater screening samples were analyzed for metals.

4.1.1 Phase I Soil Sample Results

Table 4-1 lists metals contaminants detected in soil during Phase I sampling, along with the respective residential action levels. Surface soil samples are designated with the ending “-02” indicating the sample was collected between 0 and 2 ft bls. Subsurface samples are designated with the ending “-24” indicating that the samples were collected between 2 and 4 ft bls.

Inorganics were detected above residential soil action levels in surface soil samples from two locations (BCBM-SO-11 and BCBM-SO-12). Arsenic was detected above its action level in both samples, while iron was detected above its action level in only the surface soil sample collected at BCBM-SO-11.

Figure 4-1 shows soil sample locations and exceedances detected in soil at the Former Boca Chica Blast Media Disposal Area.

4.1.2 Phase I Sediment Sample Results

Three sediment samples (BCBM-SD-01 through -03) were collected on the south, west, and north sides of the debris mound. Sediment sample results are presented in Table 4-2. No metals were detected above action levels in sediment at the Former Boca Chica Blast Media Disposal Area. Figure 4-2 presents sediment sample locations.

4.1.3 Phase I Groundwater Screening Sample Results

Groundwater screening sample results are reported in Table 4-3. Lead exceeded its action level in groundwater at two locations, as shown in Figure 4-3. In addition, chromium and iron exceeded their action levels at one location (BCBM-SO-09). These groundwater-screening results were used to determine the placement of permanent monitoring wells, not to draw conclusions regarding site contamination. Metal concentrations are most likely elevated due to turbid conditions in the groundwater screening wells, and were not considered representative of groundwater contamination at the site.

4.2 PHASE II SAMPLE RESULTS

Phase II sampling was planned based on Phase I sample results. Six monitoring wells (BCBM-MW-01 through -06) were installed based on soil, sediment, and groundwater screening sample results obtained in Phase I (Figure 4-4). During monitoring well installation, surface (0-2 ft bls) and subsurface (2-4 ft bls) soil samples were collected at each monitoring well location. Groundwater samples were obtained from each of the monitoring wells following installation and development of the wells.

4.2.1 Phase II Soil Sample Results

Surface and subsurface soil samples were results are presented in Table 4-4. Although metals were detected in all surface and subsurface soil samples, concentrations did not exceed action levels in Phase II soil sampling. The monitoring well locations shown on Figure 4-4 correspond to each soil boring location.

4.2.2 Phase II Groundwater Sample Results

Monitoring well sampling results are presented in Table 4-5. Thallium was initially reported above its action level of 4.62 micrograms per liter (μg/L) at a concentration of 19.1 μg/L in groundwater collected from BCBM-MW-04. However, the laboratory and validation reports revealed that significant dilution of

the sample was necessary due to interference, resulting in a method detection limit (MDL) of 15.03 μg/L, which is greater than the thallium action level. When the sample was analyzed a second time, without dilution, no thallium was detected. Validation packages for both the initial and second analysis of the groundwater sample collected from BCBM-MW-04 are included in Appendix B.

All metals detected in groundwater at the Former Boca Chica Blast Media Disposal Area were below action levels as shown in Table 4-5. Figure 4-4 presents the monitoring well locations where groundwater samples were collected.

4.3 CONFIRMATION SAMPLING

Confirmation sampling was performed in May 2003 to determine if the arsenic and iron concentrations detected in Phase I soil sample BCBM-SO-11 were representative of soils in the area. Because the Blast Media Disposal Area contains construction debris with pockets of soil throughout, the sampling process removed all soil from sample location BCBM-SO-11. Therefore, four samples, BCBM-CONF-01 through BCBM-CONF-04, were collected within a 3-foot radius of the Phase I soil sample (Figure 4-5). Samples were analyzed for arsenic and iron at Accura Analytical Laboratory in Norcross, Georgia. Confirmation sample results are presented in Table 4-6. Iron was detected in all samples, but was below its residential action level of 23,000 mg/kg. Arsenic was not detected above the detection limit in the confirmation soil samples.

Because arsenic was detected above its action level in Phase I soil sample BCBM-SO-12, a statistical analysis of surface soil data was performed to determine if the mean concentration of arsenic is greater than the action level. The 95% upper confidence limit (UCL) of the arithmetic mean is often used to compare soil concentrations with the site-specific soil screening levels (EPA, 1996). This statistical approach to evaluating soil sample results has been adopted by the NAS Key West Partnering Team, which is comprised of project managers from the Navy, Florida Department of Environmental Protection (FDEP), and contractors in 1997 and is documented in the Site Investigation Workplan (B&RE, 1998b).

Using ProUCL Version 2.0, a program developed for FDEP by Lockheed Martin in 2001, the 95% UCL for arsenic was calculated. Appendix D includes input to and output from ProUCL. Surface soil sample data, including the average arsenic value for the confirmation samples, were used to calculate the 95% UCL for arsenic, excluding the surface soil sample collected from BCBM-SO-11. Seventeen arsenic values were used to calculate the 95% UCL, including 10 Phase I surface soil sample results, 6 Phase II surface soil sample results, and the average arsenic concentration in the confirmation samples. As stated in Section 4.1.1, soil in this immediate area was removed during the sampling process. For “U” qualified values, one-half the detection limit was used for the 95% UCL calculations.

ProUCL determined that the soil data from the Blast Media Disposal Area were lognormal, using both the Lilliefors test and the Shapiro-Wilk test. Assuming lognormal distribution of the data, ProUCL recommended using the 95% H-UCL, which is based upon the H-Statistic (Land, 1971; Gilbert, 1987). The 95% UCL value calculated for arsenic was 1.42 mg/kg, as reported in Appendix D, meaning that there is a 95% confidence level that the mean concentration of arsenic at the Blast Media Disposal Area is less than 1.42 mg/kg. The 95% UCL can be compared directly to the residential soil cleanup target level (SCTL) to determine if the Blast Media Disposal Area qualifies for no further action. Currently the residential SCTL for arsenic is 0.8 mg/kg. However, the Florida Department of Environmental Protection (FDEP) is in the process of developing new cleanup target levels (CTLs). Tracie Vaught, the FDEP Remedial Project Manager for NAS Key West sites, stated at the September 2003 Partnering Team meeting that the new residential SCTL for arsenic has not been determined, but will range from 1.6 mg/kg to 3.2 mg/kg (NAS Key West Partnering Team, 2003). The Partnering Team agreed to compare the calculated 95% UCL to the lowest proposed residential SCTL for arsenic of 1.6 mg/kg to expedite site closure (NAS Key West Partnering Team, 2003). Thus, the mean concentration for arsenic in surface soil at 95% confidence level is less than 1.42 mg/kg, which is less than the minimum proposed FDEP SCTL of 1.6 mg/kg. In addition, the isolated arsenic exceedance of 2.9 mg/kg is less than three times the minimum proposed SCTL of 1.6 mg/kg; therefore, this exceedance is not considered a “hot spot”, as defined by FDEP (NAS Key West Partnering Team, 2003).

TABLE 4-1

**PHASE I SOIL SAMPLE RESULTS
FORMER BOCA CHICA BLAST MEDIA DISPOSAL AREA
NAVAL AIR STATION
KEY WEST, FLORIDA
PAGE 1 OF 5**

LOCATION	PARAMETER	RESULT	QUAL[a]	ACTION LEVEL[b]
INORGANICS (mg/kg)				
BCBM-SO-01-02-AVG	ALUMINUM	373		75,000
BCBM-SO-02-02	ALUMINUM	828		
BCBM-SO-03-02	ALUMINUM	583		
BCBM-SO-04-02	ALUMINUM	3,780		
BCBM-SO-04-24	ALUMINUM	1,210		
BCBM-SO-05-02-AVG	ALUMINUM	1,570		
BCBM-SO-07-02	ALUMINUM	280		
BCBM-SO-08-02	ALUMINUM	309		
BCBM-SO-09-02	ALUMINUM	238		
BCBM-SO-10-02	ALUMINUM	543		
BCBM-SO-10-24	ALUMINUM	316		
BCBM-SO-11-02	ALUMINUM	1,070		
BCBM-SO-12-02	ALUMINUM	1,440		
BCBM-SO-12-24	ALUMINUM	849		
BCBM-SO-11-02	ANTIMONY	7.7		26
BCBM-SO-01-02-AVG	ARSENIC	0.465		2.7
BCBM-SO-02-02	ARSENIC	0.76		
BCBM-SO-03-02	ARSENIC	0.54		
BCBM-SO-04-02	ARSENIC	1.3		
BCBM-SO-04-24	ARSENIC	0.99		
BCBM-SO-05-02-AVG	ARSENIC	2.55		
BCBM-SO-11-02	ARSENIC	6.1		
BCBM-SO-12-02	ARSENIC	2.9		
BCBM-SO-12-24	ARSENIC	2.2		
BCBM-SO-01-02-AVG	BARIUM	6.3		5,200
BCBM-SO-02-02	BARIUM	9.2		
BCBM-SO-03-02	BARIUM	7		
BCBM-SO-04-02	BARIUM	40.8		
BCBM-SO-04-24	BARIUM	12.1		
BCBM-SO-05-02-AVG	BARIUM	8.6		
BCBM-SO-07-02	BARIUM	6.3		
BCBM-SO-08-02	BARIUM	6.2		
BCBM-SO-09-02	BARIUM	5.8		
BCBM-SO-10-02	BARIUM	8.6		
BCBM-SO-10-24	BARIUM	7.2		
BCBM-SO-11-02	BARIUM	71.6		
BCBM-SO-12-02	BARIUM	20.2		
BCBM-SO-12-24	BARIUM	20		

TABLE 4-1

**PHASE I SOIL SAMPLE RESULTS
FORMER BOCA CHICA BLAST MEDIA DISPOSAL AREA
NAVAL AIR STATION
KEY WEST, FLORIDA
PAGE 2 OF 5**

LOCATION	PARAMETER	RESULT	QUAL[a]	ACTION LEVEL[b]
BCBM-SO-04-02	BERYLLIUM	0.54		120
BCBM-SO-02-02	CADMIUM	0.16		37
BCBM-SO-04-02	CADMIUM	1.2		
BCBM-SO-11-02	CADMIUM	0.66		
BCBM-SO-12-02	CADMIUM	0.33		
BCBM-SO-01-02-AVG	CHROMIUM	3.35		290
BCBM-SO-02-02	CHROMIUM	5		
BCBM-SO-03-02	CHROMIUM	3.4		
BCBM-SO-04-02	CHROMIUM	14.1		
BCBM-SO-04-24	CHROMIUM	4.1		
BCBM-SO-05-02-AVG	CHROMIUM	4.65		
BCBM-SO-07-02	CHROMIUM	2.7		
BCBM-SO-08-02	CHROMIUM	2.9		
BCBM-SO-09-02	CHROMIUM	2.8		
BCBM-SO-10-02	CHROMIUM	2.7		
BCBM-SO-10-24	CHROMIUM	3		
BCBM-SO-11-02	CHROMIUM	13.9		
BCBM-SO-12-02	CHROMIUM	7.7		
BCBM-SO-12-24	CHROMIUM	11		
BCBM-SO-01-02-AVG	COBALT	0.135		4,700
BCBM-SO-02-02	COBALT	0.21		
BCBM-SO-04-02	COBALT	2		
BCBM-SO-04-24	COBALT	0.2		
BCBM-SO-05-02-AVG	COBALT	0.19		
BCBM-SO-07-02	COBALT	0.12		
BCBM-SO-08-02	COBALT	0.11		
BCBM-SO-09-02	COBALT	0.14		
BCBM-SO-10-02	COBALT	0.19		
BCBM-SO-10-24	COBALT	0.16		
BCBM-SO-11-02	COBALT	2.3		
BCBM-SO-12-02	COBALT	0.79		
BCBM-SO-12-24	COBALT	0.55		
BCBM-SO-01-02-AVG	COPPER	1.35		3,100
BCBM-SO-02-02	COPPER	4.2		
BCBM-SO-03-02	COPPER	0.54		
BCBM-SO-04-02	COPPER	15.3		
BCBM-SO-04-24	COPPER	7.8		
BCBM-SO-05-02-AVG	COPPER	3.1		

TABLE 4-1

**PHASE I SOIL SAMPLE RESULTS
FORMER BOCA CHICA BLAST MEDIA DISPOSAL AREA
NAVAL AIR STATION
KEY WEST, FLORIDA
PAGE 3 OF 5**

LOCATION	PARAMETER	RESULT	QUAL[a]	ACTION LEVEL[b]
BCBM-SO-07-02	COPPER	0.33		3,100
BCBM-SO-08-02	COPPER	0.58		
BCBM-SO-09-02	COPPER	0.28		
BCBM-SO-10-02	COPPER	0.76		
BCBM-SO-10-24	COPPER	0.26		
BCBM-SO-11-02	COPPER	24.5		
BCBM-SO-12-02	COPPER	13.4		
BCBM-SO-12-24	COPPER	4.1		
BCBM-SO-01-02-AVG	IRON	267.5		23,000
BCBM-SO-02-02	IRON	724		
BCBM-SO-03-02	IRON	394		
BCBM-SO-04-02	IRON	5,170		
BCBM-SO-04-24	IRON	1,400		
BCBM-SO-05-02-AVG	IRON	943.5		
BCBM-SO-07-02	IRON	207		
BCBM-SO-08-02	IRON	168		
BCBM-SO-09-02	IRON	214		
BCBM-SO-10-02	IRON	498		
BCBM-SO-10-24	IRON	301		
BCBM-SO-11-02	IRON	26,800		
BCBM-SO-12-02	IRON	4650		
BCBM-SO-12-24	IRON	1530		
BCBM-SO-01-02-AVG	LEAD	5.7	J	500
BCBM-SO-02-02	LEAD	10.4	J	
BCBM-SO-03-02	LEAD	2.3	J	
BCBM-SO-04-02	LEAD	91.3	J	
BCBM-SO-04-24	LEAD	51.5	J	
BCBM-SO-05-02-AVG	LEAD	4.2	J	
BCBM-SO-07-02	LEAD	2.2		
BCBM-SO-08-02	LEAD	16.1		
BCBM-SO-09-02	LEAD	1.5		
BCBM-SO-10-02	LEAD	1.1		
BCBM-SO-10-24	LEAD	0.4		
BCBM-SO-11-02	LEAD	97.1		
BCBM-SO-12-02	LEAD	38.3		
BCBM-SO-12-24	LEAD	63.2		

TABLE 4-1

**PHASE I SOIL SAMPLE RESULTS
FORMER BOCA CHICA BLAST MEDIA DISPOSAL AREA
NAVAL AIR STATION
KEY WEST, FLORIDA
PAGE 4 OF 5**

LOCATION	PARAMETER	RESULT	QUAL[a]	ACTION LEVEL[b]
BCBM-SO-01-02-AVG	MANGANESE	4.35		370
BCBM-SO-02-02	MANGANESE	10.8		
BCBM-SO-03-02	MANGANESE	4.7		
BCBM-SO-04-02	MANGANESE	26.3		
BCBM-SO-04-24	MANGANESE	15.2		
BCBM-SO-05-02-AVG	MANGANESE	10.5		
BCBM-SO-07-02	MANGANESE	3.7		
BCBM-SO-08-02	MANGANESE	4.6		
BCBM-SO-09-02	MANGANESE	3.4		
BCBM-SO-10-02	MANGANESE	12.9		
BCBM-SO-10-24	MANGANESE	4.4		
BCBM-SO-11-02	MANGANESE	71.8		
BCBM-SO-12-02	MANGANESE	38.8		
BCBM-SO-12-24	MANGANESE	15.3		
BCBM-SO-04-02	MERCURY	0.04		23
BCBM-SO-04-24	MERCURY	0.02		
BCBM-SO-05-02-AVG	MERCURY	0.015		
BCBM-SO-11-02	MERCURY	1.5		
BCBM-SO-01-02-AVG	NICKEL	1.01		1,500
BCBM-SO-02-02	NICKEL	1.3		
BCBM-SO-03-02	NICKEL	1.1		
BCBM-SO-04-02	NICKEL	8.3		
BCBM-SO-04-24	NICKEL	3.1		
BCBM-SO-05-02-AVG	NICKEL	1.3		
BCBM-SO-07-02	NICKEL	0.7		
BCBM-SO-08-02	NICKEL	0.78		
BCBM-SO-09-02	NICKEL	0.64		
BCBM-SO-10-02	NICKEL	0.94		
BCBM-SO-10-24	NICKEL	0.76		
BCBM-SO-11-02	NICKEL	8		
BCBM-SO-12-02	NICKEL	4.9		
BCBM-SO-12-24	NICKEL	1.4		
BCBM-SO-11-02	TIN	18		44,000
BCBM-SO-01-02-AVG	VANADIUM	1.85		490
BCBM-SO-02-02	VANADIUM	2.8		
BCBM-SO-03-02	VANADIUM	1.9		
BCBM-SO-04-02	VANADIUM	23.8		
BCBM-SO-04-24	VANADIUM	13.9		

TABLE 4-1

**PHASE I SOIL SAMPLE RESULTS
FORMER BOCA CHICA BLAST MEDIA DISPOSAL AREA
NAVAL AIR STATION
KEY WEST, FLORIDA
PAGE 5 OF 5**

LOCATION	PARAMETER	RESULT	QUAL[a]	ACTION LEVEL[b]
BCBM-SO-05-02-AVG	VANADIUM	4.15		490
BCBM-SO-07-02	VANADIUM	1.8		
BCBM-SO-08-02	VANADIUM	1.7		
BCBM-SO-09-02	VANADIUM	1.8		
BCBM-SO-10-02	VANADIUM	3.2		
BCBM-SO-10-24	VANADIUM	1.6		
BCBM-SO-11-02	VANADIUM	6.3		
BCBM-SO-12-02	VANADIUM	6.1		
BCBM-SO-12-24	VANADIUM	2.8		
BCBM-SO-01-02-AVG	ZINC	5.35		23,000
BCBM-SO-02-02	ZINC	14.2		
BCBM-SO-04-02	ZINC	39		
BCBM-SO-04-24	ZINC	18.3		
BCBM-SO-05-02-AVG	ZINC	13.95		
BCBM-SO-07-02	ZINC	0.93		
BCBM-SO-08-02	ZINC	2.7		
BCBM-SO-09-02	ZINC	0.8		
BCBM-SO-10-02	ZINC	2.2		
BCBM-SO-11-02	ZINC	709		
BCBM-SO-12-02	ZINC	156		
BCBM-SO-12-24	ZINC	99.7		

Shading indicates a concentration in excess of the selected screening value.
The notation "-AVG" indicates that duplicate samples were collected and the results were averaged.
(a) Qualifier (Qual) Codes:
J-The associated value is an estimated quantity.
(b) Residential Soil Action Level reported in mg/kg.

TABLE 4-2

**PHASE I SEDIMENT SAMPLE RESULTS
FORMER BOCA CHICA BLAST MEDIA DISPOSAL AREA
NAVAL AIR STATION
KEY WEST, FLORIDA**

LOCATION	PARAMETER	RESULT[(a)]	QUAL[(b)]	ACTION LEVEL
INORGANICS (mg/kg)				
BCBM-SD-01	ALUMINUM	1130		2,663.78
BCBM-SD-02-AVG	ALUMINUM	117.5		
BCBM-SD-03	ALUMINUM	381		
BCBM-SD-01	ARSENIC	1.4		7.24
BCBM-SD-01	BARIUM	8.4		40
BCBM-SD-02-AVG	BARIUM	5.75		
BCBM-SD-03	BARIUM	6.1		
BCBM-SD-01	CHROMIUM	5		52.3
BCBM-SD-02-AVG	CHROMIUM	2.2		
BCBM-SD-03	CHROMIUM	2.9		
BCBM-SD-01	COBALT	0.14		0.48
BCBM-SD-02-AVG	COBALT	0.0675[(1)]		
BCBM-SD-01	COPPER	9.4		18.7
BCBM-SD-02-AVG	COPPER	0.105[(1)]		
BCBM-SD-03	COPPER	0.58		
BCBM-SD-01	IRON	540		2398
BCBM-SD-02-AVG	IRON	90.25		
BCBM-SD-03	IRON	287		
BCBM-SD-01	LEAD	15.1	J	34.18
BCBM-SD-02-AVG	LEAD	2		
BCBM-SD-03	LEAD	2.9		
BCBM-SD-01	MANGANESE	14.1		460
BCBM-SD-02-AVG	MANGANESE	2.6		
BCBM-SD-03	MANGANESE	4.2		
BCBM-SD-01	MERCURY	0.04		0.13
BCBM-SD-01	NICKEL	1.5		15.9
BCBM-SD-02-AVG	NICKEL	0.605		
BCBM-SD-03	NICKEL	0.73		
BCBM-SD-01	VANADIUM	3.2		10.44
BCBM-SD-02-AVG	VANADIUM	1.55		
BCBM-SD-03	VANADIUM	1.9		
BCBM-SD-01	ZINC	43.8		124
BCBM-SD-02-AVG	ZINC	0.82		
BCBM-SD-03	ZINC	1.6		

The notation "-AVG" indicates that duplicate samples were collected and the results were averaged.
mg/kg – milligrams per kilogram
(a) Result:
(1) The parameter was detected in only one of two duplicate samples. For averaging purposes, one-half the detection limit was averaged with the detected result.
(b) Qualifier (Qual) Codes:
J-The associated value is an estimated quantity.

TABLE 4-3

**PHASE I GROUNDWATER SCREENING SAMPLE RESULTS
FORMER BOCA CHICA BLAST MEDIA DISPOSAL AREA
NAVAL AIR STATION
KEY WEST, FLORIDA
PAGE 1 OF 2**

LOCATION	PARAMETER	RESULT[a]	QUAL[b]	ACTION LEVEL
INORGANICS (μg/L)				
BCBM-TW-03	ALUMINUM	12,600		37,000
BCBM-TW-09	ALUMINUM	11,800		
BCBM-TW-12	ALUMINUM	8,190		
BCBM-TW-12	ARSENIC	23.6		50
BCBM-TW-01-AVG	BARIUM	4.15		2,000
BCBM-TW-02	BARIUM	5.2		
BCBM-TW-03	BARIUM	114		
BCBM-TW-05	BARIUM	30.8		
BCBM-TW-06	BARIUM	15.6		
BCBM-TW-07	BARIUM	16.4		
BCBM-TW-08	BARIUM	20.3		
BCBM-TW-09	BARIUM	430		
BCBM-TW-10	BARIUM	7.9		
BCBM-TW-11	BARIUM	48.9		
BCBM-TW-12	BARIUM	129		
BCBM-TW-12	CADMIUM	2		5
BCBM-TW-03	CHROMIUM	61.4		100
BCBM-TW-09	CHROMIUM	224		
BCBM-TW-12	CHROMIUM	62.4		
BCBM-TW-01-AVG	COPPER	2.5[1]		
BCBM-TW-03	COPPER	16.2		1,500
BCBM-TW-09	COPPER	86.2		
BCBM-TW-11	COPPER	20.4		
BCBM-TW-12	COPPER	15.2		
BCBM-TW-01-AVG	IRON	23.375[1]		
BCBM-TW-02	IRON	217		11,000
BCBM-TW-03	IRON	10,300		
BCBM-TW-05	IRON	290		
BCBM-TW-09	IRON	11,100		
BCBM-TW-10	IRON	53.5		
BCBM-TW-11	IRON	1,360		
BCBM-TW-12	IRON	8,170		
BCBM-TW-11	LEAD	22.9		15
BCBM-TW-12	LEAD	68.4		

TABLE 4-3

**PHASE I GROUNDWATER SCREENING SAMPLE RESULTS
FORMER BOCA CHICA BLAST MEDIA DISPOSAL AREA
NAVAL AIR STATION
KEY WEST, FLORIDA
PAGE 2 OF 2**

LOCATION	PARAMETER	RESULT[(a)]	QUAL	ACTION LEVEL
BCBM-TW-01-AVG	MANGANESE	3.6		840
BCBM-TW-02	MANGANESE	6		
BCBM-TW-03	MANGANESE	145		
BCBM-TW-05	MANGANESE	50.4		
BCBM-TW-06	MANGANESE	45.4		
BCBM-TW-07	MANGANESE	9.1		
BCBM-TW-08	MANGANESE	7.9		
BCBM-TW-09	MANGANESE	204		
BCBM-TW-10	MANGANESE	5.1		
BCBM-TW-11	MANGANESE	129		
BCBM-TW-12	MANGANESE	170		
BCBM-TW-11	MERCURY	0.26		2
BCBM-TW-09	TIN	166		22,000
BCBM-TW-01-AVG	VANADIUM	1.45		260
BCBM-TW-02	VANADIUM	2.8		
BCBM-TW-03	VANADIUM	54.6		
BCBM-TW-10	VANADIUM	1.1		
BCBM-TW-12	VANADIUM	37.4		
BCBM-TW-03	ZINC	15.6		11,000
BCBM-TW-05	ZINC	10.7		
BCBM-TW-09	ZINC	132		
BCBM-TW-11	ZINC	84.8		
BCBM-TW-12	ZINC	98.5		

Shading indicates a concentration in excess of the selected screening value.
The notation "-AVG" indicates that duplicate samples were collected and the results were averaged.
(a) Result:
(1) The parameter was detected in only one of two duplicate samples. For averaging purposes, one-half the detection limit was averaged with the detected result.

TABLE 4-4

**PHASE II SOIL SAMPLE RESULTS
FORMER BOCA CHICA BLAST MEDIA DISPOSAL AREA
NAVAL AIR STATION
KEY WEST, FLORIDA
PAGE 1 OF 4**

LOCATION	PARAMETER	RESULT	QUAL	ACTION LEVEL[(a)]
INORGANICS (mg/kg)				
BCBM-SB-01-02	ALUMINUM	242		75,000
BCBM-SB-01-24	ALUMINUM	94.5		
BCBM-SB-02-02	ALUMINUM	298		
BCBM-SB-02-24	ALUMINUM	71		
BCBM-SB-03-02	ALUMINUM	4,270		
BCBM-SB-03-24	ALUMINUM	2,680		
BCBM-SB-04-02	ALUMINUM	311		
BCBM-SB-04-24	ALUMINUM	160		
BCBM-SB05-02	ALUMINUM	325		
BCBM-SB05-24	ALUMINUM	427		
BCBM-SB06-02	ALUMINUM	304		
BCBM-SB06-24	ALUMINUM	238		
BCBM-SB-03-24	ANTIMONY	1.5		26
BCBM-SB-03-02	ARSENIC	0.52		2.7
BCBM-SB-03-24	ARSENIC	0.74		
BCBM-SB-04-02	ARSENIC	0.78		
BCBM-SB-04-24	ARSENIC	0.64		
BCBM-SB05-02	ARSENIC	2		
BCBM-SB05-24	ARSENIC	0.42		
BCBM-SB06-02	ARSENIC	0.64		
BCBM-SB06-24	ARSENIC	0.52		
BCBM-SB-01-02	BARIUM	5.2		5,200
BCBM-SB-01-24	BARIUM	4		
BCBM-SB-02-02	BARIUM	5		
BCBM-SB-02-24	BARIUM	4.1		
BCBM-SB-03-02	BARIUM	347		
BCBM-SB-03-24	BARIUM	28.2		
BCBM-SB-04-02	BARIUM	7		
BCBM-SB-04-24	BARIUM	5.9		
BCBM-SB05-02	BARIUM	5.8		
BCBM-SB05-24	BARIUM	7.9		
BCBM-SB06-02	BARIUM	5.7		
BCBM-SB06-24	BARIUM	5.7		
BCBM-SB-01-02	BERYLLIUM	0.07		120
BCBM-SB-01-24	BERYLLIUM	0.06		
BCBM-SB-02-02	BERYLLIUM	0.08		
BCBM-SB-02-24	BERYLLIUM	0.06		
BCBM-SB-03-02	BERYLLIUM	0.04		
BCBM-SB-03-24	BERYLLIUM	0.04		

TABLE 4-4

**PHASE II SOIL SAMPLE RESULTS
FORMER BOCA CHICA BLAST MEDIA DISPOSAL AREA
NAVAL AIR STATION
KEY WEST, FLORIDA
PAGE 2 OF 4**

LOCATION	PARAMETER	RESULT	QUAL	ACTION LEVEL[(a)]
BCBM-SB-03-02	CADMIUM	0.33		37
BCBM-SB-03-24	CADMIUM	0.21		
BCBM-SB-01-02	CHROMIUM	2.3		290
BCBM-SB-01-24	CHROMIUM	2.1		
BCBM-SB-02-02	CHROMIUM	3		
BCBM-SB-02-24	CHROMIUM	2		
BCBM-SB-03-02	CHROMIUM	5.2		
BCBM-SB-03-24	CHROMIUM	6.7		
BCBM-SB-04-02	CHROMIUM	2.8		
BCBM-SB-04-24	CHROMIUM	2.2		
BCBM-SB05-02	CHROMIUM	3.1		
BCBM-SB05-24	CHROMIUM	3		
BCBM-SB06-02	CHROMIUM	3		
BCBM-SB06-24	CHROMIUM	2.6		
BCBM-SB-03-02	COBALT	3.8		4,700
BCBM-SB-03-24	COBALT	2.5		
BCBM-SB-01-02	COPPER	2		3,100
BCBM-SB-02-02	COPPER	1.4		
BCBM-SB-03-02	COPPER	16.3		
BCBM-SB-03-24	COPPER	11.9		
BCBM-SB-04-02	COPPER	0.72		
BCBM-SB-04-24	COPPER	0.46		
BCBM-SB05-02	COPPER	0.3		
BCBM-SB05-24	COPPER	0.3		
BCBM-SB06-02	COPPER	0.69		
BCBM-SB06-24	COPPER	0.6		
BCBM-SB-01-02	IRON	214		23,000
BCBM-SB-01-24	IRON	83.4		
BCBM-SB-02-02	IRON	212		
BCBM-SB-02-24	IRON	62.6		
BCBM-SB-03-02	IRON	10,000		
BCBM-SB-03-24	IRON	6,200		
BCBM-SB-04-02	IRON	284		
BCBM-SB-04-24	IRON	130		
BCBM-SB05-02	IRON	623		
BCBM-SB05-24	IRON	201		
BCBM-SB06-02	IRON	1,100		
BCBM-SB06-24	IRON	281		

TABLE 4-4

**PHASE II SOIL SAMPLE RESULTS
FORMER BOCA CHICA BLAST MEDIA DISPOSAL AREA
NAVAL AIR STATION
KEY WEST, FLORIDA
PAGE 3 OF 4**

LOCATION	PARAMETER	RESULT	QUAL	ACTION LEVEL[(a)]
BCBM-SB-01-02	LEAD	2.7		500
BCBM-SB-02-02	LEAD	3.6		
BCBM-SB-03-02	LEAD	4.9		
BCBM-SB-03-24	LEAD	9.4		
BCBM-SB-04-02	LEAD	0.63		
BCBM-SB-04-24	LEAD	0.29		
BCBM-SB-01-02	MANGANESE	3.3		370
BCBM-SB-01-24	MANGANESE	1.2		
BCBM-SB-02-02	MANGANESE	3.2		
BCBM-SB-02-24	MANGANESE	1.1		
BCBM-SB-03-02	MANGANESE	83.3		
BCBM-SB-03-24	MANGANESE	54.5		
BCBM-SB-04-02	MANGANESE	4.2		
BCBM-SB-04-24	MANGANESE	2.2		
BCBM-SB05-02	MANGANESE	4.1		
BCBM-SB05-24	MANGANESE	4.2		
BCBM-SB06-02	MANGANESE	12.7		
BCBM-SB06-24	MANGANESE	2.9		
BCBM-SB-04-02	MERCURY	0.16		23
BCBM-SB-03-02	NICKEL	3.8		1,500
BCBM-SB-03-24	NICKEL	3.4		
BCBM-SB-04-02	NICKEL	0.58		
BCBM-SB-04-24	NICKEL	0.51		
BCBM-SB05-02	NICKEL	1.1		
BCBM-SB05-24	NICKEL	0.67		
BCBM-SB06-02	NICKEL	1.3		
BCBM-SB06-24	NICKEL	0.79		
BCBM-SB-01-02	VANADIUM	2.1		490
BCBM-SB-01-24	VANADIUM	2		
BCBM-SB-02-02	VANADIUM	2		
BCBM-SB-02-24	VANADIUM	2.3		
BCBM-SB-03-02	VANADIUM	40.2		
BCBM-SB-03-24	VANADIUM	27.7		
BCBM-SB-04-02	VANADIUM	2.1		
BCBM-SB-04-24	VANADIUM	1.7		
BCBM-SB05-02	VANADIUM	4.3		
BCBM-SB05-24	VANADIUM	1.4		
BCBM-SB06-02	VANADIUM	1.8		
BCBM-SB06-24	VANADIUM	1.6		

TABLE 4-4

**PHASE II SOIL SAMPLE RESULTS
FORMER BOCA CHICA BLAST MEDIA DISPOSAL AREA
NAVAL AIR STATION
KEY WEST, FLORIDA
PAGE 4 OF 4**

LOCATION	PARAMETER	RESULT	QUAL	ACTION LEVEL[(a)]
BCBM-SB-01-02	ZINC	4.2		23,000
BCBM-SB-01-24	ZINC	0.7		
BCBM-SB-02-02	ZINC	3.9		
BCBM-SB-02-24	ZINC	0.48		
BCBM-SB-03-02	ZINC	16.2		
BCBM-SB-03-24	ZINC	20.2		
BCBM-SB06-02	ZINC	0.57		
BCBM-SB06-24	ZINC	0.51		

(a) Residential Soil Action Level reported in mg/kg.

TABLE 4-5

**PHASE II GROUNDWATER SAMPLE RESULTS
FORMER BOCA CHICA BLAST MEDIA DISPOSAL AREA
NAVAL AIR STATION
KEY WEST, FLORIDA**

LOCATION		RESULT	QUAL	ACTION LEVEL
INORGANICS (μg/L)				
BCBM-MW-01-AVG	ALUMINUM	8.4775[(1)]		37,000
BCBM-MW-02	ALUMINUM	17.3		
BCBM-MW-01-AVG	ARSENIC	2.62[(1)]		50
BCBM-MW-02	ARSENIC	13.9		
BCBM-MW-04	ARSENIC	26.7		
BCBM-MW-06	ARSENIC	34		
BCBM-MW-01-AVG	BARIUM	5.6		2,000
BCBM-MW-02	BARIUM	7.8		
BCBM-MW-03	BARIUM	79.6		
BCBM-MW-04	BARIUM	63.8		
BCBM-MW-05	BARIUM	37.9		
BCBM-MW-06	BARIUM	49.2		
BCBM-MW-04	CADMIUM	1.5		5
BCBM-MW-02	CHROMIUM	1.5		100
BCBM-MW-01-AVG	COPPER	2.6		500
BCBM-MW-02	COPPER	3.6		
BCBM-MW-03	IRON	277		11,000
BCBM-MW-04	IRON	3,170		
BCBM-MW-05	IRON	89.2		
BCBM-MW-05	IRON	1,410		
BCBM-MW-01-AVG	MANGANESE	3.65		840
BCBM-MW-02	MANGANESE	3.8		
BCBM-MW-03	MANGANESE	71.1		
BCBM-MW-04	MANGANESE	54.6		
BCBM-MW-05	MANGANESE	20.4		
BCBM-MW-06	MANGANESE	79.8		
BCBM-MW-03	SELENIUM	15.4		50
BCBM-MW-01-AVG	SILVER	1.025[(1)]		180
BCBM-MW-02	SILVER	1.9		
BCBM-MW-04	SILVER	4.4		
BCBM-MW-05	SILVER	3.9		
BCBM-MW-06	SILVER	4.3		
BCBM-MW-06	TIN	7.2		22,000
BCBM-MW-01-AVG	VANADIUM	1.7		260
BCBM-MW-03	VANADIUM	5		
BCBM-MW-04	VANADIUM	8.7		

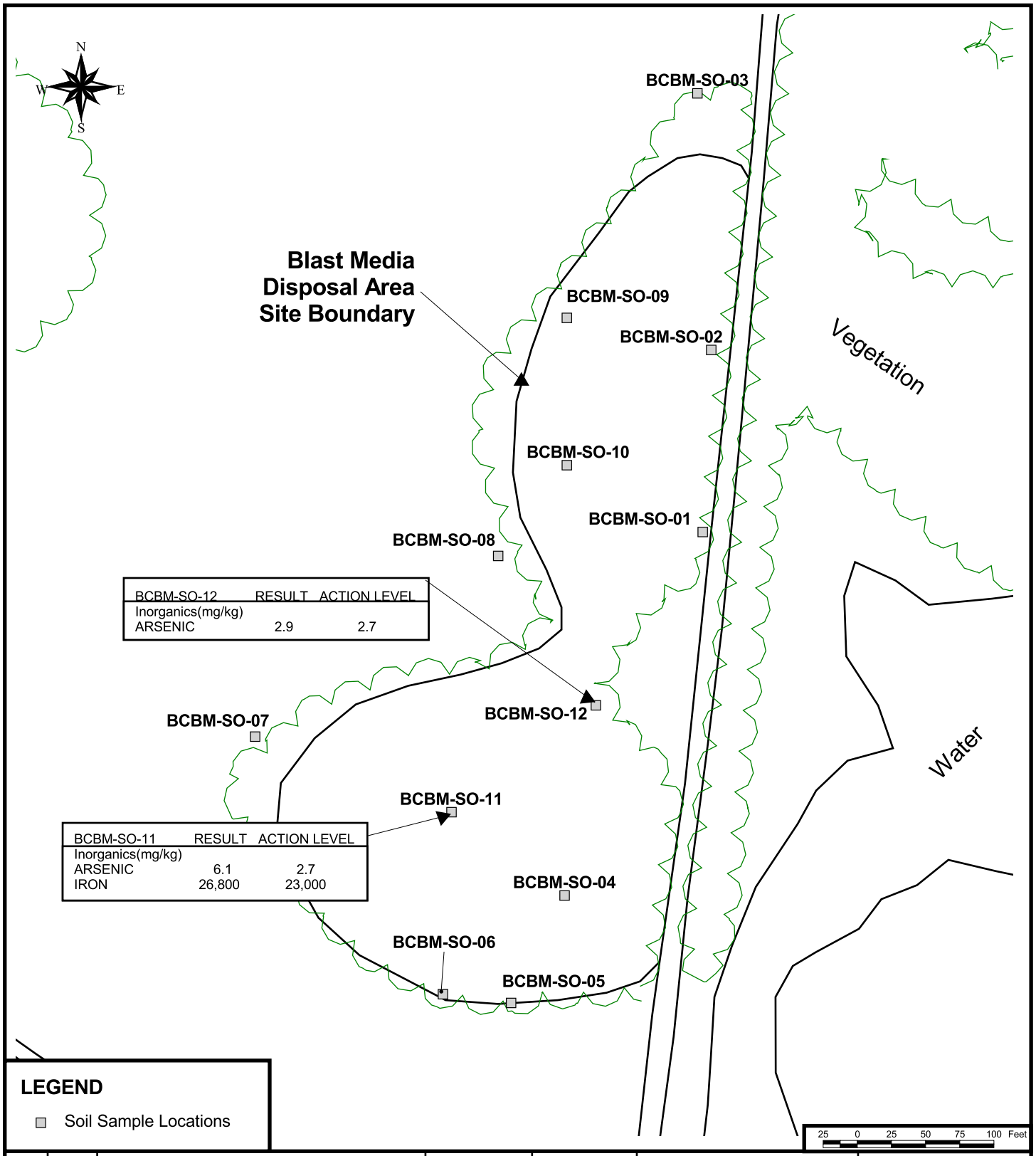
The notation "-AVG" indicates that duplicate samples were collected and the results were averaged.
(a) Result:
(1) The parameter was detected in only one of two duplicate samples. For averaging purposes, one-half the detection limit was averaged with the detected result.

TABLE 4-6

**CONFIRMATION SAMPLE RESULTS
FORMER BOCA CHICA BLAST MEDIA DISPOSAL AREA
NAVAL AIR STATION
KEY WEST, FLORIDA**

LOCATION	PARAMETER	RESULT (mg/kg)	QUAL	LEVEL[(a)]
INORGANICS (mg/kg)				
BCBM-CONF-01	IRON	2,310		23,000
BCBM-CONF-02	IRON	4,590		
BCBM-CONF-03	IRON	8,220		
BCBM-CONF-04	IRON	3,610		

(a) Residential Soil Action Level reported in mg/kg.



BCBM-SO-12	RESULT	ACTION LEVEL
Inorganics(mg/kg)		
ARSENIC	2.9	2.7

BCBM-SO-11	RESULT	ACTION LEVEL
Inorganics(mg/kg)		
ARSENIC	6.1	2.7
IRON	26,800	23,000

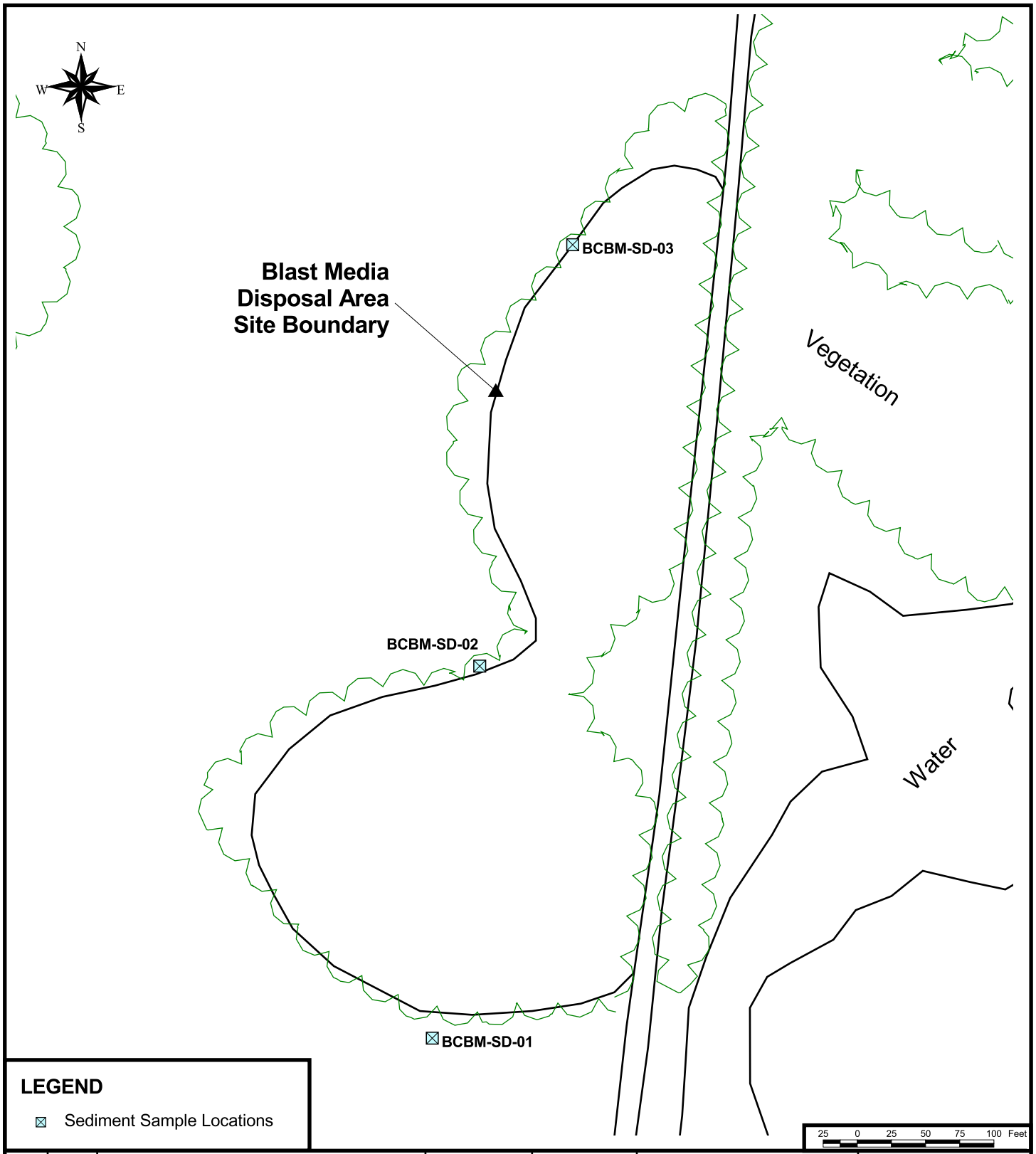
NO.	DATE	REVISIONS

DRAWN BY CM DATE 10/01/2003
CHECKED BY EHM DATE 10/01/2003
COST/SCHED-AREA
SCALE AS NOTED

RFA REPORT
FIGURE 4-1
PHASE I
SOIL SAMPLE EXCEEDANCES
NAVAL AIR STATION
KEY WEST, FLORIDA

CONTRACT NO. 2870
APPROVED BY CMB DATE 10/01/2003
APPROVED BY DATE
DRAWING NO.
REV. 1

P:/GOVERNMENT/KEYWEST/EGIS/RFA_REPORT.APR LAYOUT: FIG 4-1
DATE: 10/01/2003 BY: MB



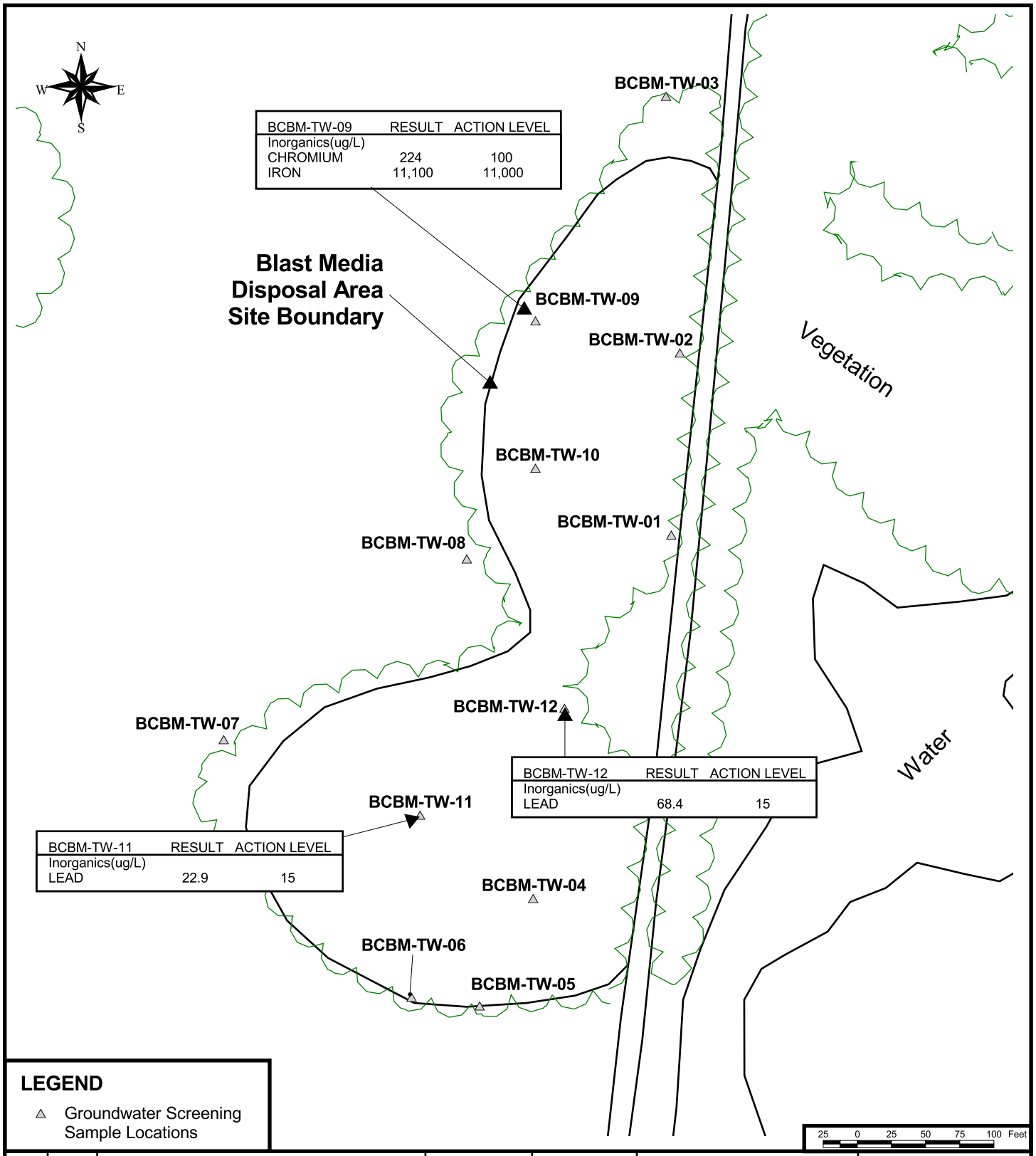
NO.	DATE	REVISIONS

DRAWN BY CM	DATE 10/01/2003
CHECKED BY EHM	DATE 10/01/2003
COST/SCHED-AREA	
SCALE AS NOTED	

RFA REPORT
FIGURE 4-2
PHASE I
SEDIMENT SAMPLE LOCATIONS
NAVAL AIR STATION
KEY WEST, FLORIDA

CONTRACT NO. 2870	
APPROVED BY CMB	DATE 10/01/2003
APPROVED BY	DATE
DRAWING NO.	REV. 1

P:/GOVERNMENT/KEYWEST/EGIS/RFA_REPORT.APR LAYOUT: FIG 4-2
DATE: 10/01/2003 BY: MB



BCBM-TW-09	RESULT	ACTION LEVEL
Inorganics(ug/L)		
CHROMIUM	224	100
IRON	11,100	11,000

BCBM-TW-12	RESULT	ACTION LEVEL
Inorganics(ug/L)		
LEAD	68.4	15

BCBM-TW-11	RESULT	ACTION LEVEL
Inorganics(ug/L)		
LEAD	22.9	15

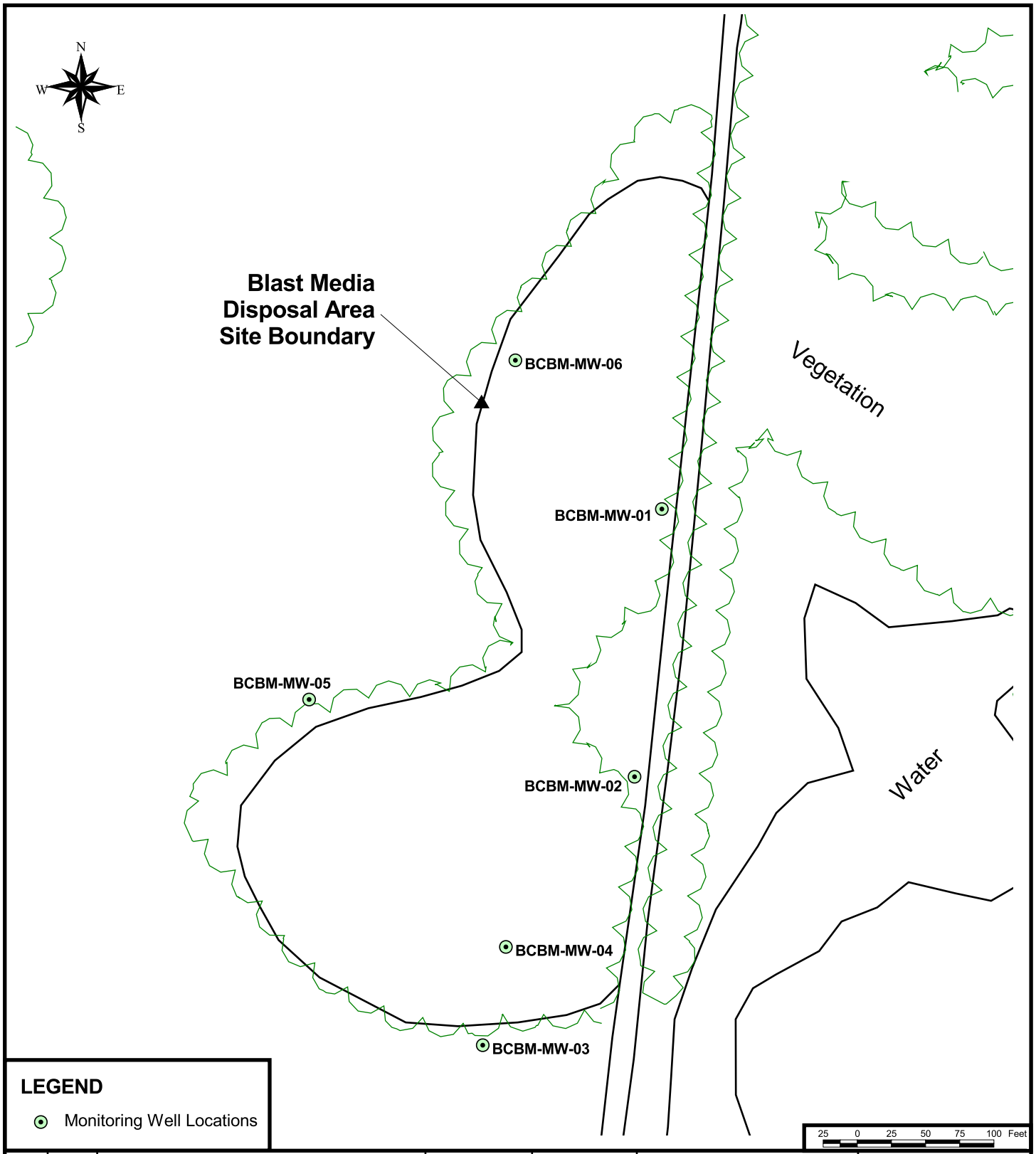
NO.	DATE	REVISIONS

DRAWN BY CM	DATE 10/01/2003	
CHECKED BY EHM	DATE 10/01/2003	
COST/SCHED-AREA		
SCALE AS NOTED		

RFA REPORT
FIGURE 4-3
PHASE I GROUNDWATER
SCREENING SAMPLE EXCEEDANCES
NAVAL AIR STATION
KEY WEST, FLORIDA

CONTRACT NO. 2870	
APPROVED BY CMB	DATE 10/01/2003
APPROVED BY	DATE
DRAWING NO.	REV. 1

P:/GOVERNMENT/KEYWEST/EGIS/RFA_REPORT.APR LAYOUT: FIG 4-3
DATE: 10/01/2003 BY: MB



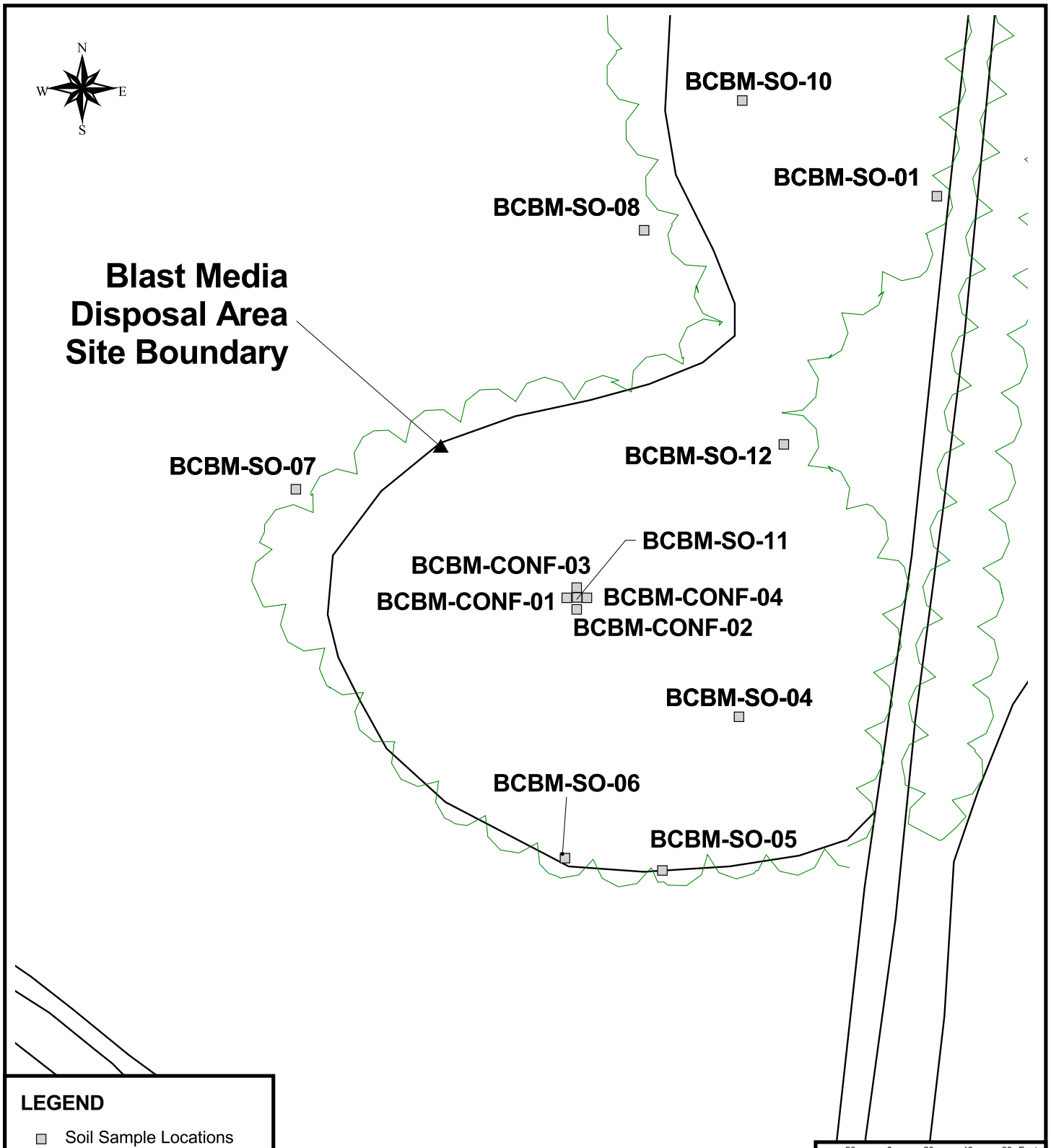
NO.	DATE	REVISIONS

DRAWN BY CM	DATE 10/01/2003
CHECKED BY EHM	DATE 10/01/2003
COST/SCHED-AREA	
SCALE AS NOTED	

RFA REPORT
FIGURE 4-4. PHASE II
MONITORING WELL LOCATIONS
NAVAL AIR STATION
KEY WEST, FLORIDA

CONTRACT NO. 2870	
APPROVED BY CMB	DATE 10/01/2003
APPROVED BY	DATE
DRAWING NO.	REV. 1

P:/GOVERNMENT/KEYWEST/EGIS/RFA_REPORT.APR LAYOUT: FIG 4-4
DATE: 10/01/2003 BY: MB



NO.	DATE	REVISIONS

DRAWN BY CM	DATE 10/01/2003
CHECKED BY EHM	DATE 10/01/2003
COST/SCHED-AREA	
SCALE AS NOTED	

RFA REPORT
FIGURE 4-5
PHASE I
CONFIRMATION SAMPLE LOCATIONS
NAVAL AIR STATION
KEY WEST, FLORIDA

CONTRACT NO. 2870	
APPROVED BY CMB	DATE 10/01/2003
APPROVED BY	DATE
DRAWING NO.	REV. 1

P:/GOVERNMENT/KEYWEST/EGIS/RFA_REPORT.APR LAYOUT: FIG 4-5
DATE: 10/01/2003 BY: MB

5.0 CONCLUSIONS

Based on the results of the preliminary review, visual site inspection, Phase I and II sample results, and results of confirmation sample collected from April 2002 through May 2003, no further action is recommended for the Former Boca Chica Blast Media Disposal Area.

Phase I soil sample results exhibited exceedances of action levels for arsenic in two samples and iron in one sample. Confirmation samples collected from areas immediately surrounding one location of exceedances indicated that the elevated concentrations of arsenic and iron were atypical. Also, all soil in the immediate vicinity of this Phase I soil sample was removed during the sample collection process. The 95% UCL was calculated for remaining arsenic results, including the average arsenic concentration of the four confirmation samples, and the result was below the proposed minimum FDEP SCTL. No sediment exceedances were identified. Phase II soil and groundwater results exhibited no exceedances of action levels. Although initial groundwater results produced one exceedance for thallium (due to excess sample dilution), a second (undiluted) analysis of that sample invalidated the initial result and reported thallium as not detected. Therefore, no further action is recommended for the Former Boca Chica Blast Media Disposal Area.

REFERENCES

ABB (ABB Environmental Services, Inc.), 1994. Contamination Assessment Report Jet Engine Test Cell Building A969, Boca Chica Field, NAS Key West, prepared for Department of the Navy, Southern Division, Naval Facilities Engineering Command. Tallahassee, Florida.

B&RE (Brown and Root Environmental, Inc.), 1998a. Supplemental RCRA Facility Investigation/Remedial Investigation Report for Eight Sites, Revision 2. Prepared for Department of the Navy, Southern Division, Naval Facilities Engineering Command. Aiken, SC, January.

B&RE, 1998b. Site Investigation Work Plan for Ten BRAC Properties, Revision 2. Prepared for Department of the Navy, Southern Division, Naval Facilities Engineering Command. Aiken, SC, January.

B&RE, 1999. Corrective Measures Study Report for SWMU 5. Prepared for Department of the Navy, Southern Division, Naval Facilities Engineering Command. Aiken, SC, March.

EPA (U.S. Environmental Protection Agency), 1996. "A Guide: Soil Screening Guidance: Technical Background Document," Second Edition, Publication 9355.4-04FS.

Gilbert, R.O., 1987. Statistical Methods for Environmental Pollution Monitoring, New York; Van Nostrand Rheinhold.

IT (IT Corporation), 1994. RCRA Facility Investigation/Remedial Investigation, Final Report, NAS Key West, prepared for Department of the Navy, Southern Division, Naval Facilities Engineering Command. Boca Raton, Florida, June.

Land, 1971. "Confidence Intervals for Linear Function of the Normal Mean and Variance," Annal of Mathematical Statistics, 42, 1187-1205.

NAS Key West Partnering Team Meeting, 2003. NAS Key West Partnering Team Meeting Summary for September 23, 24, 2003. Stone Mountain, Georgia, September.

TtNUS (Tetra Tech NUS, Inc.), 2001. RCRA Facility Assessment Work Plan, NAF Key West, prepared for Department of the Navy, Southern Division, Naval Facilities Engineering Command, Aiken, South Carolina, April.

APPENDIX A

RESPONSE TO COMMENTS

APPENDIX A. RESPONSE TO COMMENTS

RESPONSE TO COMMENTS FROM TRACIE VAUGHT, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION:

Comment 1: Table 4-1: The Action level listed for Arsenic is incorrect, 3.7 mg/kg is listed in the table and it should be 0.8 mg/kg. Action levels in this report should mirror the residential Soil Cleanup Target Levels (SCTLs), please correct and make sure all other Action Levels are also correct.

Response: Industrial action levels were originally used for comparison to contamination in the RFA Report. However, the Partnering Team has since decided to apply residential action levels at the site. The residential arsenic action level for soil used by the NAS Key West Partnering Team is 2.7 mg/kg, which represents twice the average background concentration. All action levels have been updated to reflect residential standards.

Comment 2: Page 5-1. FDEP does not concur with the recommendation to propose No Further Action for the surface soil remedy at this time. As stated in comment 1, Arsenic's Action Level is listed as 3.7 mg/kg and it should be 0.8 mg/kg thus making this 95% UCL calculation incorrect.

Response: Confirmation sampling has occurred since production of Revision 0 of the RFA Report. Thus, modifications to the 95% UCL calculations have been implemented. The 95% UCL was compared to the minimum proposed arsenic SCTL of 1.6 mg/kg to be implemented in Spring 2004, and fell below this value. Therefore, the recommendation of No Further Action for the site is again proposed.

APPENDIX B

VALIDATED DATA

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**C. BRYAN**	**DATE:**	**JUNE 26, 2002**
FROM:	**ETHAN G. LEE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS AND TIN**
NAS KEY WEST – CTO 188
SAMPLE DELIVERY GROUP (SDG) – NASKW29

SAMPLES: 3/SEDIMENT/

0402-DUP-06	BCBM-SD-02	BCBM-SD-03

8/SOIL/

BCBM-SO-07-02	BCBM-SO-08-02	BCBM-SO-09-02
BCBM-SO-10-02	BCBM-SO-10-24	BCBM-SO-11-02
BCBM-SO-12-02	BCBM-SO-12-24	

2/AQUEOUS/

FB1-0402	RB3-0402

Overview

The sample set for NAS Key West, CTO 188, SDG NASKW29, consists of two (2) sediment and eight (8) soil environmental samples, one (1) field blank, one (1) rinsate blank, and one (1) field duplicate pair (0402-DUP-06 / BCBM-SD-02).

The samples were analyzed for TAL metals and tin. The samples were collected by Tetra Tech NUS April 19-20, 2002 and analyzed by Katahdin Analytical Services. Tin and TAL metals analyses except mercury were conducted using method SW846 6010B. Mercury solid analyses were conducted using method SW846 7471A. Mercury aqueous analyses were conducted using method SW846 7470A.

Metals analyses except mercury were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using Manual Cold Vapor Atomic Absorption (CVAA) methodologies.

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.

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method/preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Aluminum[1]	6.03 mg/kg	30.15 mg/kg
Antimony	5.68 ug/L	2.84 mg/kg
Arsenic	2.56 ug/L	1.28 mg/kg
Barium	0.49 ug/L	0.25mg/kg
Beryllium	0.43 ug/L	0.22 mg/kg
Cadmium	0.35 ug/L	0.18 mg/kg
Calcium[1]	9.741 mg/kg	48.7 mg/kg
Chromium	2.07 ug/L	1.04 mg/kg
Iron	29.71 ug/L	14.86 mg/kg
Magnesium	10.1 ug/L	5.05 mg/kg
Manganese	0.32 ug/L	0.16 mg/kg
Mercury	0.05 ug/L	0.025 mg/kg
Potassium[1]	33.97 mg/kg	170 mg/kg
Selenium	5.3 ug/L	2.65 mg/kg
Silver	1.37 ug/L	0.69 mg/kg
Sodium[1]	6.249 mg/kg	31.2 mg/kg
Thallium	7.35 ug/L	3.68 mg/kg
Tin[1]	3.895 mg/kg	19.5 mg/kg
Vanadium	0.99 ug/L	0.50 mg/kg
Zinc	1.2 ug/L	0.60 mg/kg

[1] Maximum concentration found in solid preparation blank.

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot, percent solids, and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Positive results < Action Level were qualified (U) for antimony, arsenic, beryllium, cadmium, chromium, mercury, potassium, silver, tin, and zinc. No validation action was required for the remaining analytes because either all the results were greater than the action level or they were nondetects. Field quality control samples were not qualified due to laboratory blank contamination.

Notes

Dilutions were made for calcium in all samples except field quality control samples.

Dilutions were made for antimony, arsenic, cadmium, copper, iron, lead, manganese, selenium, thallium, vanadium, and zinc in sample BCBM-SD-11-02.

Reporting limits for Form 1s and EDD did not agree. The reviewer amended the database for several analytes.

The soil samples were incorrectly labeled as sediment samples in the report. Changes were made to the EDD.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method/preparation blanks.

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

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 x 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: 2870

SDG: NASKW29 MEDIA: SOIL DATA FRACTION: M

nsample	0402-DUP-06
samp_date	4/19/2002
lab_id	WS0955-005
qc_type	NM
units	MG/KG
Pct_Solids	79.6
DUP_OF:	BCBM-SD-02

Parameter	Result	ValQual	QualCode
ALUMINUM	115		
ANTIMONY	0.42	U	
ARSENIC	0.48	U	A
BARIUM	5.9		
BERYLLIUM	0.05	U	A
CADMIUM	0.03	U	
CALCIUM	382000		
CHROMIUM	2.2		
COBALT	0.09		
COPPER	0.14	U	
IRON	84.2		
LEAD	1.9		
MAGNESIUM	1330		
MANGANESE	2.4		
MERCURY	0.01	U	
NICKEL	0.59		
POTASSIUM	167	U	A
SELENIUM	0.44	U	
SILVER	0.13	U	
SODIUM	4220		
THALLIUM	0.51	U	
TIN	3.8	U	A
VANADIUM	1.6		
ZINC	0.77		

nsample	BCBM-SD-02
samp_date	4/19/2002
lab_id	WS0955-009
qc_type	NM
units	MG/KG
Pct_Solids	81
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	120		
ANTIMONY	0.42	U	
ARSENIC	0.70	U	A
BARIUM	5.6		
BERYLLIUM	0.06	U	A
CADMIUM	0.03	U	
CALCIUM	379000		
CHROMIUM	2.2		
COBALT	0.09	U	
COPPER	0.14		
IRON	96.3		
LEAD	2.1		
MAGNESIUM	1300		
MANGANESE	2.8		
MERCURY	0.01	U	
NICKEL	0.62		
POTASSIUM	165	U	A
SELENIUM	0.45	U	
SILVER	0.13	U	
SODIUM	4040		
THALLIUM	0.52	U	
TIN	3.8	U	A
VANADIUM	1.5		
ZINC	0.87		

nsample	BCBM-SD-03
samp_date	4/19/2002
lab_id	WS0955-004
qc_type	NM
units	MG/KG
Pct_Solids	77.1
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	381		
ANTIMONY	0.47	U	
ARSENIC	0.71	U	A
BARIUM	6.1		
BERYLLIUM	0.06	U	A
CADMIUM	0.05	U	A
CALCIUM	364000		
CHROMIUM	2.9		
COBALT	0.10	U	
COPPER	0.58		
IRON	287		
LEAD	2.9		
MAGNESIUM	2050		
MANGANESE	4.2		
MERCURY	0.01	U	
NICKEL	0.73		
POTASSIUM	320		
SELENIUM	0.50	U	
SILVER	0.15	U	
SODIUM	5360		
THALLIUM	0.58	U	
TIN	4.2	U	A
VANADIUM	1.9		
ZINC	1.6		

PROJ_NO: 2870

SDG: NASKW29 MEDIA: SOIL DATA FRACTION: M

nsample	BCBM-SO-07-02
samp_date	4/19/2002
lab_id	WS0955-006
qc_type	NM
units	MG/KG
Pct_Solids	76.5
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	280		
ANTIMONY	0.43	U	
ARSENIC	0.84	U	A
BARIUM	6.3		
BERYLLIUM	0.06	U	A
CADMIUM	0.03	U	
CALCIUM	361000		
CHROMIUM	2.7		
COBALT	0.12		
COPPER	0.33		
IRON	207		
LEAD	2.2		
MAGNESIUM	2330		
MANGANESE	3.7		
MERCURY	0.01	U	
NICKEL	0.70		
POTASSIUM	505		
SELENIUM	0.45	U	
SILVER	0.14	U	
SODIUM	12200		
THALLIUM	0.52	U	
TIN	3.8	U	A
VANADIUM	1.8		
ZINC	0.93		

nsample	BCBM-SO-08-02
samp_date	4/19/2002
lab_id	WS0955-007
qc_type	NM
units	MG/KG
Pct_Solids	72.8
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	309		
ANTIMONY	0.47	U	
ARSENIC	0.46	U	A
BARIUM	6.2		
BERYLLIUM	0.06	U	A
CADMIUM	0.06	U	A
CALCIUM	379000		
CHROMIUM	2.9		
COBALT	0.11		
COPPER	0.58		
IRON	168		
LEAD	16.1		
MAGNESIUM	2260		
MANGANESE	4.6		
MERCURY	0.01	U	A
NICKEL	0.78		
POTASSIUM	333		
SELENIUM	0.49	U	
SILVER	0.18	U	A
SODIUM	8460		
THALLIUM	0.57	U	
TIN	4.3	U	A
VANADIUM	1.7		
ZINC	2.7		

nsample	BCBM-SO-09-02
samp_date	4/19/2002
lab_id	WS0955-008
qc_type	NM
units	MG/KG
Pct_Solids	76.2
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	238		
ANTIMONY	0.52	U	A
ARSENIC	0.66	U	A
BARIUM	5.8		
BERYLLIUM	0.07	U	A
CADMIUM	0.03	U	
CALCIUM	387000		
CHROMIUM	2.8		
COBALT	0.14		
COPPER	0.28		
IRON	214		
LEAD	1.5		
MAGNESIUM	2160		
MANGANESE	3.4		
MERCURY	0.01	U	
NICKEL	0.64		
POTASSIUM	210		
SELENIUM	0.46	U	
SILVER	0.14	U	
SODIUM	5390		
THALLIUM	0.53	U	
TIN	3.9	U	A
VANADIUM	1.8		
ZINC	0.80		

PROJ_NO: 2870

SDG: NASKW29 MEDIA: SOIL DATA FRACTION: M

nsample	BCBM-SO-10-02
samp_date	4/20/2002
lab_id	WS0967-004
qc_type	NM
units	MG/KG
Pct_Solids	73.1
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	543		
ANTIMONY	0.42	U	
ARSENIC	0.66	U	A
BARIUM	8.6		
BERYLLIUM	0.06	U	A
CADMIUM	0.04	U	A
CALCIUM	345000		
CHROMIUM	2.7		
COBALT	0.19		
COPPER	0.76		
IRON	498		
LEAD	1.1		
MAGNESIUM	1510		
MANGANESE	12.9		
MERCURY	0.01	U	
NICKEL	0.94		
POTASSIUM	177		
SELENIUM	0.44	U	
SILVER	0.25	U	A
SODIUM	2880		
THALLIUM	0.51	U	
TIN	3.8	U	A
VANADIUM	3.2		
ZINC	2.2		

nsample	BCBM-SO-10-24
samp_date	4/20/2002
lab_id	WS0967-005
qc_type	NM
units	MG/KG
Pct_Solids	70.5
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	316		
ANTIMONY	0.46	U	
ARSENIC	1.1	U	A
BARIUM	7.2		
BERYLLIUM	0.07	U	A
CADMIUM	0.04	U	
CALCIUM	364000		
CHROMIUM	3.0		
COBALT	0.16		
COPPER	0.26		
IRON	301		
LEAD	0.40		
MAGNESIUM	2860		
MANGANESE	4.4		
MERCURY	0.01	U	
NICKEL	0.76		
POTASSIUM	134	U	A
SELENIUM	0.49	U	
SILVER	0.15	U	
SODIUM	2860		
THALLIUM	0.57	U	
TIN	4.0	U	A
VANADIUM	1.6		
ZINC	0.51	U	A

nsample	BCBM-SO-11-02
samp_date	4/20/2002
lab_id	WS0967-001
qc_type	NM
units	MG/KG
Pct_Solids	94.4
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	1070		
ANTIMONY	7.7		
ARSENIC	6.1		
BARIUM	71.6		
BERYLLIUM	0.09	U	A
CADMIUM	0.66		
CALCIUM	340000		
CHROMIUM	13.9		
COBALT	2.3		
COPPER	24.5		
IRON	26800		
LEAD	97.1		
MAGNESIUM	2680		
MANGANESE	71.8		
MERCURY	1.5		
NICKEL	8.0		
POTASSIUM	171		
SELENIUM	0.79	U	
SILVER	0.15	U	A
SODIUM	840		
THALLIUM	0.91	U	
TIN	18.0		
VANADIUM	6.3		
ZINC	709		

PROJ_NO: 2870

SDG: NASKW29 MEDIA: SOIL DATA FRACTION: M

nsample	BCBM-SO-12-02
samp_date	4/20/2002
lab_id	WS0967-003
qc_type	NM
units	MG/KG
Pct_Solids	88.9
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	1440		
ANTIMONY	0.43	U	A
ARSENIC	2.9		
BARIUM	20.2		
BERYLLIUM	0.1	U	A
CADMIUM	0.33		
CALCIUM	307000		
CHROMIUM	7.7		
COBALT	0.79		
COPPER	13.4		
IRON	4650		
LEAD	38.3		
MAGNESIUM	2240		
MANGANESE	38.8		
MERCURY	0.04	U	A
NICKEL	4.9		
POTASSIUM	227		
SELENIUM	0.40	U	
SILVER	0.33	U	A
SODIUM	1980		
THALLIUM	0.46	U	
TIN	3.8	U	A
VANADIUM	6.1		
ZINC	156		

nsample	BCBM-SO-12-24
samp_date	4/20/2002
lab_id	WS0967-002
qc_type	NM
units	MG/KG
Pct_Solids	79.2
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	849		
ANTIMONY	0.42	U	
ARSENIC	2.2		
BARIUM	20.0		
BERYLLIUM	0.08	U	A
CADMIUM	0.14	U	A
CALCIUM	332000		
CHROMIUM	11.0		
COBALT	0.55		
COPPER	4.1		
IRON	1530		
LEAD	63.2		
MAGNESIUM	2190		
MANGANESE	15.3		
MERCURY	0.03	U	A
NICKEL	1.4		
POTASSIUM	220		
SELENIUM	0.45	U	
SILVER	0.17	U	A
SODIUM	3200		
THALLIUM	0.52	U	
TIN	4.1	U	A
VANADIUM	2.8		
ZINC	99.7		

PROJ_NO: 2834

SDG: F12899R MEDIA: WATER DATA FRACTION: PAH

nsample	13GLM0201
samp_date	4/12/2002
lab_id	F12899-2R
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
1-METHYLNAPHTHALENE	1	U	
2-METHYLNAPHTHALENE	1	U	
ACENAPHTHENE	1	U	
ACENAPHTHYLENE	1	U	
ANTHRACENE	1	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	1	U	
FLUORENE	1	U	
INDENO(1,2,3-CD)PYRENE	0.2	UJ	C
NAPHTHALENE	1	U	
PHENANTHRENE	1	U	
PYRENE	1	U	

nsample	13GLM02D01
samp_date	4/12/2002
lab_id	F12899-1R
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
1-METHYLNAPHTHALENE	1.1	U	
2-METHYLNAPHTHALENE	1.1	U	
ACENAPHTHENE	1.1	U	
ACENAPHTHYLENE	1.1	U	
ANTHRACENE	1.1	U	
BENZO(A)ANTHRACENE	0.22	U	
BENZO(A)PYRENE	0.22	U	
BENZO(B)FLUORANTHENE	0.22	U	
BENZO(G,H,I)PERYLENE	0.22	U	
BENZO(K)FLUORANTHENE	0.22	U	
CHRYSENE	0.22	U	
DIBENZO(A,H)ANTHRACENE	0.22	U	
FLUORANTHENE	1.1	U	
FLUORENE	1.1	U	
INDENO(1,2,3-CD)PYRENE	0.22	UJ	C
NAPHTHALENE	1.1	U	
PHENANTHRENE	1.1	U	
PYRENE	1.1	U	

nsample	13GLM02S01
samp_date	4/12/2002
lab_id	F12899-3R
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
1-METHYLNAPHTHALENE	1	U	
2-METHYLNAPHTHALENE	1	U	
ACENAPHTHENE	1	U	
ACENAPHTHYLENE	1	U	
ANTHRACENE	1	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	1	U	
FLUORENE	1	U	
INDENO(1,2,3-CD)PYRENE	0.2	UJ	C
NAPHTHALENE	1	U	
PHENANTHRENE	1	U	
PYRENE	1	U	

PROJ_NO: 2834

SDG: F12899R MEDIA: WATER DATA FRACTION: PAH

nsample	13GLM18D01
samp_date	4/12/2002
lab_id	F12899-5R
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
1-METHYLNAPHTHALENE	1	U	
2-METHYLNAPHTHALENE	1	U	
ACENAPHTHENE	1	U	
ACENAPHTHYLENE	1	U	
ANTHRACENE	1	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	1	U	
FLUORENE	1	U	
INDENO(1,2,3-CD)PYRENE	0.2	UJ	C
NAPHTHALENE	1	U	
PHENANTHRENE	1	U	
PYRENE	1	U	

nsample	13GLM18I01
samp_date	4/12/2002
lab_id	F12899-4R
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
1-METHYLNAPHTHALENE	1	U	
2-METHYLNAPHTHALENE	1	U	
ACENAPHTHENE	1	U	
ACENAPHTHYLENE	1	U	
ANTHRACENE	1	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	1	U	
FLUORENE	1	U	
INDENO(1,2,3-CD)PYRENE	0.2	UJ	C
NAPHTHALENE	2.3		
PHENANTHRENE	1	U	
PYRENE	1	U	

PROJ_NO: 2870

SDG: NASKW29 MEDIA: WATER DATA FRACTION: M

nsample	FB1-0402	nsample	RB3-0402
samp_date	4/19/2002	samp_date	4/19/2002
lab_id	WS0955-011	lab_id	WS0955-010
qc_type	NM	qc_type	NM
units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	42.1		
ANTIMONY	4.10	U	
ARSENIC	2.08	U	
BARIUM	12.9		
BERYLLIUM	0.17		
CADMIUM	0.32	U	
CALCIUM	34500		
CHROMIUM	0.85	U	
COBALT	0.83	U	
COPPER	7.2		
IRON	222		
LEAD	2.18	U	
MAGNESIUM	4480		
MANGANESE	0.70		
MERCURY	0.04		
NICKEL	1.22	U	
POTASSIUM	14000		
SELENIUM	4.33	U	
SILVER	1.30	U	
SODIUM	15700		
THALLIUM	5.01	U	
TIN	3.28	U	
VANADIUM	1.3		
ZINC	56.1		

Parameter	Result	ValQual	QualCode
ALUMINUM	20.2		
ANTIMONY	4.10	U	
ARSENIC	2.08	U	
BARIUM	0.29	U	
BERYLLIUM	0.18		
CADMIUM	0.32	U	
CALCIUM	560		
CHROMIUM	0.85	U	
COBALT	0.83	U	
COPPER	1.40	U	
IRON	61.9		
LEAD	2.18	U	
MAGNESIUM	31.9		
MANGANESE	0.28		
MERCURY	0.03		
NICKEL	1.22	U	
POTASSIUM	249.00	U	
SELENIUM	4.33	U	
SILVER	1.30	U	
SODIUM	333		
THALLIUM	5.01	U	
TIN	2.28	U	
VANADIUM	0.81	U	
ZINC	7.7		

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**C. BRYAN**	**DATE:**	**JUNE 26, 2002**
FROM:	**ETHAN G. LEE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS AND TIN**
NAS KEY WEST – CTO 188
SAMPLE DELIVERY GROUP (SDG) – NASKW28

SAMPLES: 8/SOIL/

0402-DUP-04	0402-DUP-05	BCBM-SO-04-02
BCBM-SO-04-24	BCBM-SO-05-02	BCBM-SO-01-02
BCBM-SO-02-02	BCBM-SO-03-02	

10/SEDIMENT/

0402-DUP-02	BCBM-SD-01	I1SD-1-PMP4
I1SD-2-PMP4	I1SD-3-PMP4	I1SD-4-PMP4
I1SD-5-PMP4	I1SD-6-PMP4	I1SD-7-PMP4
I1SD-8-PMP4		

Overview

The sample set for NAS Key West, CTO 188, SDG NASKW28, consists of six (6) soil and nine (9) sediment environmental samples. Three (3) field duplicate pairs (0402-DUP-02 / I1SD-4-PMP4; 0402-DUP-04 / BCBM-SO-01-02; 0402-DUP-05 / BCBM-SO-05-02) are included in this SDG.

The samples were analyzed for TAL metals and tin. The samples were collected by Tetra Tech NUS April 17-18, 2002 and analyzed by Katahdin Analytical Services. Tin and TAL metals analyses except mercury were conducted using method SW846 6010B. Mercury analyses were conducted using method SW846 7471A.

Metals analyses except mercury were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using Manual Cold Vapor Atomic Absorption (CVAA) methodologies.

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.

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method/preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Aluminum	61.06 ug/L	30.5 mg/kg
Beryllium	0.66 ug/L	0.33 mg/kg
Cadmium	0.37 ug/L	0.185 mg/kg
Calcium[1]	5.354 mg/kg	26.77 mg/kg
Iron[1]	1.936 mg/kg	9.68 mg/kg
Manganese	0.25 ug/L	0.125 mg/kg
Potassium	288.9 ug/L	144.5 mg/kg
Silver	1.37 ug/L	0.685 mg/kg
Sodium[1]	4.824 mg/kg	24.12 mg/kg
Thallium	5.05 ug/L	2.53 mg/kg
Tin[1]	4.085 mg/kg	20.43 mg/kg
Vanadium	0.99 ug/L	0.495 mg/kg
Zinc[1]	0.426 mg/kg	2.13 mg/kg

[1] Maximum concentration found in solid preparation blank.

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot, percent solids, and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Positive results < Action Level were qualified (U) for beryllium, cadmium, potassium, silver, tin, and zinc. No validation action was required for the remaining analytes because either all the results were greater than the action level or they were nondetects.

Field Duplicate Imprecision

The Relative Percent Difference (RPD) for the field duplicate pair 0402-DUP-02 / I1SD-4-PMP4 for lead was calculated to be >50%. Because both sample values were >5X CRDL, positive results (>IDL) were qualified as estimated (J).

Notes

The continuing calibration verification (CCV) percent recovery (%R) for calcium was above the control limit of 90-110%. However, no qualification action was required because the samples that were bracketed by this CCV were not analyzed for calcium.

Dilutions were made for calcium in all samples.

Dilutions were made for antimony, arsenic, cadmium, copper, iron, lead, manganese, selenium, silver, thallium, vanadium, and zinc in samples 11SD-1-PMP4 and 11SD-3-PMP4.

Reporting limits on Form 1s and EDD did not agree. The reviewer amended the database for several analytes.

Sample names on Form 1s and COC did not agree for several samples. The reviewer amended the database for these samples.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method/preparation blanks.

Other Factors Affecting Data Quality: Lead was qualified due to field duplicate imprecision.

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

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 x 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: 2870

SDG: NASKW28 MEDIA: SOIL DATA FRACTION: M

nsample	0402-DUP-02
samp_date	4/18/2002
lab_id	WS0929-014
qc_type	NM
units	MG/KG
Pct_Solids	75
DUP_OF:	I1SD-4-PMP4

Parameter	Result	ValQual	QualCode
ALUMINUM	666		
ANTIMONY	0.70		
ARSENIC	4.5		
BARIUM	8.2		
BERYLLIUM	0.08	U	A
CADMIUM	0.13	U	A
CALCIUM	209000		
CHROMIUM	6.2		
COBALT	0.49		
COPPER	58.7		
IRON	6960		
LEAD	108	J	G
MAGNESIUM	4600		
MANGANESE	55.0		
MERCURY	0.06		
NICKEL	3.1		
POTASSIUM	282		
SELENIUM	0.48	U	
SILVER	0.15	U	A
SODIUM	5160		
THALLIUM	0.56	U	
TIN	7.3	U	A
VANADIUM	5.9		
ZINC	129		

nsample	0402-DUP-04
samp_date	4/17/2002
lab_id	WS0913-002
qc_type	NM
units	MG/KG
Pct_Solids	88
DUP_OF:	BCBM-SO-01-02

Parameter	Result	ValQual	QualCode
ALUMINUM	316		
ANTIMONY	0.43	U	
ARSENIC	0.56		
BARIUM	6.0		
BERYLLIUM	0.1	U	A
CADMIUM	0.07	U	A
CALCIUM	364000		
CHROMIUM	3.2		
COBALT	0.15		
COPPER	1.1		
IRON	229		
LEAD	4.5	J	G
MAGNESIUM	1320		
MANGANESE	3.9		
MERCURY	0.01	U	
NICKEL	0.92		
POTASSIUM	92.5	U	A
SELENIUM	0.45	U	
SILVER	0.20	U	A
SODIUM	1570		
THALLIUM	0.52	U	
TIN	4.1	U	A
VANADIUM	1.8		
ZINC	4.2		

nsample	0402-DUP-05
samp_date	4/18/2002
lab_id	WS0929-004
qc_type	NM
units	MG/KG
Pct_Solids	72
DUP_OF:	BCBM-SO-05-02

Parameter	Result	ValQual	QualCode
ALUMINUM	1480		
ANTIMONY	0.49	U	
ARSENIC	2.5		
BARIUM	8.4		
BERYLLIUM	0.13	U	A
CADMIUM	0.09	U	A
CALCIUM	329000		
CHROMIUM	4.3		
COBALT	0.17		
COPPER	2.6		
IRON	867		
LEAD	3.6	J	G
MAGNESIUM	4510		
MANGANESE	9.8		
MERCURY	0.01		
NICKEL	1.2		
POTASSIUM	490		
SELENIUM	0.51	U	
SILVER	0.15	U	
SODIUM	8720		
THALLIUM	0.59	U	
TIN	4.5	U	A
VANADIUM	4.0		
ZINC	11.6		

PROJ_NO: 2870

SDG: NASKW28 MEDIA: SOIL DATA FRACTION: M

nsample	BCBM-SD-01
samp_date	4/18/2002
lab_id	WS0929-001
qc_type	NM
units	MG/KG
Pct_Solids	65
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	1130		
ANTIMONY	0.56	U	
ARSENIC	1.4		
BARIUM	8.4		
BERYLLIUM	0.12	U	A
CADMIUM	0.1	U	A
CALCIUM	317000		
CHROMIUM	5.0		
COBALT	0.14		
COPPER	9.4		
IRON	540		
LEAD	15.1	J	G
MAGNESIUM	4780		
MANGANESE	14.1		
MERCURY	0.04		
NICKEL	1.5		
POTASSIUM	760		
SELENIUM	0.60	U	
SILVER	0.18	U	
SODIUM	16100		
THALLIUM	0.69	U	
TIN	6.2	U	A
VANADIUM	3.2		
ZINC	43.8		

nsample	BCBM-SO-01-02
samp_date	4/17/2002
lab_id	WS0913-001
qc_type	NM
units	MG/KG
Pct_Solids	87
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	430		
ANTIMONY	0.42	U	
ARSENIC	0.37		
BARIUM	6.6		
BERYLLIUM	0.11	U	A
CADMIUM	0.19	U	A
CALCIUM	360000		
CHROMIUM	3.5		
COBALT	0.12		
COPPER	1.6		
IRON	306		
LEAD	6.9	J	G
MAGNESIUM	1430		
MANGANESE	4.8		
MERCURY	0.01	U	
NICKEL	1.1		
POTASSIUM	105	U	A
SELENIUM	0.45	U	
SILVER	0.13	U	
SODIUM	1630		
THALLIUM	0.52	U	
TIN	4.1	U	A
VANADIUM	1.9		
ZINC	6.5		

nsample	BCBM-SO-02-02
samp_date	4/17/2002
lab_id	WS0913-003
qc_type	NM
units	MG/KG
Pct_Solids	84
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	828		
ANTIMONY	0.34	U	
ARSENIC	0.76		
BARIUM	9.2		
BERYLLIUM	0.09	U	A
CADMIUM	0.16		
CALCIUM	353000		
CHROMIUM	5.0		
COBALT	0.21		
COPPER	4.2		
IRON	724		
LEAD	10.4	J	G
MAGNESIUM	2410		
MANGANESE	10.8		
MERCURY	0.01	U	
NICKEL	1.3		
POTASSIUM	178		
SELENIUM	0.36	U	
SILVER	0.11	U	
SODIUM	1510		
THALLIUM	0.42	U	
TIN	3.5	U	A
VANADIUM	2.8		
ZINC	14.2		

PROJ_NO: 2870

SDG: NASKW28 MEDIA: SOIL DATA FRACTION: M

nsample	BCBM-SO-03-02
samp_date	4/17/2002
lab_id	WS0913-004
qc_type	NM
units	MG/KG
Pct_Solids	68
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	583		
ANTIMONY	0.54	U	
ARSENIC	0.54		
BARIUM	7.0		
BERYLLIUM	0.09	U	A
CADMIUM	0.06	U	A
CALCIUM	352000		
CHROMIUM	3.4		
COBALT	0.11	U	
COPPER	0.54		
IRON	394		
LEAD	2.3	J	G
MAGNESIUM	1970		
MANGANESE	4.7		
MERCURY	0.01	U	
NICKEL	1.1		
POTASSIUM	221		
SELENIUM	0.57	U	
SILVER	0.17	U	
SODIUM	3340		
THALLIUM	0.66	U	
TIN	5.0	U	A
VANADIUM	1.9		
ZINC	2.2	U	A

nsample	BCBM-SO-04-02
samp_date	4/18/2002
lab_id	WS0929-003
qc_type	NM
units	MG/KG
Pct_Solids	94
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	3780		
ANTIMONY	0.39	U	
ARSENIC	1.3		
BARIUM	40.8		
BERYLLIUM	0.54		
CADMIUM	1.2		
CALCIUM	309000		
CHROMIUM	14.1		
COBALT	2.0		
COPPER	15.3		
IRON	5170		
LEAD	91.3	J	G
MAGNESIUM	3130		
MANGANESE	26.3		
MERCURY	0.04		
NICKEL	8.3		
POTASSIUM	625		
SELENIUM	0.42	U	
SILVER	0.24	U	A
SODIUM	1110		
THALLIUM	0.48	U	
TIN	4.3	U	A
VANADIUM	23.8		
ZINC	39.0		

nsample	BCBM-SO-04-24
samp_date	4/18/2002
lab_id	WS0929-005
qc_type	NM
units	MG/KG
Pct_Solids	95
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	1210		
ANTIMONY	0.38	U	
ARSENIC	0.99		
BARIUM	12.1		
BERYLLIUM	0.11	U	A
CADMIUM	0.16	U	A
CALCIUM	353000		
CHROMIUM	4.1		
COBALT	0.20		
COPPER	7.8		
IRON	1400		
LEAD	51.5	J	G
MAGNESIUM	1990		
MANGANESE	15.2		
MERCURY	0.02		
NICKEL	3.1		
POTASSIUM	126	U	A
SELENIUM	0.40	U	
SILVER	0.12	U	
SODIUM	936		
THALLIUM	0.46	U	
TIN	4.4	U	A
VANADIUM	13.9		
ZINC	18.3		

PROJ_NO: 2870

SDG: NASKW28 MEDIA: SOIL DATA FRACTION: M

nsample	BCBM-SO-05-02	nsample	I1SD-1-PMP4
samp_date	4/18/2002	samp_date	4/18/2002
lab_id	WS0929-002	lab_id	WS0929-006
qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG
Pct_Solids	67	Pct_Solids	77
DUP_OF:		DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	1660		
ANTIMONY	0.53	U	
ARSENIC	2.6		
BARIUM	8.8		
BERYLLIUM	0.14	U	A
CADMIUM	0.09	U	A
CALCIUM	333000		
CHROMIUM	5.0		
COBALT	0.21		
COPPER	3.6		
IRON	1020		
LEAD	4.8	J	G
MAGNESIUM	4910		
MANGANESE	11.2		
MERCURY	0.02		
NICKEL	1.4		
POTASSIUM	577		
SELENIUM	0.56	U	
SILVER	0.17	U	
SODIUM	9980		
THALLIUM	0.64	U	
TIN	5.1	U	A
VANADIUM	4.3		
ZINC	16.3		

Parameter	Result	ValQual	QualCode
ALUMINUM	1380		
ANTIMONY	1.9		
ARSENIC	8.6		
BARIUM	135		
BERYLLIUM	0.12	U	A
CADMIUM	0.15	U	A
CALCIUM	233000		
CHROMIUM	14.5		
COBALT	2.9		
COPPER	67.0		
IRON	50000		
LEAD	110	J	G
MAGNESIUM	6680		
MANGANESE	174		
MERCURY	0.22		
NICKEL	24.9		
POTASSIUM	322		
SELENIUM	0.94	U	
SILVER	0.28	U	
SODIUM	4830		
THALLIUM	1.09	U	
TIN	12.4	U	A
VANADIUM	7.6		
ZINC	424		

nsample	I1SD-2-PMP4
samp_date	4/18/2002
lab_id	WS0929-007
qc_type	NM
units	MG/KG
Pct_Solids	80
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	880		
ANTIMONY	1.4		
ARSENIC	7.4		
BARIUM	10.8		
BERYLLIUM	0.09	U	A
CADMIUM	0.29		
CALCIUM	219000		
CHROMIUM	10.1		
COBALT	1.5		
COPPER	55.2		
IRON	13400		
LEAD	51.7	J	G
MAGNESIUM	5510		
MANGANESE	81.4		
MERCURY	0.06		
NICKEL	7.6		
POTASSIUM	244		
SELENIUM	0.42	U	
SILVER	0.13	U	
SODIUM	3780		
THALLIUM	0.49	U	
TIN	62.8		
VANADIUM	7.3		
ZINC	242		

PROJ_NO: 2870

SDG: NASKW28 MEDIA: SOIL DATA FRACTION: M

nsample	I1SD-3-PMP4
samp_date	4/18/2002
lab_id	WS0929-008
qc_type	NM
units	MG/KG
Pct_Solids	82
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	834		
ANTIMONY	1.6		
ARSENIC	8.3		
BARIUM	10.5		
BERYLLIUM	0.09	U	A
CADMIUM	0.26		
CALCIUM	202000		
CHROMIUM	10.6		
COBALT	2.9		
COPPER	31.3		
IRON	27800		
LEAD	40.8	J	G
MAGNESIUM	7020		
MANGANESE	101		
MERCURY	0.06		
NICKEL	10.6		
POTASSIUM	382		
SELENIUM	0.83	U	
SILVER	0.25	U	
SODIUM	4120		
THALLIUM	0.96	U	
TIN	28.3		
VANADIUM	8.0		
ZINC	904		

nsample	I1SD-4-PMP4
samp_date	4/18/2002
lab_id	WS0929-009
qc_type	NM
units	MG/KG
Pct_Solids	75
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	722		
ANTIMONY	0.56		
ARSENIC	7.3		
BARIUM	8.4		
BERYLLIUM	0.08	U	A
CADMIUM	0.22		
CALCIUM	207000		
CHROMIUM	7.3		
COBALT	0.87		
COPPER	39.0		
IRON	9500		
LEAD	40.1	J	G
MAGNESIUM	4800		
MANGANESE	58.0		
MERCURY	0.08		
NICKEL	3.8		
POTASSIUM	297		
SELENIUM	0.48	U	
SILVER	0.14	U	
SODIUM	5200		
THALLIUM	0.55	U	
TIN	7.6	U	A
VANADIUM	6.3		
ZINC	106		

nsample	I1SD-5-PMP4
samp_date	4/18/2002
lab_id	WS0929-010
qc_type	NM
units	MG/KG
Pct_Solids	78
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	1510		
ANTIMONY	0.69		
ARSENIC	4.2		
BARIUM	8.6		
BERYLLIUM	0.1	U	A
CADMIUM	0.13	U	A
CALCIUM	240000		
CHROMIUM	5.1		
COBALT	0.57		
COPPER	187		
IRON	2520		
LEAD	71.9	J	G
MAGNESIUM	8320		
MANGANESE	48.0		
MERCURY	0.04		
NICKEL	2.0		
POTASSIUM	305		
SELENIUM	0.48	U	
SILVER	0.14	U	
SODIUM	5060		
THALLIUM	0.55	U	
TIN	5.8	U	A
VANADIUM	4.3		
ZINC	119		

PROJ_NO: 2870

SDG: NASKW28 MEDIA: SOIL DATA FRACTION: M

nsample	I1SD-6-PMP4	nsample	I1SD-7-PMP4
samp_date	4/18/2002	samp_date	4/18/2002
lab_id	WS0929-011	lab_id	WS0929-012
qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG
Pct_Solids	66	Pct_Solids	73
DUP_OF:		DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	571		
ANTIMONY	0.53	U	
ARSENIC	4.3		
BARIUM	10.5		
BERYLLIUM	0.08	U	A
CADMIUM	0.15	U	A
CALCIUM	274000		
CHROMIUM	6.5		
COBALT	0.27		
COPPER	35.6		
IRON	2420		
LEAD	120	J	G
MAGNESIUM	5980		
MANGANESE	30.2		
MERCURY	0.06		
NICKEL	2.4		
POTASSIUM	417		
SELENIUM	0.56	U	
SILVER	0.29	U	A
SODIUM	7850		
THALLIUM	0.65	U	
TIN	6.8	U	A
VANADIUM	4.6		
ZINC	49.4		

Parameter	Result	ValQual	QualCode
ALUMINUM	1170		
ANTIMONY	0.46	U	
ARSENIC	2.5		
BARIUM	8.8		
BERYLLIUM	0.12	U	A
CADMIUM	0.09	U	A
CALCIUM	266000		
CHROMIUM	3.8		
COBALT	0.37		
COPPER	29.4		
IRON	2180		
LEAD	61.0	J	G
MAGNESIUM	14500		
MANGANESE	51.2		
MERCURY	0.06		
NICKEL	1.8		
POTASSIUM	526		
SELENIUM	0.49	U	
SILVER	0.15	U	
SODIUM	5670		
THALLIUM	0.57	U	
TIN	4.8	U	A
VANADIUM	4.2		
ZINC	44.7		

nsample	I1SD-8-PMP4
samp_date	4/18/2002
lab_id	WS0929-013
qc_type	NM
units	MG/KG
Pct_Solids	62
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	286		
ANTIMONY	0.59	U	
ARSENIC	3.1		
BARIUM	9.7		
BERYLLIUM	0.06	U	A
CADMIUM	0.05	U	
CALCIUM	293000		
CHROMIUM	3.4		
COBALT	0.12	U	
COPPER	48.8		
IRON	635		
LEAD	114	J	G
MAGNESIUM	4470		
MANGANESE	12.5		
MERCURY	0.03		
NICKEL	1.4		
POTASSIUM	420		
SELENIUM	0.62	U	
SILVER	0.19	U	
SODIUM	8880		
THALLIUM	0.71	U	
TIN	5.4	U	A
VANADIUM	3.0		
ZINC	23.0		

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**C. BRYAN**	**DATE:**	**JUNE 26, 2002**
FROM:	**ETHAN G. LEE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS, TIN, AND MISCELLANEOUS PARAMETERS**
NAS KEY WEST – CTO 188
SAMPLE DELIVERY GROUP (SDG) – WS0966

SAMPLES: 19/AQUEOUS/

0402-DUP-07	BCBM-TW-01	BCBM-TW-02
BCBM-TW-03	BCBM-TW-05	BCBM-TW-06
BCBM-TW-07	BCBM-TW-08	BCBM-TW-09
BCBM-TW-10	BCBM-TW-11	BCBM-TW-12
FB2-0402	RB-0402	S9MW-12-0402
S9MW-21-0402	S9MW-22-0402	S9MW-24-0402
S9MW-25-0402		

Overview

The sample set for NAS Key West, CTO 188, SDG WS0966, consists of sixteen (16) aqueous environmental samples, one (1) field blank, one (1) rinsate blank, and one (1) field duplicate pair (0402-DUP-07 / BCBM-TW-01).

Samples 0402-DUP-07, BCBM-TW-01, BCBM-TW-02, BCBM-TW-03, BCBM-TW-05, BCBM-TW-06, BCBM-TW-07, BCBM-TW-08, BCBM-TW-09, BCBM-TW-10, BCBM-TW-11, BCBM-TW-12, FB2-0402, and RB-0402 were analyzed for TAL metals and tin. Samples S9MW-12-0402, S9MW-21-0402, S9MW-22-0402, S9MW-24-0402, and S9MW-25-0402 were analyzed for chloride, sulfate, sulfide, and total organic carbon (TOC). The samples were collected by Tetra Tech NUS April 20-22, 2002 and analyzed by Katahdin Analytical Services. Tin and TAL metals analyses except mercury were conducted using method SW846 6010B. Mercury analyses were conducted using method SW846 7470A. Chloride analyses were conducted using method EPA 325.2. Sulfate analyses were conducted using method EPA 375.4. Sulfide analyses were conducted using method EPA 376.1. TOC analyses were conducted using method EPA 415.1.

Metals analyses except mercury were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using Manual Cold Vapor Atomic Absorption (CVAA) methodologies.

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.

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Aluminum	86.5 ug/L	432.5 ug/L
Beryllium	0.56 ug/L	2.8 ug/L
Calcium	7.96 ug/L	39.8 ug/L
Chromium	1.26 ug/L	6.3 ug/L
Magnesium	5.6 ug/L	28.0 ug/L
Mercury	0.03 ug/L	0.15 ug/L
Nickel	5.96 ug/L	29.8 ug/L
Sodium	89.79 ug/L	449.0 ug/L
Thallium	9.41 ug/L	47.1 ug/L
Tin	5.16 ug/L	25.8 ug/L
Zinc	1.57 ug/L	7.85 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 were qualified (U) for aluminum, beryllium, chromium, mercury, nickel, tin, and zinc. No validation action was required for the remaining analytes because either all the results were greater than the action level or they were nondetects. Field quality control samples were not qualified due to laboratory blank contamination.

Notes

Sample BCBM-TW-08 was written on the chain of custody twice, but only one sample was received.

Sample RB-0402 was not on the chain of custody but was received. Emily McRee requested analysis for this sample.

Sample S9MW-21-0402 was mislabeled on the Form 1 as SPMW-21-0402.

Dilutions were made for sodium in all samples except field quality control samples.

Dilutions were made for calcium in samples BCBM-TW-03, BCBM-TW-05, BCBM-TW-06, BCBM-TW-07, BCBM-TW-08, BCBM-TW-09, BCBM-TW-11, and BCBM-TW-12.

Dilutions were made for all analytes except mercury in samples BCBM-TW-05, BCBM-TW-06, BCBM-TW-07, BCBM-TW-08, BCBM-TW-09, and BCBM-TW-11.

Dilutions were made for TOC in all associated samples.

Dilutions were made for chloride in samples S9MW-21-0402, S9MW-22-0402, S9MW-24-0402, and S9MW-25-0402.

Reporting limits on Form 1s and EDD did not agree. The reviewer amended the database for several analytes.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method/preparation blanks.

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

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 x 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: 2870

SDG: WS0966 MEDIA: WATER DATA FRACTION: M

nsample	BCBM-TW-03
samp_date	4/20/2002
lab_id	WS0966-004
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	12600		
ANTIMONY	20.50	U	
ARSENIC	10.40	U	
BARIUM	114		
BERYLLIUM	1.2	U	A
CADMIUM	1.60	U	
CALCIUM	5680000		
CHROMIUM	61.4		
COBALT	4.15	U	
COPPER	16.2		
IRON	10300		
LEAD	10.90	U	
MAGNESIUM	489000		
MANGANESE	145		
MERCURY	0.04	U	A
NICKEL	19.7	U	A
POTASSIUM	127000		
SELENIUM	21.65	U	
SILVER	6.50	U	
SODIUM	3570000		
THALLIUM	25.05	U	
TIN	11.40	U	
VANADIUM	54.6		
ZINC	15.6		

nsample	BCBM-TW-05
samp_date	4/22/2002
lab_id	WS0966-007
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	632	U	A
ANTIMONY	20.50	U	
ARSENIC	10.40	U	
BARIUM	30.8		
BERYLLIUM	0.85	U	
CADMIUM	1.60	U	
CALCIUM	662000		
CHROMIUM	6.0	U	A
COBALT	4.15	U	
COPPER	7.00	U	
IRON	290		
LEAD	10.90	U	
MAGNESIUM	1570000		
MANGANESE	50.4		
MERCURY	0.03	U	A
NICKEL	6.10	U	
POTASSIUM	523000		
SELENIUM	21.65	U	
SILVER	6.50	U	
SODIUM	2200000		
THALLIUM	25.05	U	
TIN	11.40	U	
VANADIUM	4.05	U	
ZINC	10.7		

nsample	BCBM-TW-06
samp_date	4/22/2002
lab_id	WS0966-008
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	632	U	A
ANTIMONY	20.50	U	
ARSENIC	10.40	U	
BARIUM	15.6		
BERYLLIUM	0.85	U	
CADMIUM	1.60	U	
CALCIUM	464000		
CHROMIUM	4.25	U	
COBALT	4.15	U	
COPPER	7.00	U	
IRON	89.50	U	
LEAD	10.90	U	
MAGNESIUM	1130000		
MANGANESE	45.4		
MERCURY	0.03	U	A
NICKEL	6.10	U	
POTASSIUM	328000		
SELENIUM	21.65	U	
SILVER	6.50	U	
SODIUM	8940000		
THALLIUM	25.05	U	
TIN	11.40	U	
VANADIUM	4.05	U	
ZINC	7.8	U	A

PROJ_NO: 2870

SDG: WS0966 MEDIA: WATER DATA FRACTION: M

nsample	0402-DUP-07
samp_date	4/20/2002
lab_id	WS0966-012
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	BCBM-TW-01

Parameter	Result	ValQual	QualCode
ALUMINUM	9.11	U	
ANTIMONY	4.10	U	
ARSENIC	2.08	U	
BARIUM	4.0		
BERYLLIUM	0.39	U	A
CADMIUM	0.32	U	
CALCIUM	161000		
CHROMIUM	0.85	U	
COBALT	0.83	U	
COPPER	1.40	U	
IRON	17.90	U	
LEAD	2.18	U	
MAGNESIUM	215000		
MANGANESE	3.6		
MERCURY	0.03	U	A
NICKEL	1.22	U	
POTASSIUM	54600		
SELENIUM	4.33	U	
SILVER	1.30	U	
SODIUM	1320000		
THALLIUM	5.01	U	
TIN	2.28	U	
VANADIUM	1.2		
ZINC	0.32	U	

nsample	BCBM-TW-01
samp_date	4/20/2002
lab_id	WS0966-002
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	14.5	U	A
ANTIMONY	4.10	U	
ARSENIC	2.08	U	
BARIUM	4.3		
BERYLLIUM	0.17	U	
CADMIUM	0.32	U	
CALCIUM	153000		
CHROMIUM	0.85	U	
COBALT	0.83	U	
COPPER	4.3		
IRON	37.8		
LEAD	2.18	U	
MAGNESIUM	201000		
MANGANESE	3.6		
MERCURY	0.02	U	A
NICKEL	1.22	U	
POTASSIUM	55200		
SELENIUM	4.33	U	
SILVER	1.30	U	
SODIUM	1390000		
THALLIUM	5.01	U	
TIN	2.28	U	
VANADIUM	1.7		
ZINC	5.9	U	A

nsample	BCBM-TW-02
samp_date	4/20/2002
lab_id	WS0966-003
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	132	U	A
ANTIMONY	4.10	U	
ARSENIC	2.08	U	
BARIUM	5.2		
BERYLLIUM	0.17	U	
CADMIUM	0.32	U	
CALCIUM	276000		
CHROMIUM	2.1	U	A
COBALT	0.83	U	
COPPER	1.40	U	
IRON	217		
LEAD	2.18	U	
MAGNESIUM	120000		
MANGANESE	6.0		
MERCURY	0.03	U	A
NICKEL	1.22	U	
POTASSIUM	32500		
SELENIUM	4.33	U	
SILVER	1.30	U	
SODIUM	798000		
THALLIUM	5.01	U	
TIN	2.28	U	
VANADIUM	2.8		
ZINC	0.64	U	A

PROJ_NO: 2870

SDG: WS0966 MEDIA: WATER DATA FRACTION: M

nsample	BCBM-TW-07
samp_date	4/22/2002
lab_id	WS0966-006
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	209	U	A
ANTIMONY	20.50	U	
ARSENIC	10.40	U	
BARIUM	16.4		
BERYLLIUM	0.85	U	
CADMIUM	1.60	U	
CALCIUM	524000		
CHROMIUM	5.5	U	A
COBALT	4.15	U	
COPPER	7.00	U	
IRON	89.50	U	
LEAD	10.90	U	
MAGNESIUM	1060000		
MANGANESE	9.1		
MERCURY	0.04	U	A
NICKEL	6.10	U	
POTASSIUM	394000		
SELENIUM	21.65	U	
SILVER	6.50	U	
SODIUM	8930000		
THALLIUM	25.05	U	
TIN	14.3	U	A
VANADIUM	4.05	U	
ZINC	5.1	U	A

nsample	BCBM-TW-08
samp_date	4/22/2002
lab_id	WS0966-010
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	398	U	A
ANTIMONY	20.50	U	
ARSENIC	10.40	U	
BARIUM	20.3		
BERYLLIUM	0.85	U	
CADMIUM	1.60	U	
CALCIUM	611000		
CHROMIUM	4.25	U	
COBALT	4.15	U	
COPPER	7.00	U	
IRON	89.50	U	
LEAD	10.90	U	
MAGNESIUM	1380000		
MANGANESE	7.9		
MERCURY	0.03	U	A
NICKEL	6.10	U	
POTASSIUM	416000		
SELENIUM	21.65	U	
SILVER	6.50	U	
SODIUM	0400000		
THALLIUM	25.05	U	
TIN	11.40	U	
VANADIUM	4.05	U	
ZINC	6.1	U	A

nsample	BCBM-TW-09
samp_date	4/20/2002
lab_id	WS0966-005
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	11800		
ANTIMONY	205.00	U	
ARSENIC	104.00	U	
BARIUM	430		
BERYLLIUM	8.50	U	
CADMIUM	16.00	U	
CALCIUM	6400000		
CHROMIUM	224		
COBALT	41.50	U	
COPPER	86.2		
IRON	11100		
LEAD	109.00	U	
MAGNESIUM	7300000		
MANGANESE	204		
MERCURY	0.03	U	A
NICKEL	61.00	U	
POTASSIUM	1880000		
SELENIUM	216.50	U	
SILVER	65.00	U	
SODIUM	1200000		
THALLIUM	250.50	U	
TIN	166		
VANADIUM	40.50	U	
ZINC	132		

PROJ_NO: 2870

SDG: WS0966 MEDIA: WATER DATA FRACTION: M

nsample	BCBM-TW-10
samp_date	4/21/2002
lab_id	WS0966-001
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	66.3	U	A
ANTIMONY	4.10	U	
ARSENIC	2.08	U	
BARIUM	7.9		
BERYLLIUM	0.17	U	
CADMIUM	0.32	U	
CALCIUM	349000		
CHROMIUM	1.3	U	A
COBALT	0.83	U	
COPPER	1.40	U	
IRON	53.5		
LEAD	2.18	U	
MAGNESIUM	337000		
MANGANESE	5.1		
MERCURY	0.03	U	A
NICKEL	1.6	U	A
POTASSIUM	108000		
SELENIUM	4.33	U	
SILVER	1.30	U	
SODIUM	2430000		
THALLIUM	5.01	U	
TIN	2.3	U	A
VANADIUM	1.1		
ZINC	1.1	U	A

nsample	BCBM-TW-11
samp_date	4/22/2002
lab_id	WS0966-009
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	270	U	A
ANTIMONY	20.50	U	
ARSENIC	10.40	U	
BARIUM	48.9		
BERYLLIUM	0.85	U	
CADMIUM	1.60	U	
CALCIUM	501000		
CHROMIUM	7.5	U	A
COBALT	4.15	U	
COPPER	20.4		
IRON	1360		
LEAD	22.9		
MAGNESIUM	1070000		
MANGANESE	129		
MERCURY	0.26		
NICKEL	6.10	U	
POTASSIUM	330000		
SELENIUM	21.65	U	
SILVER	6.50	U	
SODIUM	7800000		
THALLIUM	25.05	U	
TIN	19.9	U	A
VANADIUM	4.05	U	
ZINC	84.8		

nsample	BCBM-TW-12
samp_date	4/22/2002
lab_id	WS0966-011
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	8190		
ANTIMONY	20.50	U	
ARSENIC	23.6		
BARIUM	129		
BERYLLIUM	2.7	U	A
CADMIUM	2.0		
CALCIUM	5260000		
CHROMIUM	62.4		
COBALT	4.15	U	
COPPER	15.2		
IRON	8170		
LEAD	68.4		
MAGNESIUM	800000		
MANGANESE	170		
MERCURY	0.06	U	A
NICKEL	17.4	U	A
POTASSIUM	256000		
SELENIUM	21.65	U	
SILVER	6.50	U	
SODIUM	6100000		
THALLIUM	25.05	U	
TIN	11.40	U	
VANADIUM	37.4		
ZINC	98.5		

PROJ_NO: 2870

SDG: WS0966 MEDIA: WATER DATA FRACTION: M

nsample	FB2-0402
samp_date	4/21/2002
lab_id	WS0966-019
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	9.11	U	
ANTIMONY	4.10	U	
ARSENIC	2.08	U	
BARIUM	0.29	U	
BERYLLIUM	0.67		
CADMIUM	0.32	U	
CALCIUM	57.3		
CHROMIUM	0.85	U	
COBALT	0.83	U	
COPPER	1.40	U	
IRON	17.90	U	
LEAD	2.18	U	
MAGNESIUM	19.0		
MANGANESE	0.17	U	
MERCURY	0.04		
NICKEL	1.22	U	
POTASSIUM	249.00	U	
SELENIUM	4.33	U	
SILVER	1.30	U	
SODIUM	219		
THALLIUM	5.01	U	
TIN	2.28	U	
VANADIUM	0.81	U	
ZINC	0.32	U	

nsample	RB-0402
samp_date	4/21/2002
lab_id	WS0966-020
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	9.11	U	
ANTIMONY	4.10	U	
ARSENIC	2.08	U	
BARIUM	0.29	U	
BERYLLIUM	0.78		
CADMIUM	0.32	U	
CALCIUM	194		
CHROMIUM	0.85	U	
COBALT	0.83	U	
COPPER	1.40	U	
IRON	17.90	U	
LEAD	2.18	U	
MAGNESIUM	60.6		
MANGANESE	0.17	U	
MERCURY	0.04		
NICKEL	1.22	U	
POTASSIUM	249.00	U	
SELENIUM	4.33	U	
SILVER	1.30	U	
SODIUM	473		
THALLIUM	5.01	U	
TIN	2.28	U	
VANADIUM	0.81	U	
ZINC	0.32	U	

PROJ_NO: 2870

SDG: WS0966 MEDIA: WATER DATA FRACTION: MISC

nsample	S9MW-12-0402
samp_date	4/20/2002
lab_id	WS0966-13
qc_type	NM
units	MG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
CHLORIDE	38		
SULFATE	20		
SULFIDE	4.0	U	
TOTAL ORGANIC CARBON	7		

nsample	S9MW-21-0402
samp_date	4/20/2002
lab_id	WS0966-14
qc_type	NM
units	MG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
CHLORIDE	4100		
SULFATE	500		
SULFIDE	9		
TOTAL ORGANIC CARBON	20		

nsample	S9MW-22-0402
samp_date	4/21/2002
lab_id	WS0966-15
qc_type	NM
units	MG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
CHLORIDE	3100		
SULFATE	1700		
SULFIDE	4.0	U	
TOTAL ORGANIC CARBON	20		

PROJ_NO: 2870

SDG: WS0966 MEDIA: WATER DATA FRACTION: MISC

nsample	S9MW-24-0402
samp_date	4/20/2002
lab_id	WS0966-16
qc_type	NM
units	MG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
CHLORIDE	3200		
SULFATE	720		
SULFIDE	30		
TOTAL ORGANIC CARBON	910		

nsample	S9MW-25-0402
samp_date	4/21/2002
lab_id	WS0966-17
qc_type	NM
units	MG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
CHLORIDE	3700		
SULFATE	1800		
SULFIDE	8.0	U	
TOTAL ORGANIC CARBON	22		

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **C. BRYAN** **DATE:** **JULY 24, 2002**

FROM: **ERIN M. FAUST** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS AND TIN**
CTO-188 NAS KEY WEST
SAMPLE DELIVERY GROUP (SDG) – WS1456

SAMPLES: 4/Soil/

BCBM-SB-01-02 BCBM-SB-01-04 BCBM-SB-02-02
BCBM-SB-02-04

Overview

The sample set for CTO 188, NAS Key West, SDG WS1456, consists of four (4) soil environmental samples.

All samples were analyzed for target analyte list (TAL) metals and tin. The samples were collected by TetraTech NUS on June 19, 2002 and analyzed by Katahdin Analytical Services under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Metals analyses, with the exception of mercury, were conducted using SW 846 method 6010B. Mercury analyses were conducted using SW 846 method 7471A.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Recoveries
• Laboratory Blank Analyses
* • Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method/preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Aluminum	69.24 µg/L	34.62 mg/kg
Barium	0.72 µg/L	0.36 mg/kg
Calcium[1]	21.607 mg/kg	108.035 mg/kg
Copper	2.07 µg/L	1.035 mg/kg
Iron[1]	10.794 mg/kg	53.97 mg/kg

Magnesium	80.08 µg/L	40.04 mg/kg
Mercury	0.07 µg/L	0.058 mg/kg
Potassium	527.25 µg/L	263.625 mg/kg
Sodium[1]	7.221 mg/kg	36.105 mg/kg
Thallium	5.42 µg/L	2.71 mg/kg
Tin[1]	3.182 mg/kg	19.06 mg/kg

[1]Maximum concentration present in a soil preparation blank.

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot, percent solids and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Positive results less than the action level reported for copper, mercury, potassium and tin were qualified "U" as a result of blank contamination.

Notes

The laboratory reported tin in addition to the TAL metals requested on the chain-of-custody. The results for tin were retained in the database because they were retained with previous data for this project.

Sample BCFC-IDW-0602 was included within this SDG. The only result reported for this sample in this SDG was total solids and did not require validation.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method/preparation blanks.

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)."

Erin M Faust

Tetra Tech NUS
Erin M. Faust
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 x 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: 2870

SDG: WS1456 MEDIA: SOIL DATA FRACTION: M

nsample	BCBM-SB-01-02
samp_date	6/19/02
lab_id	WS1456-002
qc_type	NM
units	MG/KG
Pct_Solids	83
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	242		
ANTIMONY	0.78	U	
ARSENIC	0.40	U	
BARIUM	5.2		
BERYLLIUM	0.07		
CADMIUM	0.28	U	
CALCIUM	393000		
CHROMIUM	2.3		
COBALT	0.29	U	
COPPER	2.0		
IRON	214		
LEAD	2.7		
MAGNESIUM	1420		
MANGANESE	3.3		
MERCURY	0.02	U	A
NICKEL	1.1	U	
POTASSIUM	80.2	U	A
SELENIUM	0.83	U	
SILVER	0.25	U	
SODIUM	1700		
THALLIUM	0.95	U	
TIN	3.7	U	A
VANADIUM	2.1		
ZINC	4.2		

nsample	BCBM-SB-01-04
samp_date	6/19/02
lab_id	WS1456-003
qc_type	NM
units	MG/KG
Pct_Solids	84
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	94.5		
ANTIMONY	0.79	U	
ARSENIC	0.40	U	
BARIUM	4.0		
BERYLLIUM	0.06		
CADMIUM	0.28	U	
CALCIUM	384000		
CHROMIUM	2.1		
COBALT	0.30	U	
COPPER	0.68	U	A
IRON	83.4		
LEAD	0.42	U	
MAGNESIUM	1090		
MANGANESE	1.2		
MERCURY	0.01	U	A
NICKEL	1.2	U	
POTASSIUM	82.6	U	A
SELENIUM	0.84	U	
SILVER	0.25	U	
SODIUM	1700		
THALLIUM	0.97	U	
TIN	3.8	U	A
VANADIUM	2.0		
ZINC	0.70		

nsample	BCBM-SB-02-02
samp_date	6/19/02
lab_id	WS1456-004
qc_type	NM
units	MG/KG
Pct_Solids	84
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	298		
ANTIMONY	0.81	U	
ARSENIC	0.41	U	
BARIUM	5.0		
BERYLLIUM	0.08		
CADMIUM	0.29	U	
CALCIUM	371000		
CHROMIUM	3.0		
COBALT	0.30	U	
COPPER	1.4		
IRON	212		
LEAD	3.6		
MAGNESIUM	1470		
MANGANESE	3.2		
MERCURY	0.02	U	A
NICKEL	1.2	U	
POTASSIUM	99.3	U	A
SELENIUM	0.86	U	
SILVER	0.26	U	
SODIUM	1510		
THALLIUM	0.99	U	
TIN	4.2	U	A
VANADIUM	2.0		
ZINC	3.9		

PROJ_NO: 2870

SDG: WS1456 MEDIA: SOIL DATA FRACTION: M

nsample	BCBM-SB-02-04
samp_date	6/19/02
lab_id	WS1456-005
qc_type	NM
units	MG/KG
Pct_Solids	82
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	71.0		
ANTIMONY	0.84	U	
ARSENIC	0.43	U	
BARIUM	4.1		
BERYLLIUM	0.06		
CADMIUM	0.30	U	
CALCIUM	376000		
CHROMIUM	2.0		
COBALT	0.31	U	
COPPER	0.36	U	A
IRON	62.6		
LEAD	0.45	U	
MAGNESIUM	1050		
MANGANESE	1.1		
MERCURY	0.01	U	
NICKEL	1.2	U	
POTASSIUM	53.4	U	A
SELENIUM	0.89	U	
SILVER	0.27	U	
SODIUM	1520		
THALLIUM	1.0	U	
TIN	3.9	U	A
VANADIUM	2.3		
ZINC	0.48		

PROJ_NO: 2870

SDG: WS1456 MEDIA: SOIL DATA FRACTION: MISC

nsample	BCBM-SB-01-02
samp_date	6/19/2002
lab_id	WS1456-2
qc_type	NM
Pct_Solids	83
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
TOTAL SOLIDS	%	83		

nsample	BCBM-SB-01-04
samp_date	6/19/2002
lab_id	WS1456-3
qc_type	NM
Pct_Solids	84
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
TOTAL SOLIDS	%	84		

nsample	BCBM-SB-02-02
samp_date	6/19/2002
lab_id	WS1456-4
qc_type	NM
Pct_Solids	84
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
TOTAL SOLIDS	%	84		

PROJ_NO: 2870

SDG: WS1456 MEDIA: SOIL DATA FRACTION: MISC

nsample	BCBM-SB-02-04
samp_date	6/19/2002
lab_id	WS1456-5
qc_type	NM
Pct_Solids	82
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
TOTAL SOLIDS	%	82		

nsample	BCFC-IDW-0602
samp_date	6/19/2002
lab_id	WS1456-1
qc_type	NM
Pct_Solids	84
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
TOTAL SOLIDS	%	84		

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**C. BRYAN**	**DATE:**	**SEPTEMBER 30, 2002**
FROM:	**ETHAN G. LEE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS, TIN, AND MISCELLANEOUS PARAMETERS**
NAS KEY WEST – CTO 254
SAMPLE DELIVERY GROUP (SDG) – 254-2

SAMPLES: 9/AQUEOUS/

AIC-DUP-02-0702	AIC-MW-01-0702	AIC-MW-02-0702
AIC-MW-03-0702	AIC-MW-04-0702	AIC-MW-05D-0702
BCBM-MW-01-0702	BCBM-MW-02-0702	DUP-01-0702

Overview

The sample set for NAS Key West, CTO 254, SDG 254-2, consists of nine (9) aqueous environmental samples. Two (2) field duplicate pairs (AIC-DUP-02-0702 / AIC-MW-02-0702; DUP-01-0702 / BCBM-MW-01-0702) are included in this SDG.

Samples BCBM-MW-01-0702, BCBM-MW-02-0702, and DUP-01-0702 were analyzed for Target Analyte List (TAL) metals plus tin. The remaining samples were analyzed for lead. Samples AIC-MW-01-0702, AIC-MW-03-0702, and AIC-MW-04-0702 were analyzed for nitrate and sulfate. The samples were collected by Tetra Tech NUS July 19 and 24-25, 2002 and analyzed by Katahdin Analytical Services. Tin and TAL metals analyses except mercury were conducted using method SW846 6010B. Mercury analyses were conducted using method SW846 7470A. Nitrate analyses were conducted using method EPA 353.2. Sulfate analyses were conducted using method EPA 300.

Metals analyses except mercury were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using Manual Cold Vapor Atomic Absorption (CVAA) methodologies.

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.

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Calcium	16.48 ug/L	82.4 ug/L
Iron	27.84 ug/L	139.2 ug/L
Mercury	0.16 ug/L	0.8 ug/L
Potassium[1]	90.0 ug/L	450 ug/L
Sodium[1]	65.0 ug/L	325 ug/L
Zinc[1]	1.59 ug/L	7.95 ug/L

[1] Maximum concentration present in aqueous preparation blank.

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 were qualified as nondetected (U) due to blank contamination for iron, mercury, and zinc. No validation action was required for the remaining analytes because either all the results were greater than the action level or they were nondetects.

Notes

Dilutions were made for lead in samples AIC-DUP-02-0702, AIC-MW-01-0702, AIC-MW-02-0702, AIC-MW-03-0702, AIC-MW-04-0702, and AIC-MW-05D-0702.

Dilutions were made for potassium and sodium in samples BCBM-MW-01-0702, BCBM-MW-02-0702, and DUP-01-0702.

Dilutions were made for sulfate in samples AIC-MW-01-0702, AIC-MW-03-0702, and AIC-MW-04-0702.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method/preparation blanks.

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.

TO: BRYAN, C. – PAGE 3
DATE: SEPTEMBER 30, 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)."

Ethan G. Lee

Tetra Tech NUS
Ethan G. Lee
Environmental Scientist

Edward Sedlmyer/for

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 x 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: 254-2 MEDIA: WATER DATA FRACTION: M

nsample	AIC-DUP-02-0702
samp_date	7/24/2002
lab_id	WS1689-003
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	AIC-MW-02-0702

Parameter	Result	ValQual	QualCode
LEAD	4.36	U	

nsample	AIC-MW-01-0702
samp_date	7/25/2002
lab_id	WS1696-001
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
LEAD	4.36	U	

nsample	AIC-MW-02-0702
samp_date	7/24/2002
lab_id	WS1689-001
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
LEAD	4.36	U	

PROJ_NO: 4260

SDG: 254-2 MEDIA: WATER DATA FRACTION: M

nsample	AIC-MW-03-0702
samp_date	7/25/2002
lab_id	WS1696-002
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
LEAD	4.36	U	

nsample	AIC-MW-04-0702
samp_date	7/25/2002
lab_id	WS1696-003
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
LEAD	10.90	U	

nsample	AIC-MW-05D-0702
samp_date	7/24/2002
lab_id	WS1689-002
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
LEAD	10.90	U	

PROJ_NO: 4260

SDG: 254-2 MEDIA: WATER DATA FRACTION: M

nsample	BCBM-MW-01-0702	nsample	BCBM-MW-02-0702	nsample	DUP-01-0702
samp_date	7/19/2002	samp_date	7/19/2002	samp_date	7/19/2002
lab_id	WS1672-001	lab_id	WS1672-002	lab_id	WS1672-003
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	BCBM-MW-01-0702

Parameter	Result	ValQual	QualCode
ALUMINUM	12.4		
ANTIMONY	4.10	U	
ARSENIC	4.2		
BARIUM	5.9		
BERYLLIUM	0.17	U	
CADMIUM	0.32	U	
CALCIUM	159000		
CHROMIUM	0.85	U	
COBALT	0.83	U	
COPPER	2.7		
IRON	17.90	U	
LEAD	2.18	U	
MAGNESIUM	222000		
MANGANESE	3.8		
MERCURY	0.14	U	A
NICKEL	1.22	U	
POTASSIUM	59000		
SELENIUM	4.33	U	
SILVER	1.4		
SODIUM	1480000		
THALLIUM	5.01	U	
TIN	2.28	U	
VANADIUM	1.5		
ZINC	0.40	U	A

Parameter	Result	ValQual	QualCode
ALUMINUM	17.3		
ANTIMONY	4.10	U	
ARSENIC	13.9		
BARIUM	7.8		
BERYLLIUM	0.17	U	
CADMIUM	0.32	U	
CALCIUM	239000		
CHROMIUM	1.5		
COBALT	0.83	U	
COPPER	3.6		
IRON	36.6	U	A
LEAD	2.18	U	
MAGNESIUM	306000		
MANGANESE	3.8		
MERCURY	0.01	U	
NICKEL	1.22	U	
POTASSIUM	93200		
SELENIUM	4.33	U	
SILVER	1.9		
SODIUM	2440000		
THALLIUM	5.01	U	
TIN	2.28	U	
VANADIUM	0.81	U	
ZINC	7.1	U	A

Parameter	Result	ValQual	QualCode
ALUMINUM	9.11	U	
ANTIMONY	4.10	U	
ARSENIC	2.08	U	
BARIUM	5.3		
BERYLLIUM	0.17	U	
CADMIUM	0.32	U	
CALCIUM	151000		
CHROMIUM	0.85	U	
COBALT	0.83	U	
COPPER	2.5		
IRON	17.90	U	
LEAD	2.18	U	
MAGNESIUM	212000		
MANGANESE	3.5		
MERCURY	0.02	U	A
NICKEL	1.22	U	
POTASSIUM	56800		
SELENIUM	4.33	U	
SILVER	1.30	U	
SODIUM	1560000		
THALLIUM	5.01	U	
TIN	2.28	U	
VANADIUM	1.9		
ZINC	0.32	U	

PROJ_NO: 4260

SDG: 254-2 MEDIA: WATER DATA FRACTION: MISC

nsample	AIC-MW-01-0702
samp_date	7/25/2002
lab_id	WS1696-1
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
NITRATE	MG/L	0.050	U	
SULFATE	MG/L	110		

nsample	AIC-MW-03-0702
samp_date	7/25/2002
lab_id	WS1696-2
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
NITRATE	MG/L	0.050	U	
SULFATE	MG/L	270		

nsample	AIC-MW-04-0702
samp_date	7/25/2002
lab_id	WS1696-3
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
NITRATE	MG/L	0.050	U	
SULFATE	MG/L	1000		

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**C. BRYAN**	**DATE:**	**SEPTEMBER 30, 2002**
FROM:	**ETHAN G. LEE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS, TIN, AND MISCELLANEOUS PARAMETERS**
NAS KEY WEST – CTO 264
SAMPLE DELIVERY GROUP (SDG) – 254-1

SAMPLES: 15/SOIL/

AIC-SB-10	AIC-SB-15	AIC-SB-20
AIC-SS-01	AIC-SS-02	AIC-SS-03
AIC-SS-04	AIC-SS-05	AIC-SS-06
AIC-SS-07	AIC-SS-08	BCBM-SB-03-02
BCBM-SB-03-24	BCBM-SB-04-02	BCBM-SB-04-24

Overview

The sample set for NAS Key West, CTO 264, SDG 254-1, consists of fifteen (15) soil environmental samples.

Samples AIC-SB-10, AIC-SB-15, and AIC-SB-20 were analyzed for lead, total combustible organics (TCO) and total organic halides (TOX). The remaining samples were analyzed for Target Analyte List (TAL) metals plus tin. The samples were collected by Tetra Tech NUS July 17, 19, 25, and 26, 2002. TAL metals plus tin and TCO were analyzed by Katahdin Analytical Services. TOX analyses were subcontracted to Severn Trent Laboratories. Tin and TAL metals analyses except mercury were conducted using method SW846 6010B. Mercury analyses were conducted using method SW846 7471A. TCO analyses were conducted using method ASTM D2974-87. TOX analyses were conducted using method SW846 9076.

Metals analyses except mercury were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using Manual Cold Vapor Atomic Absorption (CVAA) methodologies.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Recoveries
  • Laboratory Blank Analyses
* • Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method/preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Aluminum	57.17 ug/L	28.59 mg/kg
Barium[1]	0.068 mg/kg	0.34 mg/kg
Calcium[1]	12.13 mg/kg	60.6 mg/kg
Magnesium	16.36 ug/L	8.18 mg/kg
Manganese[1]	0.028 mg/kg	0.14 mg/kg
Mercury	0.07 ug/L	0.058 mg/kg
Potassium[1]	18.5 mg/kg	92.5 mg/kg
Sodium[1]	11.0 mg/kg	55.0 mg/kg
Thallium	7.58 ug/L	3.79 mg/kg
Tin[1]	2.085 mg/kg	10.43 mg/kg
Zinc	3.41 ug/L	1.71 mg/kg

[1] Maximum concentration present in soil preparation blank.

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot, percent solids, and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Positive results < Action Level were qualified as nondetected (U) due to blank contamination for mercury, potassium, thallium, tin, and zinc. No validation action was required for the remaining analytes because either all the results were greater than the action level or they were nondetects.

Notes

Dilutions were made for calcium, potassium, and sodium in all samples.

Dilutions were made for copper, iron, and zinc in sample AIC-SS-05.

Dilutions were made for antimony, arsenic, cadmium, chromium, copper, iron, lead, manganese, selenium, thallium, vanadium, and zinc in samples AIC-SS-07 and AIC-SS-08.

Dilutions were made for mercury in sample AIC-SS-08.

Based on the chain of custody and the laboratory specifications, samples AIC-SB-10, AIC-SB-15, and AIC-SB-20 were to be analyzed for only lead, TCO, and TOX. However, the lab also analyzed for mercury. The lab was contacted and Andrea Colby confirmed that mercury should not have been analyzed, so it was laboratory error. The data reviewer deleted mercury from the EDD.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method/preparation blanks.

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

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 x 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: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: MISC

nsample	AIC-SB-10
samp_date	7/17/2002
lab_id	WS1649-1
qc_type	NM
Pct_Solids	88
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
TOTAL COMBUSTIBLE ORGANI	% AS	7.2		
TOTAL ORGANIC HALIDES	MG/KG	270		

nsample	AIC-SB-15
samp_date	7/17/2002
lab_id	WS1649-2
qc_type	NM
Pct_Solids	89
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
TOTAL COMBUSTIBLE ORGANI	% AS	8.4		
TOTAL ORGANIC HALIDES	MG/KG	220		

nsample	AIC-SB-20
samp_date	7/17/2002
lab_id	WS1649-3
qc_type	NM
Pct_Solids	89
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
TOTAL COMBUSTIBLE ORGANI	% AS	10.9		
TOTAL ORGANIC HALIDES	MG/KG	39		

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: M

nsample	AIC-SB-10
samp_date	7/17/2002
lab_id	WS1649-001
qc_type	NM
units	MG/KG
Pct_Solids	88
DUP_OF:	

Parameter	Result	ValQual	QualCode
LEAD	157		

nsample	AIC-SB-15
samp_date	7/17/2002
lab_id	WS1649-002
qc_type	NM
units	MG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	ValQual	QualCode
LEAD	36.8		

nsample	AIC-SB-20
samp_date	7/17/2002
lab_id	WS1649-003
qc_type	NM
units	MG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	ValQual	QualCode
LEAD	76.9		

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: M

nsample	AIC-SS-01
samp_date	7/17/2002
lab_id	WS1649-004
qc_type	NM
units	MG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	1020		
ANTIMONY	0.40	U	
ARSENIC	0.86		
BARIUM	6.1		
BERYLLIUM	0.02	U	
CADMIUM	0.05		
CALCIUM	344000		
CHROMIUM	6.9		
COBALT	11.4		
COPPER	18.2		
IRON	795		
LEAD	0.79		
MAGNESIUM	1620		
MANGANESE	7.6		
MERCURY	0.02	U	A
NICKEL	2.7		
POTASSIUM	112	U	A
SELENIUM	0.42	U	
SILVER	0.13	U	
SODIUM	437		
THALLIUM	0.49	U	
TIN	2.6	U	A
VANADIUM	3.5		
ZINC	3.4		

nsample	AIC-SS-02
samp_date	7/17/2002
lab_id	WS1649-005
qc_type	NM
units	MG/KG
Pct_Solids	87
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	1330		
ANTIMONY	0.42	U	
ARSENIC	1.2		
BARIUM	7.9		
BERYLLIUM	0.02	U	
CADMIUM	0.08		
CALCIUM	305000		
CHROMIUM	7.9		
COBALT	38.4		
COPPER	65.3		
IRON	1920		
LEAD	3.2		
MAGNESIUM	1680		
MANGANESE	19.4		
MERCURY	0.05	U	A
NICKEL	10.1		
POTASSIUM	166	U	A
SELENIUM	0.45	U	
SILVER	0.13	U	
SODIUM	380		
THALLIUM	0.52	U	
TIN	3.0	U	A
VANADIUM	3.7		
ZINC	9.3		

nsample	AIC-SS-03
samp_date	7/17/2002
lab_id	WS1649-006
qc_type	NM
units	MG/KG
Pct_Solids	92
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	841		
ANTIMONY	0.39	U	
ARSENIC	0.34		
BARIUM	5.2		
BERYLLIUM	0.02	U	
CADMIUM	0.06		
CALCIUM	351000		
CHROMIUM	6.2		
COBALT	16.8		
COPPER	20.5		
IRON	1060		
LEAD	2.1		
MAGNESIUM	1950		
MANGANESE	10.2		
MERCURY	0.07	U	A
NICKEL	5.4		
POTASSIUM	98.4	U	A
SELENIUM	0.42	U	
SILVER	0.12	U	
SODIUM	298		
THALLIUM	0.48	U	
TIN	2.5	U	A
VANADIUM	3.3		
ZINC	5.2		

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: M

nsample	AIC-SS-04
samp_date	7/17/2002
lab_id	WS1649-007
qc_type	NM
units	MG/KG
Pct_Solids	91
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	691		
ANTIMONY	0.37	U	
ARSENIC	0.74		
BARIUM	4.6		
BERYLLIUM	0.02	U	
CADMIUM	0.05		
CALCIUM	342000		
CHROMIUM	5.2		
COBALT	26.4		
COPPER	36.8		
IRON	1020		
LEAD	0.83		
MAGNESIUM	1450		
MANGANESE	8.7		
MERCURY	0.01	U	
NICKEL	4.9		
POTASSIUM	72.4	U	A
SELENIUM	0.39	U	
SILVER	0.12	U	
SODIUM	267		
THALLIUM	0.46	U	
TIN	2.5	U	A
VANADIUM	2.4		
ZINC	5.1		

nsample	AIC-SS-05
samp_date	7/19/2002
lab_id	WS1668-001
qc_type	NM
units	MG/KG
Pct_Solids	79
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	1500		
ANTIMONY	10.6		
ARSENIC	6.2		
BARIUM	10.1		
BERYLLIUM	0.02	U	
CADMIUM	0.81		
CALCIUM	337000		
CHROMIUM	33.2		
COBALT	2.1		
COPPER	218		
IRON	20600		
LEAD	260		
MAGNESIUM	3110		
MANGANESE	315		
MERCURY	1.9		
NICKEL	22.3		
POTASSIUM	264	U	A
SELENIUM	0.41	U	
SILVER	3.1		
SODIUM	3050		
THALLIUM	0.48	U	
TIN	57.6		
VANADIUM	9.3		
ZINC	489		

nsample	AIC-SS-06
samp_date	7/19/2002
lab_id	WS1668-003
qc_type	NM
units	MG/KG
Pct_Solids	72
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	1340		
ANTIMONY	15.4		
ARSENIC	4.5		
BARIUM	58.9		
BERYLLIUM	0.02	U	
CADMIUM	1.6		
CALCIUM	392000		
CHROMIUM	38.2		
COBALT	2.7		
COPPER	104		
IRON	22100		
LEAD	191		
MAGNESIUM	3190		
MANGANESE	105		
MERCURY	1.2		
NICKEL	19.3		
POTASSIUM	343	U	A
SELENIUM	0.51	U	
SILVER	1.9		
SODIUM	2340		
THALLIUM	0.74	U	A
TIN	73.6		
VANADIUM	8.6		
ZINC	351		

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: M

nsample	AIC-SS-07	nsample	AIC-SS-08	nsample	BCBM-SB-03-02
samp_date	7/19/2002	samp_date	7/19/2002	samp_date	7/25/2002
lab_id	WS1668-004	lab_id	WS1668-002	lab_id	WS1705-001
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	73	Pct_Solids	82	Pct_Solids	95
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	1630		
ANTIMONY	22.0		
ARSENIC	14.8		
BARIUM	17.2		
BERYLLIUM	0.02	U	
CADMIUM	1.8		
CALCIUM	299000		
CHROMIUM	39.1		
COBALT	5.1		
COPPER	541		
IRON	50700		
LEAD	472		
MAGNESIUM	3920		
MANGANESE	198		
MERCURY	1.4		
NICKEL	36.8		
POTASSIUM	490	U	A
SELENIUM	0.94	U	
SILVER	1.9		
SODIUM	4820		
THALLIUM	1.09	U	
TIN	182		
VANADIUM	13.6		
ZINC	680		

Parameter	Result	ValQual	QualCode
ALUMINUM	1450		
ANTIMONY	20.7		
ARSENIC	19.6		
BARIUM	62.2		
BERYLLIUM	0.02	U	
CADMIUM	2.8		
CALCIUM	302000		
CHROMIUM	47.8		
COBALT	2.8		
COPPER	221		
IRON	33400		
LEAD	407		
MAGNESIUM	3000		
MANGANESE	129		
MERCURY	1.6		
NICKEL	31.2		
POTASSIUM	224	U	A
SELENIUM	0.85	U	
SILVER	3.8		
SODIUM	2250		
THALLIUM	0.99	U	
TIN	77.6		
VANADIUM	9.6		
ZINC	654		

Parameter	Result	ValQual	QualCode
ALUMINUM	4270		
ANTIMONY	0.36	U	
ARSENIC	0.52		
BARIUM	347		
BERYLLIUM	0.04		
CADMIUM	0.33		
CALCIUM	231000		
CHROMIUM	5.2		
COBALT	3.8		
COPPER	16.3		
IRON	10000		
LEAD	4.9		
MAGNESIUM	2490		
MANGANESE	83.3		
MERCURY	0.05	U	A
NICKEL	3.8		
POTASSIUM	151	U	A
SELENIUM	0.38	U	
SILVER	0.11	U	
SODIUM	1050		
THALLIUM	0.44	U	
TIN	2.6	U	A
VANADIUM	40.2		
ZINC	16.2		

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: M

nsample	BCBM-SB-03-24
samp_date	7/25/2002
lab_id	WS1705-002
qc_type	NM
units	MG/KG
Pct_Solids	93
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	2680		
ANTIMONY	1.5		
ARSENIC	0.74		
BARIUM	28.2		
BERYLLIUM	0.04		
CADMIUM	0.21		
CALCIUM	301000		
CHROMIUM	6.7		
COBALT	2.5		
COPPER	11.9		
IRON	6200		
LEAD	9.4		
MAGNESIUM	2300		
MANGANESE	54.5		
MERCURY	0.05	U	A
NICKEL	3.4		
POTASSIUM	143	U	A
SELENIUM	0.38	U	
SILVER	0.12	U	
SODIUM	1060		
THALLIUM	0.44	U	
TIN	2.7	U	A
VANADIUM	27.7		
ZINC	20.2		

nsample	BCBM-SB-04-02
samp_date	7/26/2002
lab_id	WS1705-003
qc_type	NM
units	MG/KG
Pct_Solids	74
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	311		
ANTIMONY	0.47	U	
ARSENIC	0.78		
BARIUM	7.0		
BERYLLIUM	0.02	U	
CADMIUM	0.04	U	
CALCIUM	385000		
CHROMIUM	2.8		
COBALT	0.10	U	
COPPER	0.72		
IRON	284		
LEAD	0.63		
MAGNESIUM	1880		
MANGANESE	4.2		
MERCURY	0.16		
NICKEL	0.58		
POTASSIUM	268	U	A
SELENIUM	0.50	U	
SILVER	0.15	U	
SODIUM	5860		
THALLIUM	0.57	U	
TIN	3.2	U	A
VANADIUM	2.1		
ZINC	1.9	U	A

nsample	BCBM-SB-04-24
samp_date	7/26/2002
lab_id	WS1705-004
qc_type	NM
units	MG/KG
Pct_Solids	80
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	160		
ANTIMONY	0.44	U	
ARSENIC	0.64		
BARIUM	5.9		
BERYLLIUM	0.02	U	
CADMIUM	0.03	U	
CALCIUM	368000		
CHROMIUM	2.2		
COBALT	0.09	U	
COPPER	0.46		
IRON	130		
LEAD	0.29		
MAGNESIUM	1400		
MANGANESE	2.2		
MERCURY	0.05	U	A
NICKEL	0.51		
POTASSIUM	212	U	A
SELENIUM	0.46	U	
SILVER	0.14	U	
SODIUM	4660		
THALLIUM	0.53	U	
TIN	2.9	U	A
VANADIUM	1.7		
ZINC	1.4	U	A

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**C. BRYAN**	**DATE:**	**SEPTEMBER 30, 2002**
FROM:	**ETHAN G. LEE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS AND TIN**
NAS KEY WEST – CTO 188
SAMPLE DELIVERY GROUP (SDG) – WS1755

SAMPLES: 4/SOIL/

BCBM-SB05-02 BCBM-SB05-24 BCBM-SB06-02
BCBM-SB06-24

Overview

The sample set for NAS Key West, CTO 188, SDG WS1755, consists of four (4) soil environmental samples.

All samples were analyzed for Target Analyte List (TAL) metals plus tin. The samples were collected by Tetra Tech NUS August 5-6, 2002 and analyzed by Katahdin Analytical Services. Tin and TAL metals analyses except mercury were conducted using method SW846 6010B. Mercury analyses were conducted using method SW846 7471A.

Metals analyses except mercury were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using Manual Cold Vapor Atomic Absorption (CVAA) methodologies.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Recoveries
• Laboratory Blank Analyses
* • Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method/preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Aluminum	57.17 ug/L	28.59 mg/kg
Beryllium	0.27 ug/L	0.135 mg/kg
Calcium[1]	9.084 mg/kg	45.42 mg/kg
Lead[1]	0.295 mg/kg	1.475 mg/kg
Magnesium	7.41 ug/L	3.705 mg/kg
Manganese[1]	0.028 mg/kg	0.14 mg/kg
Mercury	0.07 ug/L	0.0585 mg/kg
Potassium[1]	6.0 mg/kg	30.0 mg/kg
Sodium[1]	15.0 mg/kg	75.0 mg/kg
Thallium	7.89 ug/L	3.945 mg/kg
Tin[1]	2.146 mg/kg	10.73 mg/kg
Zinc[1]	0.073 mg/kg	0.365 mg/kg

[1] Maximum concentration present in soil preparation blank.

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot, percent solids, and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Positive results < Action Level were qualified as nondetected (U) due to blank contamination for lead, mercury, potassium, tin, and zinc. No validation action was required for the remaining analytes because either all the results were greater than the action level or they were nondetects.

Notes

Dilutions were made for calcium, potassium, and sodium in all samples.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method/preparation blanks.

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

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 x 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: 2870

SDG: WS1755 MEDIA: SOIL DATA FRACTION: M

nsample	BCBM-SB05-02
samp_date	8/6/2002
lab_id	WS1755-001
qc_type	NM
units	MG/KG
Pct_Solids	72
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	325		
ANTIMONY	0.48	U	
ARSENIC	2.0		
BARIUM	5.8		
BERYLLIUM	0.02	U	
CADMIUM	0.04	U	
CALCIUM	390000		
CHROMIUM	3.1		
COBALT	0.10	U	
COPPER	0.30		
IRON	623		
LEAD	0.36	U	A
MAGNESIUM	2070		
MANGANESE	4.1		
MERCURY	0.01	U	
NICKEL	1.1		
POTASSIUM	221	U	A
SELENIUM	0.50	U	
SILVER	0.15	U	
SODIUM	6160		
THALLIUM	0.58	U	
TIN	2.5	U	A
VANADIUM	4.3		
ZINC	0.42	U	A

nsample	BCBM-SB05-24
samp_date	8/6/2002
lab_id	WS1755-002
qc_type	NM
units	MG/KG
Pct_Solids	68
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	427		
ANTIMONY	0.52	U	
ARSENIC	0.42		
BARIUM	7.9		
BERYLLIUM	0.02	U	
CADMIUM	0.04	U	
CALCIUM	354000		
CHROMIUM	3.0		
COBALT	0.11	U	
COPPER	0.30		
IRON	201		
LEAD	0.81	U	A
MAGNESIUM	1700		
MANGANESE	4.2		
MERCURY	0.01	U	A
NICKEL	0.67		
POTASSIUM	241	U	A
SELENIUM	0.55	U	
SILVER	0.17	U	
SODIUM	6060		
THALLIUM	0.64	U	
TIN	2.8	U	A
VANADIUM	1.4		
ZINC	0.36	U	A

nsample	BCBM-SB06-02
samp_date	8/5/2002
lab_id	WS1755-003
qc_type	NM
units	MG/KG
Pct_Solids	71
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	304		
ANTIMONY	0.51	U	
ARSENIC	0.64		
BARIUM	5.7		
BERYLLIUM	0.02	U	
CADMIUM	0.04	U	
CALCIUM	389000		
CHROMIUM	3.0		
COBALT	0.10	U	
COPPER	0.69		
IRON	1100		
LEAD	0.75	U	A
MAGNESIUM	2100		
MANGANESE	12.7		
MERCURY	0.01	U	
NICKEL	1.3		
POTASSIUM	218	U	A
SELENIUM	0.54	U	
SILVER	0.16	U	
SODIUM	6060		
THALLIUM	0.63	U	
TIN	2.6	U	A
VANADIUM	1.8		
ZINC	0.57		

PROJ_NO: 2870

SDG: WS1755 MEDIA: SOIL DATA FRACTION: M

nsample	BCBM-SB06-24
samp_date	8/5/2002
lab_id	WS1755-004
qc_type	NM
units	MG/KG
Pct_Solids	71
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	238		
ANTIMONY	0.49	U	
ARSENIC	0.52		
BARIUM	5.7		
BERYLLIUM	0.02	U	
CADMIUM	0.04	U	
CALCIUM	387000		
CHROMIUM	2.6		
COBALT	0.10	U	
COPPER	0.60		
IRON	281		
LEAD	1.3	U	A
MAGNESIUM	2380		
MANGANESE	2.9		
MERCURY	0.01	U	
NICKEL	0.79		
POTASSIUM	216	U	A
SELENIUM	0.52	U	
SILVER	0.16	U	
SODIUM	5550		
THALLIUM	0.60	U	
TIN	2.6	U	A
VANADIUM	1.6		
ZINC	0.51		

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**C. BRYAN**	**DATE:**	**SEPTEMBER 30, 2002**
FROM:	**ETHAN G. LEE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS AND TIN**
NAS KEY WEST – CTO 188
SAMPLE DELIVERY GROUP (SDG) – 254-3

SAMPLES: 4/AQUEOUS/

BCBM-MW-03	BCBM-MW-05-080702
BCBM-MW-04	BCBM-MW-06-080802

Overview

The sample set for NAS Key West, CTO 188, SDG 254-3, consists of four (4) aqueous environmental samples.

All samples were analyzed for Target Analyte List (TAL) metals and tin. The samples were collected by Tetra Tech NUS July 30 and August 7-8, 2002, and analyzed by Katahdin Analytical Services. Tin and TAL metals analyses except mercury were conducted using method SW846 6010B. Mercury analyses were conducted using method SW846 7470A.

Metals analyses except mercury were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using Manual Cold Vapor Atomic Absorption (CVAA) methodologies.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
• Calibration Recoveries
• Laboratory Blank Analyses
* • Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Aluminum	55.02 ug/L	275.1 ug/L
Barium	0.32 ug/L	1.6 ug/L
Beryllium	0.41 ug/L	2.05 ug/L
Calcium	10.54 ug/L	52.7 ug/L
Magnesium	14.62 ug/L	73.1 ug/L
Manganese[1]	0.22 ug/L	1.1 ug/L
Mercury[1]	0.046 ug/L	0.23 ug/L
Sodium[1]	42.68 ug/L	213.4 ug/L
Zinc[1]	2.03 ug/L	10.15 ug/L

[1] Maximum concentration present in aqueous preparation blank.

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 were qualified as nondetected (U) as a result of blank contamination for aluminum, mercury, and zinc. No validation action was required for the remaining analytes because either all the results were greater than the action level or they were nondetects.

Calibration Noncompliance

The initial calibration verification percent recovery (%R) for potassium was above the control limit of 110%. Positive results were qualified as estimated (J).

Notes

Dilutions were performed for all analytes except mercury in all samples.

Because the concentration of thallium reported in sample BCBM-MW-04 was excessively high, the laboratory was contacted and was asked to re-analyze the sample for thallium. The re-analysis was performed using ICP-MS instrumentation which is less prone to interferences and provides greater sensitivity than typical ICP instrumentation. The outcome of the re-analysis yielded a nondetected result for thallium at a significantly lower reporting limit. Therefore, the original thallium result was incorrect and the high result was attributed to sample interferences.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method/preparation blanks. Potassium was qualified due to calibration noncompliance.

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

Attachments:

1. Appendix A - Qualified Analytical Results
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A = Lab Blank Contamination
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D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
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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 x 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: 2870

SDG: 254-3 MEDIA: WATER DATA FRACTION: M

nsample	BCBM-MW-03
samp_date	7/30/2002
lab_id	WS1720-001
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	258	U	
ANTIMONY	12.3	U	
ARSENIC	6.24	U	
BARIUM	79.6		
BERYLLIUM	0.51	U	
CADMIUM	0.96	U	
CALCIUM	375000		
CHROMIUM	2.55	U	
COBALT	2.49	U	
COPPER	4.2	U	
IRON	277		
LEAD	6.54	U	
MAGNESIUM	956000		
MANGANESE	71.1		
MERCURY	0.05	U	
NICKEL	3.66	U	
POTASSIUM	302000	J	
SELENIUM	15.4		
SILVER	3.9	U	
SODIUM	8880000		
THALLIUM	15.03	U	
TIN	6.84	U	
VANADIUM	5		
ZINC	8.2	U	

nsample	BCBM-MW-04
samp_date	7/30/2002
lab_id	WS1720-002
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	252	U	
ANTIMONY	12.3	U	
ARSENIC	26.7		
BARIUM	63.8		
BERYLLIUM	0.51	U	
CADMIUM	1.5		
CALCIUM	581000		
CHROMIUM	2.55	U	
COBALT	2.49	U	
COPPER	4.2	U	
IRON	3170		
LEAD	6.54	U	
MAGNESIUM	1470000		
MANGANESE	54.6		
MERCURY	0.01	U	
NICKEL	3.66	U	
POTASSIUM	623000	J	
SELENIUM	12.99	U	
SILVER	4.4		
SODIUM	12900000		
THALLIUM	0.4	U	
TIN	6.84	U	
VANADIUM	8.7		
ZINC	2.3	U	

nsample	BCBM-MW-05-080702
samp_date	8/7/2002
lab_id	WS1769-001
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	246	U	
ANTIMONY	12.3	U	
ARSENIC	6.24	U	
BARIUM	37.9		
BERYLLIUM	0.51	U	
CADMIUM	0.96	U	
CALCIUM	453000		
CHROMIUM	2.55	U	
COBALT	2.49	U	
COPPER	4.2	U	
IRON	89.2		
LEAD	6.54	U	
MAGNESIUM	1010000		
MANGANESE	20.4		
MERCURY	0.03	U	
NICKEL	3.66	U	
POTASSIUM	303000	J	
SELENIUM	12.99	U	
SILVER	3.9		
SODIUM	9400000		
THALLIUM	15.03	U	
TIN	6.84	U	
VANADIUM	2.43	U	
ZINC	1.9	U	

PROJ_NO: 2870

SDG: 254-3 MEDIA: WATER DATA FRACTION: M

nsample	BCBM-MW-06-080802
samp_date	8/8/2002
lab_id	WS1769-002
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	267	U	A
ANTIMONY	12.30	U	
ARSENIC	34.0		
BARIUM	49.2		
BERYLLIUM	0.51	U	
CADMIUM	0.96	U	
CALCIUM	416000		
CHROMIUM	2.55	U	
COBALT	2.49	U	
COPPER	4.20	U	
IRON	1410		
LEAD	6.54	U	
MAGNESIUM	1300000		
MANGANESE	79.8		
MERCURY	0.02	U	A
NICKEL	3.66	U	
POTASSIUM	434000	J	C
SELENIUM	12.99	U	
SILVER	4.3		
SODIUM	0700000		
THALLIUM	15.03	U	
TIN	7.2		
VANADIUM	2.43	U	
ZINC	3.0	U	A

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**C. BRYAN**	**DATE:**	**JULY 31, 2003**
FROM:	**SETH C. STAFFEN**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC AND INORGANIC DATA VALIDATION –VOA/EDB/PAH/TPH/METALS**
CTO 297 NAS KEY WEST
SDG: 4077

SAMPLES: 15/AQUEOUS

0503-DUP-01	0503-RB-01	TB00341/TB00342
TFSGLMW0101	TFSGLMW0201	TFSGLMW0301
TFSGLMW0401	TFSGLMW0501	TFSGLMW0601
TFSGLMW0701	TFSGLMW0901	TFSGLMW1101
TFSGLMW1201	TFSGLMW1401	TFSGLP0101

4/SOIL/ARSENIC/IRON

BCBM-CONF-01	BCBM-CONF-02	BCBM-CONF-03
BCBM-CONF-04		

OVERVIEW

The sample set for CTO 297, NAS Key West, SDG 4077 consists of thirteen (13) aqueous environmental samples, one (1) rinsate blank, one (1) trip blank, and four (4) soil environmental samples. All of the aqueous environmental samples were analyzed for select volatile organic compounds (BTEX and MTBE), polynuclear aromatic hydrocarbons (PAHs), and total petroleum hydrocarbons (TPH). In addition, the aqueous samples except the trip blank, were analyzed for 1,2-dibromoethane and lead. The trip blank (TB00341/TB00342) was analyzed for BTEX and MTBE only. The soils samples were analyzed for arsenic and iron only. One field duplicate pair was included in this SDG: TFSGLMW0201 / 0503-DUP-01.

The samples were collected by Tetra Tech NUS on May 10th, 11th, and 12th, 2003 and analyzed by Accura Analytical Laboratory. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using SW-846 Methods 8260B, 8270C, Florida PRO, and CLP ILM05.0 analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

- Data completeness
- * Holding times
- Initial and continuing calibration
- Laboratory method and field quality control 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.

The text of this report is formulated to address only gross non-compliances resulting in the rejection of data and the elimination of false positives.

VOLATILE / EDB

All quality control parameters were met for this fraction.

PAH

Several MS %Rs and %RPDs fell outside of the quality control limit range (but > 10%). No qualification action was taken based on MS/MSD noncompliances alone, in the unspiked sample, TFSGLMW1401.

Several MS %Rs and %RPDs fell outside of the quality control limit range (but > 10%). No qualification action was taken based on MS/MSD noncompliances alone, in the unspiked sample, TFSGLMW0101.

TPH

The following compound was detected in the laboratory method blank at the maximum concentration indicated below:

Compound	Concentration	Action Level
TPH	1.2 mg/L	6.0 mg/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.

An action level of 5X the maximum contaminant concentration was established to evaluate laboratory contamination. Dilution factors and sample aliquots were taken into consideration during the application of all action levels. The positive results below the action level were qualified as (U) as a result of blank contamination for TPH.

The continuing calibration percent difference exceeded the 15% quality control limit for TPH on 5/19/03 at 1407. No qualification action was taken because the exceedance was not a gross noncompliance.

The surrogate recovery of C39 fell below the lower quality control limit (but >10%) in samples TFSGLMW0701, TFSGLMW0501, TFSGLMW0301, TFSGLMW0601, TFSGLMW0901, TFSGLMW1101, and 0503-RB-01. The surrogate recovery of o-terphenyl fell below the lower quality control limit in samples TFSGLMW0301, 0503-RB-01, 0503-DUP-01, and TFSGLMW1401. No qualification action was taken because the exceedances were not a gross noncompliance.

The MS and MSD %Rs exceeded the upper quality control limit for TPH. No qualification action was taken based on MS/MSD %R noncompliance for the unspiked sample, TFSGLMW0101.

LEAD/ARSENIC/IRON

The CRDL check standard for arsenic was high. No qualification action was taken because the reported results were nondetects.

The CRI standard contained a percent recovery that was less than 50% (49%) for lead. Nondetected results for lead were qualified as estimated, UJ.

Results for arsenic and iron were reported on a wet-weight basis. The laboratory was contacted and re-submitted updated Form Is containing arsenic and iron results that were reported on a dry-weight basis.

The laboratory did not meet the required detection limit for arsenic. The laboratory was contacted. The laboratory had to subcontract out the arsenic analysis in order to meet the required detection limits. The updated Form Is were re-submitted on July 28th, 2003.

Additional Comments

Positive results reported below the reporting limit (RL) but above the method detection limit (MDL) were qualified as estimated, J.

The EDD results did not match the results on the Form Is. The laboratory did not populate the results column on the EDD. The data reviewer amended the EDD to reflect the correct results.

EXECUTIVE SUMMARY

Laboratory Performance Issues: TPH was detected in the laboratory method blank. Surrogate %Rs and MS/MSD %Rs and %RPDs noncompliances were noted. The laboratory failed to provide metals data which satisfied project requirements. The laboratory had to re-analyze arsenic and iron samples in order to meet project requirements.

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), the EPA Functional Guidelines for Inorganic Data Validation (February, 1994), 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 Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery 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 - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery 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 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
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: 5079

SDG: 4077 MEDIA: WATER DATA FRACTION: OV

nsample	0503-DUP-01
samp_date	5/11/2003
lab_id	4077-017
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	TFSGLMW0201

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.020	U	
BENZENE	1.0	U	
ETHYLBENZENE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
TOLUENE	1.0	U	
TOTAL XYLENES	3.0	U	

nsample	0503-RB-01
samp_date	5/12/2003
lab_id	4077-009
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.020	U	
BENZENE	1.0	U	
ETHYLBENZENE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
TOLUENE	1.0	U	
TOTAL XYLENES	3.0	U	

nsample	TB00341/TB00342
samp_date	5/10/2003
lab_id	4077-019
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZENE	1.0	U	
ETHYLBENZENE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
TOLUENE	1.0	U	
TOTAL XYLENES	3.0	U	

PROJ_NO: 5079

SDG: 4077 MEDIA: WATER DATA FRACTION: OV

nsample	TFSGLMW0101	nsample	TFSGLMW0201	nsample	TFSGLMW0301
samp_date	5/11/2003	samp_date	5/11/2003	samp_date	5/10/2003
lab_id	4077-007	lab_id	4077-008	lab_id	4077-003
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.020	U	
BENZENE	1.0	U	
ETHYLBENZENE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
TOLUENE	1.0	U	
TOTAL XYLENES	3.0	U	

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.020	U	
BENZENE	1.0	U	
ETHYLBENZENE	1.0	U	
METHYL TERT-BUTYL ETHER	1.1		
TOLUENE	1.0	U	
TOTAL XYLENES	3.0	U	

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.020	U	
BENZENE	1.0	U	
ETHYLBENZENE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
TOLUENE	0.79	J	P
TOTAL XYLENES	3.0	U	

PROJ_NO: 5079

SDG: 4077 MEDIA: WATER DATA FRACTION: OV

nsample	TFSGLMW0401	nsample	TFSGLMW0501	nsample	TFSGLMW0601
samp_date	5/11/2003	samp_date	5/10/2003	samp_date	5/10/2003
lab_id	4077-014	lab_id	4077-002	lab_id	4077-005
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.020	U	
BENZENE	13		
ETHYLBENZENE	4.7		
METHYL TERT-BUTYL ETHER	1.1		
TOLUENE	1.0	U	
TOTAL XYLENES	3.9		

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.020	U	
BENZENE	1.0	U	
ETHYLBENZENE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
TOLUENE	1.1		
TOTAL XYLENES	3.0	U	

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.020	U	
BENZENE	1.0	U	
ETHYLBENZENE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
TOLUENE	1.0	U	
TOTAL XYLENES	3.0	U	

PROJ_NO: 5079

SDG: 4077 MEDIA: WATER DATA FRACTION: OV

nsample	TFSGLMW0701	nsample	TFSGLMW0901	nsample	TFSGLMW1101
samp_date	5/10/2003	samp_date	5/10/2003	samp_date	5/11/2003
lab_id	4077-001	lab_id	4077-006	lab_id	4077-016
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.020	U	
BENZENE	0.82	J	P
ETHYLBENZENE	4.6		
METHYL TERT-BUTYL ETHER	2.4		
TOLUENE	1.0	U	
TOTAL XYLENES	3.0	U	

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.020	U	
BENZENE	1.0	U	
ETHYLBENZENE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
TOLUENE	1.0	U	
TOTAL XYLENES	3.0	U	

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.020	U	
BENZENE	1.0	U	
ETHYLBENZENE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
TOLUENE	1.0	U	
TOTAL XYLENES	3.0	U	

PROJ_NO: 5079

SDG: 4077 MEDIA: WATER DATA FRACTION: OV

nsample	TFSGLMW1201	nsample	TFSGLMW1401	nsample	TFSGLP0101
samp_date	5/10/2003	samp_date	5/11/2003	samp_date	5/11/2003
lab_id	4077-004	lab_id	4077-018	lab_id	4077-015
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.020	U	
BENZENE	3.6		
ETHYLBENZENE	1.8		
METHYL TERT-BUTYL ETHER	1.0	U	
TOLUENE	1.9		
TOTAL XYLENES	5.0		

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.020	U	
BENZENE	1.0	U	
ETHYLBENZENE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
TOLUENE	1.0	U	
TOTAL XYLENES	3.0	U	

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.020	U	
BENZENE	1.0	U	
ETHYLBENZENE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
TOLUENE	1.0	U	
TOTAL XYLENES	3.0	U	

PROJ_NO: 5079

SDG: 4077 MEDIA: WATER DATA FRACTION: PAH

nsample	0503-DUP-01	nsample	0503-RB-01	nsample	TFSGLMW0101
samp_date	5/11/2003	samp_date	5/12/2003	samp_date	5/11/2003
lab_id	4077-017	lab_id	4077-009	lab_id	4077-007
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:	TFSGLMW0201	DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1.6		
2-METHYLNAPHTHALENE	1.0	U	
ACENAPHTHENE	1.0	U	
ACENAPHTHYLENE	1.0	U	
ANTHRACENE	1.0	U	
BENZO(A)ANTHRACENE	1.0	U	
BENZO(A)PYRENE	1.0	U	
BENZO(B)FLUORANTHENE	1.0	U	
BENZO(G,H,I)PERYLENE	1.0	U	
BENZO(K)FLUORANTHENE	1.0	U	
CHRYSENE	1.0	U	
DIBENZO(A,H)ANTHRACENE	1.0	U	
FLUORANTHENE	0.20	J	P
FLUORENE	1.0	U	
INDENO(1,2,3-CD)PYRENE	1.0	U	
NAPHTHALENE	2.3		
PHENANTHRENE	1.0	U	
PYRENE	1.0	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1.0	U	
2-METHYLNAPHTHALENE	1.0	U	
ACENAPHTHENE	1.0	U	
ACENAPHTHYLENE	1.0	U	
ANTHRACENE	1.0	U	
BENZO(A)ANTHRACENE	1.0	U	
BENZO(A)PYRENE	1.0	U	
BENZO(B)FLUORANTHENE	1.0	U	
BENZO(G,H,I)PERYLENE	1.0	U	
BENZO(K)FLUORANTHENE	1.0	U	
CHRYSENE	1.0	U	
DIBENZO(A,H)ANTHRACENE	1.0	U	
FLUORANTHENE	1.0	U	
FLUORENE	1.0	U	
INDENO(1,2,3-CD)PYRENE	1.0	U	
NAPHTHALENE	1.0	U	
PHENANTHRENE	1.0	U	
PYRENE	1.0	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	27		
2-METHYLNAPHTHALENE	22		
ACENAPHTHENE	1.0	U	
ACENAPHTHYLENE	1.0	U	
ANTHRACENE	1.0	U	
BENZO(A)ANTHRACENE	1.0	U	
BENZO(A)PYRENE	1.0	U	
BENZO(B)FLUORANTHENE	1.0	U	
BENZO(G,H,I)PERYLENE	1.0	U	
BENZO(K)FLUORANTHENE	1.0	U	
CHRYSENE	1.0	U	
DIBENZO(A,H)ANTHRACENE	1.0	U	
FLUORANTHENE	1.0	U	
FLUORENE	1.0	U	
INDENO(1,2,3-CD)PYRENE	1.0	U	
NAPHTHALENE	35		
PHENANTHRENE	0.31	J	P
PYRENE	1.0	U	

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SDG: 4077 MEDIA: WATER DATA FRACTION: PAH

nsample	TFSGLMW0201	nsample	TFSGLMW0301	nsample	TFSGLMW0401
samp_date	5/11/2003	samp_date	5/10/2003	samp_date	5/11/2003
lab_id	4077-008	lab_id	4077-003	lab_id	4077-014
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1.3		
2-METHYLNAPHTHALENE	1.0	U	
ACENAPHTHENE	1.0	U	
ACENAPHTHYLENE	1.0	U	
ANTHRACENE	1.0	U	
BENZO(A)ANTHRACENE	1.0	U	
BENZO(A)PYRENE	1.0	U	
BENZO(B)FLUORANTHENE	1.0	U	
BENZO(G,H,I)PERYLENE	1.0	U	
BENZO(K)FLUORANTHENE	1.0	U	
CHRYSENE	1.0	U	
DIBENZO(A,H)ANTHRACENE	1.0	U	
FLUORANTHENE	1.0	U	
FLUORENE	1.0	U	
INDENO(1,2,3-CD)PYRENE	1.0	U	
NAPHTHALENE	2.0		
PHENANTHRENE	1.0	U	
PYRENE	1.0	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1.0	U	
2-METHYLNAPHTHALENE	1.0	U	
ACENAPHTHENE	1.0	U	
ACENAPHTHYLENE	1.0	U	
ANTHRACENE	1.0	U	
BENZO(A)ANTHRACENE	1.0	U	
BENZO(A)PYRENE	1.0	U	
BENZO(B)FLUORANTHENE	1.0	U	
BENZO(G,H,I)PERYLENE	1.0	U	
BENZO(K)FLUORANTHENE	1.0	U	
CHRYSENE	1.0	U	
DIBENZO(A,H)ANTHRACENE	1.0	U	
FLUORANTHENE	1.0	U	
FLUORENE	1.0	U	
INDENO(1,2,3-CD)PYRENE	1.0	U	
NAPHTHALENE	1.0	U	
PHENANTHRENE	1.0	U	
PYRENE	1.0	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	84		
2-METHYLNAPHTHALENE	85		
ACENAPHTHENE	0.64	J	P
ACENAPHTHYLENE	1.0	U	
ANTHRACENE	1.0	U	
BENZO(A)ANTHRACENE	1.0	U	
BENZO(A)PYRENE	1.0	U	
BENZO(B)FLUORANTHENE	1.0	U	
BENZO(G,H,I)PERYLENE	1.0	U	
BENZO(K)FLUORANTHENE	1.0	U	
CHRYSENE	1.0	U	
DIBENZO(A,H)ANTHRACENE	1.0	U	
FLUORANTHENE	1.0	U	
FLUORENE	0.59	J	P
INDENO(1,2,3-CD)PYRENE	1.0	U	
NAPHTHALENE	120		
PHENANTHRENE	1.0	U	
PYRENE	1.0	U	

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SDG: 4077 MEDIA: WATER DATA FRACTION: PAH

nsample	TFSGLMW0501	nsample	TFSGLMW0601	nsample	TFSGLMW0701
samp_date	5/10/2003	samp_date	5/10/2003	samp_date	5/10/2003
lab_id	4077-002	lab_id	4077-005	lab_id	4077-001
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1.0	U	
2-METHYLNAPHTHALENE	1.0	U	
ACENAPHTHENE	1.0	U	
ACENAPHTHYLENE	1.0	U	
ANTHRACENE	1.0	U	
BENZO(A)ANTHRACENE	1.0	U	
BENZO(A)PYRENE	1.0	U	
BENZO(B)FLUORANTHENE	1.0	U	
BENZO(G,H,I)PERYLENE	1.0	U	
BENZO(K)FLUORANTHENE	1.0	U	
CHRYSENE	1.0	U	
DIBENZO(A,H)ANTHRACENE	1.0	U	
FLUORANTHENE	1.0	U	
FLUORENE	1.0	U	
INDENO(1,2,3-CD)PYRENE	1.0	U	
NAPHTHALENE	1.0	U	
PHENANTHRENE	1.0	U	
PYRENE	1.0	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1.0	U	
2-METHYLNAPHTHALENE	1.0	U	
ACENAPHTHENE	1.0	U	
ACENAPHTHYLENE	1.0	U	
ANTHRACENE	1.0	U	
BENZO(A)ANTHRACENE	1.0	U	
BENZO(A)PYRENE	1.0	U	
BENZO(B)FLUORANTHENE	1.0	U	
BENZO(G,H,I)PERYLENE	1.0	U	
BENZO(K)FLUORANTHENE	1.0	U	
CHRYSENE	1.0	U	
DIBENZO(A,H)ANTHRACENE	1.0	U	
FLUORANTHENE	1.0	U	
FLUORENE	1.0	U	
INDENO(1,2,3-CD)PYRENE	1.0	U	
NAPHTHALENE	1.0	U	
PHENANTHRENE	1.0	U	
PYRENE	1.0	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1.0	U	
2-METHYLNAPHTHALENE	1.0	U	
ACENAPHTHENE	1.1		
ACENAPHTHYLENE	1.0	U	
ANTHRACENE	1.0	U	
BENZO(A)ANTHRACENE	1.0	U	
BENZO(A)PYRENE	1.0	U	
BENZO(B)FLUORANTHENE	1.0	U	
BENZO(G,H,I)PERYLENE	1.0	U	
BENZO(K)FLUORANTHENE	1.0	U	
CHRYSENE	1.0	U	
DIBENZO(A,H)ANTHRACENE	1.0	U	
FLUORANTHENE	1.0	U	
FLUORENE	1.0	U	
INDENO(1,2,3-CD)PYRENE	1.0	U	
NAPHTHALENE	0.22	J	P
PHENANTHRENE	1.0	U	
PYRENE	1.0	U	

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SDG: 4077 MEDIA: WATER DATA FRACTION: PAH

nsample	TFSGLMW0901	nsample	TFSGLMW1101	nsample	TFSGLMW1201
samp_date	5/10/2003	samp_date	5/11/2003	samp_date	5/10/2003
lab_id	4077-006	lab_id	4077-016	lab_id	4077-004
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1.0	U	
2-METHYLNAPHTHALENE	1.0	U	
ACENAPHTHENE	1.0	U	
ACENAPHTHYLENE	1.0	U	
ANTHRACENE	1.0	U	
BENZO(A)ANTHRACENE	1.0	U	
BENZO(A)PYRENE	1.0	U	
BENZO(B)FLUORANTHENE	1.0	U	
BENZO(G,H,I)PERYLENE	1.0	U	
BENZO(K)FLUORANTHENE	1.0	U	
CHRYSENE	1.0	U	
DIBENZO(A,H)ANTHRACENE	1.0	U	
FLUORANTHENE	1.0	U	
FLUORENE	1.0	U	
INDENO(1,2,3-CD)PYRENE	1.0	U	
NAPHTHALENE	1.0	U	
PHENANTHRENE	1.0	U	
PYRENE	1.0	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1.0	U	
2-METHYLNAPHTHALENE	1.0	U	
ACENAPHTHENE	1.0	U	
ACENAPHTHYLENE	1.0	U	
ANTHRACENE	1.0	U	
BENZO(A)ANTHRACENE	1.0	U	
BENZO(A)PYRENE	1.0	U	
BENZO(B)FLUORANTHENE	1.0	U	
BENZO(G,H,I)PERYLENE	1.0	U	
BENZO(K)FLUORANTHENE	1.0	U	
CHRYSENE	1.0	U	
DIBENZO(A,H)ANTHRACENE	1.0	U	
FLUORANTHENE	1.0	U	
FLUORENE	1.0	U	
INDENO(1,2,3-CD)PYRENE	1.0	U	
NAPHTHALENE	1.0	U	
PHENANTHRENE	1.0	U	
PYRENE	1.0	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	2.3		
2-METHYLNAPHTHALENE	1.0	U	
ACENAPHTHENE	1.0	U	
ACENAPHTHYLENE	1.0	U	
ANTHRACENE	1.0	U	
BENZO(A)ANTHRACENE	1.0	U	
BENZO(A)PYRENE	1.0	U	
BENZO(B)FLUORANTHENE	1.0	U	
BENZO(G,H,I)PERYLENE	1.0	U	
BENZO(K)FLUORANTHENE	1.0	U	
CHRYSENE	1.0	U	
DIBENZO(A,H)ANTHRACENE	1.0	U	
FLUORANTHENE	1.0	U	
FLUORENE	1.0	U	
INDENO(1,2,3-CD)PYRENE	1.0	U	
NAPHTHALENE	2.2		
PHENANTHRENE	1.0	U	
PYRENE	1.0	U	

PROJ_NO: 5079

SDG: 4077 MEDIA: WATER DATA FRACTION: PAH

nsample	TFSGLMW1401	nsample	TFSGLP0101
samp_date	5/11/2003	samp_date	5/11/2003
lab_id	4077-018	lab_id	4077-015
qc_type	NM	qc_type	NM
units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1.0	U	
2-METHYLNAPHTHALENE	1.0	U	
ACENAPHTHENE	1.0	U	
ACENAPHTHYLENE	1.0	U	
ANTHRACENE	1.0	U	
BENZO(A)ANTHRACENE	1.0	U	
BENZO(A)PYRENE	1.0	U	
BENZO(B)FLUORANTHENE	1.0	U	
BENZO(G,H,I)PERYLENE	1.0	U	
BENZO(K)FLUORANTHENE	1.0	U	
CHRYSENE	1.0	U	
DIBENZO(A,H)ANTHRACENE	1.0	U	
FLUORANTHENE	1.0	U	
FLUORENE	1.0	U	
INDENO(1,2,3-CD)PYRENE	1.0	U	
NAPHTHALENE	1.0	U	
PHENANTHRENE	1.0	U	
PYRENE	1.0	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1.0	U	
2-METHYLNAPHTHALENE	1.0	U	
ACENAPHTHENE	1.0	U	
ACENAPHTHYLENE	1.0	U	
ANTHRACENE	1.0	U	
BENZO(A)ANTHRACENE	1.0	U	
BENZO(A)PYRENE	1.0	U	
BENZO(B)FLUORANTHENE	1.0	U	
BENZO(G,H,I)PERYLENE	1.0	U	
BENZO(K)FLUORANTHENE	1.0	U	
CHRYSENE	1.0	U	
DIBENZO(A,H)ANTHRACENE	1.0	U	
FLUORANTHENE	1.0	U	
FLUORENE	1.0	U	
INDENO(1,2,3-CD)PYRENE	1.0	U	
NAPHTHALENE	1.0	U	
PHENANTHRENE	1.0	U	
PYRENE	1.0	U	

PROJ_NO: 5079

SDG: 4077 MEDIA: WATER DATA FRACTION: PET

nsample	0503-DUP-01	nsample	0503-RB-01	nsample	TFSGLMW0101
samp_date	5/11/2003	samp_date	5/12/2003	samp_date	5/11/2003
lab_id	4077-017	lab_id	4077-009	lab_id	4077-007
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/L	units	MG/L	units	MG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:	TFSGLMW0201	DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	5.8	U	A

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	1.6	U	A

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	17		

PROJ_NO: 5079

SDG: 4077 MEDIA: WATER DATA FRACTION: PET

nsample	TFSGLMW0201	nsample	TFSGLMW0301	nsample	TFSGLMW0401
samp_date	5/11/2003	samp_date	5/10/2003	samp_date	5/11/2003
lab_id	4077-008	lab_id	4077-003	lab_id	4077-014
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/L	units	MG/L	units	MG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	6.4		

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	1.4	U	A

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	13		

PROJ_NO: 5079

SDG: 4077 MEDIA: WATER DATA FRACTION: PET

nsample	TFSGLMW0501	nsample	TFSGLMW0601	nsample	TFSGLMW0701
samp_date	5/10/2003	samp_date	5/10/2003	samp_date	5/10/2003
lab_id	4077-002	lab_id	4077-005	lab_id	4077-001
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/L	units	MG/L	units	MG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	1.5	U	A

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	1.8	U	A

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	1.5	U	A

PROJ_NO: 5079

SDG: 4077 MEDIA: WATER DATA FRACTION: PET

nsample	TFSGLMW0901	nsample	TFSGLMW1101	nsample	TFSGLMW1201
samp_date	5/10/2003	samp_date	5/11/2003	samp_date	5/10/2003
lab_id	4077-006	lab_id	4077-016	lab_id	4077-004
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/L	units	MG/L	units	MG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	2.0	U	A

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	2.1	U	A

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	3.2	U	A

PROJ_NO: 5079

SDG: 4077 MEDIA: WATER DATA FRACTION: PET

nsample	TFSGLMW1401	nsample	TFSGLP0101
samp_date	5/11/2003	samp_date	5/11/2003
lab_id	4077-018	lab_id	4077-015
qc_type	NM	qc_type	NM
units	MG/L	units	MG/L
Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	1.8	U	A

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	6.6		

PROJ_NO: 5079

SDG: 4077 MEDIA: SOIL DATA FRACTION: M

nsample	BCBM-CONF-01	nsample	BCBM-CONF-02	nsample	BCBM-CONF-03
samp_date	5/12/2003	samp_date	5/12/2003	samp_date	5/12/2003
lab_id	4077-010	lab_id	4077-011	lab_id	4077-012
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	92	Pct_Solids	92	Pct_Solids	92
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ARSENIC	0.543	U	
IRON	2310		

Parameter	Result	Val Qual	Qual Code
ARSENIC	0.543	U	
IRON	4590		

Parameter	Result	Val Qual	Qual Code
ARSENIC	0.543	U	
IRON	8220		

PROJ_NO: 5079

SDG: 4077 MEDIA: SOIL DATA FRACTION: M

nsample	BCBM-CONF-04
samp_date	5/12/2003
lab_id	4077-013
qc_type	NM
units	MG/KG
Pct_Solids	93
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ARSENIC	0.538	U	
IRON	3610		

PROJ_NO: 5079

SDG: 4077 MEDIA: WATER DATA FRACTION: M

nsample	0503-DUP-01	nsample	0503-RB-01	nsample	TFSGLMW0101
samp_date	5/11/2003	samp_date	5/12/2003	samp_date	5/11/2003
lab_id	4077-017	lab_id	4077-009	lab_id	4077-007
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:	TFSGLMW0201	DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
LEAD	10	UJ	C

Parameter	Result	Val Qual	Qual Code
LEAD	10	UJ	C

Parameter	Result	Val Qual	Qual Code
LEAD	45.2		

PROJ_NO: 5079

SDG: 4077 MEDIA: WATER DATA FRACTION: M

nsample	TFSGLMW0201	nsample	TFSGLMW0301	nsample	TFSGLMW0401
samp_date	5/11/2003	samp_date	5/10/2003	samp_date	5/11/2003
lab_id	4077-008	lab_id	4077-003	lab_id	4077-014
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
LEAD	10	UJ	C

Parameter	Result	Val Qual	Qual Code
LEAD	10	UJ	C

Parameter	Result	Val Qual	Qual Code
LEAD	10	UJ	C

PROJ_NO: 5079

SDG: 4077 MEDIA: WATER DATA FRACTION: M

nsample	TFSGLMW0501	nsample	TFSGLMW0601	nsample	TFSGLMW0701
samp_date	5/10/2003	samp_date	5/10/2003	samp_date	5/10/2003
lab_id	4077-002	lab_id	4077-005	lab_id	4077-001
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
LEAD	10	UJ	C

Parameter	Result	Val Qual	Qual Code
LEAD	10	UJ	C

Parameter	Result	Val Qual	Qual Code
LEAD	10	UJ	C

PROJ_NO: 5079

SDG: 4077 MEDIA: WATER DATA FRACTION: M

nsample	TFSGLMW0901	nsample	TFSGLMW1101	nsample	TFSGLMW1201
samp_date	5/10/2003	samp_date	5/11/2003	samp_date	5/10/2003
lab_id	4077-006	lab_id	4077-016	lab_id	4077-004
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
LEAD	10	UJ	C

Parameter	Result	Val Qual	Qual Code
LEAD	10	UJ	C

Parameter	Result	Val Qual	Qual Code
LEAD	10	UJ	C

PROJ_NO: 5079

SDG: 4077 MEDIA: WATER DATA FRACTION: M

nsample	TFSGLMW1401	nsample	TFSGLP0101
samp_date	5/11/2003	samp_date	5/11/2003
lab_id	4077-018	lab_id	4077-015
qc_type	NM	qc_type	NM
units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
LEAD	9.2	J	P

Parameter	Result	Val Qual	Qual Code
LEAD	10	UJ	C

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

0503-DUP-01

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO. :	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4077-017
Sample wt/vol:	5.00 (g/mL) ML	Lab File ID:	A051603\A07092
Level (low/med):	LOW	Date Received:	05/13/03
% Moisture: not dec.		Date Analyzed:	05/16/03
GC Column:	ID: .32 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylenes (total)	3.0	U

1 E
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
0503-DUP-01

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: _____ SAS No.: SMP SDG No.: N/A

Matrix : WATER Lab Sample Id: 4077-017

Sample wt/vol: 35 (g/ml): ML Lab File ID: 05-21-03\E02986

% Moisture: _____ Decanted: (Y/N) _____ Date Received: 05/13/03

Extraction : (Type) EXT_SW8011 Date Extracted: 05/20/03

Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/21/03

Injection Volume: 2 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): _____ pH: _____ Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

0503-RB-01

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO. :	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4077-009
Sample wt/vol:	5.00 (g/mL) ML	Lab File ID:	A051603\A07087
Level (low/med):	LOW	Date Received:	05/13/03
% Moisture: not dec.		Date Analyzed:	05/16/03
GC Column:	ID: .32 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylenes (total)	3.0	U

1 E

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

0503-RB-01

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: _____ SAS No.: SMP SDG No.: N/A

Matrix : WATER Lab Sample Id: 4077-009

Sample wt/vol: 35 (g/ml): ML Lab File ID: 05-21-03\E02982

% Moisture: _____ Decanted: (Y/N) _____ Date Received: 05/13/03

Extraction : (Type) EXT_SW8011 Date Extracted: 05/20/03

Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/21/03

Injection Volume: 2 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): _____ pH: _____ Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB00341/TB00342

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO. :	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4077-019
Sample wt/vol:	5.00 (g/mL) ML	Lab File ID:	A051603\A07090
Level (low/med):	LOW	Date Received:	05/13/03
% Moisture: not dec.		Date Analyzed:	05/16/03
GC Column:	ID: .32 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylenes (total)	3.0	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW0101

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO. :	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4077-007
Sample wt/vol:	5.00 (g/mL) ML	Lab File ID:	A051603\A07085
Level (low/med):	LOW	Date Received:	05/13/03
% Moisture: not dec.		Date Analyzed:	05/16/03
GC Column:	ID: .32 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylenes (total)	3.0	U

1 E
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
TFSGLMW0101

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342
Lab Code : ACCURA Case No.: _____ SAS No.: SMP SDG No.: N/A
Matrix : WATER Lab Sample Id: 4077-007
Sample wt/vol: 35 (g/ml): ML Lab File ID: 05-21-03\E02980
% Moisture: _____ Decanted: (Y/N) _____ Date Received: 05/13/03
Extraction : (Type) EXT_SW8011 Date Extracted: 05/20/03
Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/21/03
Injection Volume: 2 (µ L) Dilution Factor: 1.0
GPC Cleanup (Y/N): _____ pH: _____ Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW0201

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO. :	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4077-008
Sample wt/vol:	5.00 (g/mL) ML	Lab File ID:	A051603\A07086
Level (low/med):	LOW	Date Received:	05/13/03
% Moisture: not dec.		Date Analyzed:	05/16/03
GC Column:	ID: .32 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1634-04-4	Methyl tert-butyl ether	1.1	
108-88-3	Toluene	1.0	U
1330-20-7	Xylenes (total)	3.0	U

1 E
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
TFSGLMW0201

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342
Lab Code : ACCURA Case No.: _____ SAS No.: SMP SDG No.: N/A
Matrix : WATER Lab Sample Id: 4077-008
Sample wt/vol: 35 (g/ml): ML Lab File ID: 05-21-03\E02981
% Moisture: _____ Decanted: (Y/N) _____ Date Received: 05/13/03
Extraction : (Type) EXT_SW8011 Date Extracted: 05/20/03
Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/21/03
Injection Volume: 2 (µ L) Dilution Factor: 1.0
GPC Cleanup (Y/N): _____ pH: _____ Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW0301

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO. :	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4077-003
Sample wt/vol:	5.00 (g/mL) ML	Lab File ID:	A051603\A07081
Level (low/med):	LOW	Date Received:	05/13/03
% Moisture: not dec.		Date Analyzed:	05/16/03
GC Column:	ID: .32 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-88-3	Toluene	0.79	J
1330-20-7	Xylenes (total)	3.0	U

1 E
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
TFSGLMW0301

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: _____ SAS No.: SMP SDG No.: N/A

Matrix : WATER Lab Sample Id: 4077-003

Sample wt/vol: 35 (g/ml): ML Lab File ID: 05-21-03\E02976

% Moisture: _____ Decanted: (Y/N) _____ Date Received: 05/13/03

Extraction : (Type) EXT_SW8011 Date Extracted: 05/20/03

Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/21/03

Injection Volume: 2 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): _____ pH: _____ Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW0401

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO. :	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4077-014
Sample wt/vol:	5.00 (g/mL) ML	Lab File ID:	A051603\A07088
Level (low/med):	LOW	Date Received:	05/13/03
% Moisture: not dec.		Date Analyzed:	05/16/03
GC Column:	ID: .32 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(µ L)	Soil Aliquot Volume:	(µ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-43-2	Benzene	13	
100-41-4	Ethylbenzene	4.7	
1634-04-4	Methyl tert-butyl ether	1.1	
108-88-3	Toluene	1.0	U
1330-20-7	Xylenes (total)	3.9	

1 E
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
TFSGLMW0401

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: _____ SAS No.: SMP SDG No.: N/A

Matrix : WATER Lab Sample Id: 4077-014

Sample wt/vol: 35 (g/ml): ML Lab File ID: 05-21-03\E02983

% Moisture: _____ Decanted: (Y/N) _____ Date Received: 05/13/03

Extraction : (Type) EXT_SW8011 Date Extracted: 05/20/03

Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/21/03

Injection Volume: 2 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): _____ pH: _____ Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW0501

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO. :	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4077-002
Sample wt/vol:	5.00 (g/mL) ML	Lab File ID:	A051603\A07080
Level (low/med):	LOW	Date Received:	05/13/03
% Moisture: not dec.		Date Analyzed:	05/16/03
GC Column:	ID: .32 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-88-3	Toluene	1.1	
1330-20-7	Xylenes (total)	3.0	U

1 E

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW0501

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: _____ SAS No.: SMP SDG No.: N/A

Matrix : WATER Lab Sample Id: 4077-002

Sample wt/vol: 35 (g/ml): ML Lab File ID: 05-21-03\E02973

% Moisture: _____ Decanted: (Y/N) _____ Date Received: 05/13/03

Extraction : (Type) EXT_SW8011 Date Extracted: 05/20/03

Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/21/03

Injection Volume: 2 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): _____ pH: _____ Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW0601

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO. :	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4077-005
Sample wt/vol:	5.00 (g/mL) ML	Lab File ID:	A051603\A07083
Level (low/med):	LOW	Date Received:	05/13/03
% Moisture: not dec.		Date Analyzed:	05/16/03
GC Column:	ID: .32 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylenes (total)	3.0	U

1 E
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
TFSGLMW0601

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: _____ SAS No.: SMP SDG No.: N/A

Matrix : WATER Lab Sample Id: 4077-005

Sample wt/vol: 35 (g/ml): ML Lab File ID: 05-21-03\E02978

% Moisture: _____ Decanted: (Y/N) _____ Date Received: 05/13/03

Extraction : (Type) EXT_SW8011 Date Extracted: 05/20/03

Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/21/03

Injection Volume: 2 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): _____ pH: _____ Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

CT0297
SDG 4077
OV
PAH
PET
M

EPA SAMPLE NO.

TFSGLMW0701

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO. :	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4077-001
Sample wt/vol:	5.00 (g/mL) ML	Lab File ID:	A051603\A07079
Level (low/med):	LOW	Date Received:	05/13/03
% Moisture: not dec.		Date Analyzed:	05/16/03
GC Column:	ID: .32 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-43-2	Benzene	0.82	J
100-41-4	Ethylbenzene	4.6	
1634-04-4	Methyl tert-butyl ether	2.4	
108-88-3	Toluene	1.0	U
1330-20-7	Xylenes (total)	3.0	U

1 E

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW0701

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: _____ SAS No.: SMP SDG No.: N/A

Matrix : WATER Lab Sample Id: 4077-001

Sample wt/vol: 35 (g/ml): ML Lab File ID: 05-21-03\E02972

% Moisture: _____ Decanted: (Y/N) _____ Date Received: 05/13/03

Extraction : (Type) EXT_SW8011 Date Extracted: 05/20/03

Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/21/03

Injection Volume: 2 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): _____ pH: _____ Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW0901

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO. :	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4077-006
Sample wt/vol:	5.00 (g/mL) ML	Lab File ID:	A051603\A07084
Level (low/med):	LOW	Date Received:	05/13/03
% Moisture: not dec.		Date Analyzed:	05/16/03
GC Column:	ID: .32 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylenes (total)	3.0	U

1 E

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW0901

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: _____ SAS No.: SMP SDG No.: N/A

Matrix : WATER Lab Sample Id: 4077-006

Sample wt/vol: 35 (g/ml): ML Lab File ID: 05-21-03\E02979

% Moisture: _____ Decanted: (Y/N) _____ Date Received: 05/13/03

Extraction : (Type) EXT_SW8011 Date Extracted: 05/20/03

Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/21/03

Injection Volume: 2 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): _____ pH: _____ Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW1101

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO. :	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4077-016
Sample wt/vol:	5.00 (g/mL) ML	Lab File ID:	A051603\A07091
Level (low/med):	LOW	Date Received:	05/13/03
% Moisture: not dec.		Date Analyzed:	05/16/03
GC Column:	ID: .32 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylenes (total)	3.0	U

1 E

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW1101

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: _____ SAS No.: SMP SDG No.: N/A

Matrix : WATER Lab Sample Id: 4077-016

Sample wt/vol: 35 (g/ml): ML Lab File ID: 05-21-03\E02985

% Moisture: _____ Decanted: (Y/N) _____ Date Received: 05/13/03

Extraction : (Type) EXT_SW8011 Date Extracted: 05/20/03

Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/21/03

Injection Volume: 2 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): _____ pH: _____ Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW1201

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO. :	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4077-004
Sample wt/vol:	5.00 (g/mL) ML	Lab File ID:	A051603\A07082
Level (low/med):	LOW	Date Received:	05/13/03
% Moisture: not dec.		Date Analyzed:	05/16/03
GC Column:	ID: .32 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-43-2	Benzene	3.6	
100-41-4	Ethylbenzene	1.8	
1634-04-4	Methyl tert-butyl ether	1.0	U
108-88-3	Toluene	1.9	
1330-20-7	Xylenes (total)	5.0	

1 E
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
TFSGLMW1201

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: _____ SAS No.: SMP SDG No.: N/A

Matrix : WATER Lab Sample Id: 4077-004

Sample wt/vol: 35 (g/ml): ML Lab File ID: 05-21-03\E02977

% Moisture: _____ Decanted: (Y/N) _____ Date Received: 05/13/03

Extraction : (Type) EXT_SW8011 Date Extracted: 05/20/03

Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/21/03

Injection Volume: 2 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): _____ pH: _____ Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW1401

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO. :	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4077-018
Sample wt/vol:	5.00 (g/mL) ML	Lab File ID:	A051603\A07093
Level (low/med):	LOW	Date Received:	05/13/03
% Moisture: not dec.		Date Analyzed:	05/16/03
GC Column:	ID: .32 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylenes (total)	3.0	U

1 E
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
TFSGLMW1401

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: _____ SAS No.: SMP SDG No.: N/A

Matrix : WATER Lab Sample Id: 4077-018

Sample wt/vol: 35 (g/ml): ML Lab File ID: 05-21-03\E02987

% Moisture: _____ Decanted: (Y/N) _____ Date Received: 05/13/03

Extraction : (Type) EXT_SW8011 Date Extracted: 05/20/03

Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/21/03

Injection Volume: 2 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): _____ pH: _____ Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLP0101

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO. :	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4077-015
Sample wt/vol:	5.00 (g/mL) ML	Lab File ID:	A051603\A07089
Level (low/med):	LOW	Date Received:	05/13/03
% Moisture: not dec.		Date Analyzed:	05/16/03
GC Column:	ID: .32 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylenes (total)	3.0	U

1 E
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
TFSGLP0101

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: _____ SAS No.: SMP SDG No.: N/A

Matrix : WATER Lab Sample Id: 4077-015

Sample wt/vol: 35 (g/ml): ML Lab File ID: 05-21-03\E02984

% Moisture: _____ Decanted: (Y/N) _____ Date Received: 05/13/03

Extraction : (Type) EXT_SW8011 Date Extracted: 05/20/03

Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/21/03

Injection Volume: 2 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): _____ pH: _____ Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1C

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

0503-DUP-01

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA Case No.:

SAS No.: SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 4077-017

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1B052103\B42256

Level : (low/med) LOW

Date Received: 05/13/03

% Moisture: Decanted: (Y/N) N

Date Extracted: 05/16/03

Concentrated Extract Volume: 1000 (µ L)

Date Analyzed: 05/21/03

Injection Volume: 1.0 (µ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N pH: N/A

Extraction : (Type) SW3520C

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
90-12-0	1-Methylnaphthalene	1.6	
91-57-6	2-Methylnaphthalene	1.0	U
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	0.20	J
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	2.3	
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

1D
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
0503-RB-01

Lab Name : ACCURA ANALYTICAL LAB
Contract: N5079-WR342
Lab Code : ACCURA Case No.:
SAS No.: SDG No.: N/A
Matrix : (soil/water) WATER
Lab Sample Id: 4077-009
Sample wt/vol: 1000 (g/ml): ML
Lab File ID: 1B052103\B42252
Level : (low/med) LOW
Date Received: 05/13/03
% Moisture: Decanted: (Y/N) N
Date Extracted: 05/16/03
Concentrated Extract Volume: 1000 (µ L)
Date Analyzed: 05/21/03
Injection Volume: 1.0 (µ L)
Dilution Factor: 1.0
GPC Cleanup (Y/N): N pH: N/A
Extraction : (Type) SW3520C

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
90-12-0	1-Methylnaphthalene	1.0	U
91-57-6	2-Methylnaphthalene	1.0	U
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	1.0	U
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

1C

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW0101

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.:

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 4077-007

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1B052103\B42250

Level : (low/med) LOW

Date Received: 05/13/03

% Moisture:

Decanted: (Y/N) N

Date Extracted: 05/16/03

Concentrated Extract Volume: 1000 (µ L)

Date Analyzed: 05/21/03

Injection Volume: 1.0 (µ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N

pH: N/A

Extraction : (Type) SW3520C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
90-12-0	1-Methylnaphthalene	27	
91-57-6	2-Methylnaphthalene	22	
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	35	
85-01-8	Phenanthrene	0.31	J
129-00-0	Pyrene	1.0	U

1D
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
TFSGLMW0201

Lab Name : ACCURA ANALYTICAL LAB
Contract: N5079-WR342
Lab Code : ACCURA
Case No.:
SAS No.:
SDG No.: N/A
Matrix : (soil/water) WATER
Lab Sample Id: 4077-008
Sample wt/vol: 1000 (g/ml): ML
Lab File ID: 1B052103\B42251
Level : (low/med) LOW
Date Received: 05/13/03
% Moisture:
Decanted: (Y/N) N
Date Extracted: 05/16/03
Concentrated Extract Volume: 1000 (µ L)
Date Analyzed: 05/21/03
Injection Volume: 1.0 (µ L)
Dilution Factor: 1.0
GPC Cleanup (Y/N): N
pH: N/A
Extraction : (Type) SW3520C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
90-12-0	1-Methylnaphthalene	1.3	
91-57-6	2-Methylnaphthalene	1.0	U
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	2.0	
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

1C

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW0301

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: SAS No.: SDG No.: N/A

Matrix : (soil/water) WATER Lab Sample Id: 4077-003

Sample wt/vol: 1000 (g/ml): ML Lab File ID: 1B052103\B42262

Level : (low/med) LOW Date Received: 05/13/03

% Moisture: Decanted: (Y/N) N Date Extracted: 05/16/03

Concentrated Extract Volume: 1000 (µ L) Date Analyzed: 05/21/03

Injection Volume: 1.0 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): N pH: N/A Extraction : (Type) SW3510C

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
90-12-0	1-Methylnaphthalene	1.0	U
91-57-6	2-Methylnaphthalene	1.0	U
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	1.0	U
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

1D
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
TFSGLMW0401

Lab Name : ACCURA ANALYTICAL LAB
Contract: N5079-WR342
Lab Code : ACCURA
Case No.:
SAS No.:
SDG No.: N/A
Matrix : (soil/water) WATER
Lab Sample Id: 4077-014
Sample wt/vol: 1000 (g/ml): ML
Lab File ID: 1B052103\B42253
Level : (low/med) LOW
Date Received: 05/13/03
% Moisture:
Decanted: (Y/N) N
Date Extracted: 05/16/03
Concentrated Extract Volume: 1000 (µ L)
Date Analyzed: 05/21/03
Injection Volume: 1.0 (µ L)
Dilution Factor: 1.0
GPC Cleanup (Y/N): N
pH: N/A
Extraction : (Type) SW3520C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
90-12-0	1-Methylnaphthalene	84	
91-57-6	2-Methylnaphthalene	85	
83-32-9	Acenaphthene	0.64	J
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	0.59	J
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	120	
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

1C

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW0501

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: SAS No.: SDG No.: N/A

Matrix : (soil/water) WATER Lab Sample Id: 4077-002

Sample wt/vol: 1000 (g/ml): ML Lab File ID: 1B052103\B42261

Level : (low/med) LOW Date Received: 05/13/03

% Moisture: Decanted: (Y/N) N Date Extracted: 05/16/03

Concentrated Extract Volume: 1000 (µ L) Date Analyzed: 05/21/03

Injection Volume: 1.0 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): N pH: N/A Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
90-12-0	1-Methylnaphthalene	1.0	U
91-57-6	2-Methylnaphthalene	1.0	U
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	1.0	U
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

1D
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
TFSGLMW0601

Lab Name : ACCURA ANALYTICAL LAB
Contract: N5079-WR342
Lab Code : ACCURA Case No.:
SAS No.: SDG No.: N/A
Matrix : (soil/water) WATER
Lab Sample Id: 4077-005
Sample wt/vol: 1000 (g/ml): ML
Lab File ID: 1B052003\B42223
Level : (low/med) LOW
Date Received: 05/13/03
% Moisture: Decanted: (Y/N) N
Date Extracted: 05/16/03
Concentrated Extract Volume: 1000 (μ L)
Date Analyzed: 05/20/03
Injection Volume: 1.0 (μ L)
Dilution Factor: 1.0
GPC Cleanup (Y/N): N pH: N/A
Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
90-12-0	1-Methylnaphthalene	1.0	U
91-57-6	2-Methylnaphthalene	1.0	U
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	1.0	U
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

1D
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
TFSGLMW0701

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: SAS No.: SDG No.: N/A

Matrix : (soil/water) WATER Lab Sample Id: 4077-001

Sample wt/vol: 1000 (g/ml): ML Lab File ID: 1B052103\B42260

Level : (low/med) LOW Date Received: 05/13/03

% Moisture: Decanted: (Y/N) N Date Extracted: 05/16/03

Concentrated Extract Volume: 1000 (µ L) Date Analyzed: 05/21/03

Injection Volume: 1.0 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): N pH: N/A Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
90-12-0	1-Methylnaphthalene	1.0	U
91-57-6	2-Methylnaphthalene	1.0	U
83-32-9	Acenaphthene	1.1	
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	0.22	J
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

1C
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
TFSGLMW0901

Lab Name : ACCURA ANALYTICAL LAB
Contract: N5079-WR342
Lab Code : ACCURA
Case No.:
SAS No.:
SDG No.: N/A
Matrix : (soil/water) WATER
Lab Sample Id: 4077-006
Sample wt/vol: 1000 (g/ml): ML
Lab File ID: 1B052103\B42265
Level : (low/med) LOW
Date Received: 05/13/03
% Moisture:
Decanted: (Y/N) N
Date Extracted: 05/16/03
Concentrated Extract Volume: 1000 (µ L)
Date Analyzed: 05/22/03
Injection Volume: 1.0 (µ L)
Dilution Factor: 1.0
GPC Cleanup (Y/N): N
pH: N/A
Extraction : (Type) SW3510C

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
90-12-0	1-Methylnaphthalene	1.0	U
91-57-6	2-Methylnaphthalene	1.0	U
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	1.0	U
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

1D
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
TFSGLMW1101

Lab Name : ACCURA ANALYTICAL LAB
Contract: N5079-WR342
Lab Code : ACCURA
Case No.:
SAS No.:
SDG No.: N/A
Matrix : (soil/water) WATER
Lab Sample Id: 4077-016
Sample wt/vol: 1000 (g/ml): ML
Lab File ID: 1B052103\B42255
Level : (low/med) LOW
Date Received: 05/13/03
% Moisture:
Decanted: (Y/N) N
Date Extracted: 05/16/03
Concentrated Extract Volume: 1000 (µ L)
Date Analyzed: 05/21/03
Injection Volume: 1.0 (µ L)
Dilution Factor: 1.0
GPC Cleanup (Y/N): N
pH: N/A
Extraction : (Type) SW3520C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
90-12-0	1-Methylnaphthalene	1.0	U
91-57-6	2-Methylnaphthalene	1.0	U
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	1.0	U
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

1C

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW1201

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.:

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 4077-004

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1B052103\B42263

Level : (low/med) LOW

Date Received: 05/13/03

% Moisture:

Decanted: (Y/N) N

Date Extracted: 05/16/03

Concentrated Extract Volume: 1000 (µ L)

Date Analyzed: 05/21/03

Injection Volume: 1.0 (µ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N

pH: N/A

Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
90-12-0	1-Methylnaphthalene	2.3	
91-57-6	2-Methylnaphthalene	1.0	U
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	2.2	
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

1D

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW1401

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: _____ SAS No.: _____ SDG No.: N/A

Matrix : (soil/water) WATER Lab Sample Id: 4077-018

Sample wt/vol: 1000 (g/ml): ML Lab File ID: 1B052003\B42226

Level : (low/med) LOW Date Received: 05/13/03

% Moisture: _____ Decanted: (Y/N) N Date Extracted: 05/16/03

Concentrated Extract Volume: 1000 (µ L) Date Analyzed: 05/20/03

Injection Volume: 1.0 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): N pH: N/A Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
90-12-0	1-Methylnaphthalene	1.0	U
91-57-6	2-Methylnaphthalene	1.0	U
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	1.0	U
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

1C

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLP0101

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.:

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 4077-015

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1B052103\B42254

Level : (low/med) LOW

Date Received: 05/13/03

% Moisture:

Decanted: (Y/N) N

Date Extracted: 05/16/03

Concentrated Extract Volume: 1000 (µ L)

Date Analyzed: 05/21/03

Injection Volume: 1.0 (µ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N

pH: N/A

Extraction : (Type) SW3520C

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
90-12-0	1-Methylnaphthalene	1.0	U
91-57-6	2-Methylnaphthalene	1.0	U
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	1.0	U
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

1C

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

0503-DUP-01

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 4077-017

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1O051903\O002227

Level : (low/med) LOW

Date Received: 05/13/03

% Moisture:

Decanted: (Y/N) N

Date Extracted: 05/16/03

Concentrated Extract Volume: 2000 (µ L)

Date Analyzed: 05/20/03

Injection Volume: 1.0 (µ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N

pH: N/A

Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	5.8	B

1D

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

0503-RB-01

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 4077-009

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1O051903\O002223

Level : (low/med) LOW

Date Received: 05/13/03

% Moisture:

Decanted: (Y/N) N

Date Extracted: 05/16/03

Concentrated Extract Volume: 2000 (μ L)

Date Analyzed: 05/20/03

Injection Volume: 1.0 (μ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N

pH: N/A

Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	1.6	JB

1C

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW0101

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 4077-007

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1O051903\O002221

Level : (low/med) LOW

Date Received: 05/13/03

% Moisture:

Decanted: (Y/N) N

Date Extracted: 05/16/03

Concentrated Extract Volume: 2000 (μ L)

Date Analyzed: 05/20/03

Injection Volume: 1.0 (μ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N

pH: N/A

Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	17	

1D

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW0201

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 4077-008

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1O051903\O002222

Level : (low/med) LOW

Date Received: 05/13/03

% Moisture:

Decanted: (Y/N) N

Date Extracted: 05/16/03

Concentrated Extract Volume: 2000 (µ L)

Date Analyzed: 05/20/03

Injection Volume: 1.0 (µ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N

pH: N/A

Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	6.4	B

1C

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW0301

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: SAS No. SDG No.: N/A

Matrix : (soil/water) WATER Lab Sample Id: 4077-003

Sample wt/vol: 1000 (g/ml): ML Lab File ID: 1O051903\O002216

Level : (low/med) LOW Date Received: 05/13/03

% Moisture: Decanted: (Y/N) N Date Extracted: 05/16/03

Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/20/03

Injection Volume: 1.0 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): N pH: N/A Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	1.4	JB

1D
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
TFSGLMW0401

Lab Name : ACCURA ANALYTICAL LAB
Contract: N5079-WR342
Lab Code : ACCURA
Case No.:
SAS No.
SDG No.: N/A
Matrix : (soil/water) WATER
Lab Sample Id: 4077-014
Sample wt/vol: 1000 (g/ml): ML
Lab File ID: 1O051903\O002224
Level : (low/med) LOW
Date Received: 05/13/03
% Moisture:
Decanted: (Y/N) N
Date Extracted: 05/16/03
Concentrated Extract Volume: 2000 (µ L)
Date Analyzed: 05/20/03
Injection Volume: 1.0 (µ L)
Dilution Factor: 1.0
GPC Cleanup (Y/N): N
pH: N/A
Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	13	

1C

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW0501

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: SAS No. SDG No.: N/A

Matrix : (soil/water) WATER Lab Sample Id: 4077-002

Sample wt/vol: 1000 (g/ml): ML Lab File ID: 1O051903\O002215

Level : (low/med) LOW Date Received: 05/13/03

% Moisture: Decanted: (Y/N) N Date Extracted: 05/16/03

Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/20/03

Injection Volume: 1.0 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): N pH: N/A Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	1.5	JB

1D

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW0601

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: SAS No. SDG No.: N/A

Matrix : (soil/water) WATER Lab Sample Id: 4077-005

Sample wt/vol: 1000 (g/ml): ML Lab File ID: 1O051903\O002219

Level : (low/med) LOW Date Received: 05/13/03

% Moisture: Decanted: (Y/N) N Date Extracted: 05/16/03

Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/20/03

Injection Volume: 1.0 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): N pH: N/A Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	1.8	B

1C

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW0701

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 4077-001

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1O051903\O002214

Level : (low/med) LOW

Date Received: 05/13/03

% Moisture:

Decanted: (Y/N) N

Date Extracted: 05/16/03

Concentrated Extract Volume: 2000 (μ L)

Date Analyzed: 05/20/03

Injection Volume: 1.0 (μ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N

pH: N/A

Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	1.5	JB

1D

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW0901

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 4077-006

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1O051903\O002220

Level : (low/med) LOW

Date Received: 05/13/03

% Moisture:

Decanted: (Y/N) N

Date Extracted: 05/16/03

Concentrated Extract Volume: 2000 (µ L)

Date Analyzed: 05/20/03

Injection Volume: 1.0 (µ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N

pH: N/A

Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	2.0	B

1C

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW1101

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 4077-016

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1O051903\O002226

Level : (low/med) LOW

Date Received: 05/13/03

% Moisture:

Decanted: (Y/N) N

Date Extracted: 05/16/03

Concentrated Extract Volume: 2000 (μ L)

Date Analyzed: 05/20/03

Injection Volume: 1.0 (μ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N

pH: N/A

Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	2.1	B

1D

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW1201

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: SAS No. SDG No.: N/A

Matrix : (soil/water) WATER Lab Sample Id: 4077-004

Sample wt/vol: 1000 (g/ml): ML Lab File ID: 1O051903\O002217

Level : (low/med) LOW Date Received: 05/13/03

% Moisture: Decanted: (Y/N) N Date Extracted: 05/16/03

Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/20/03

Injection Volume: 1.0 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): N pH: N/A Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	3.2	B

1C

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLMW1401

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: SAS No. SDG No.: N/A

Matrix : (soil/water) WATER Lab Sample Id: 4077-018

Sample wt/vol: 1000 (g/ml): ML Lab File ID: 1O051903\O002228

Level : (low/med) LOW Date Received: 05/13/03

% Moisture: Decanted: (Y/N) N Date Extracted: 05/16/03

Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/20/03

Injection Volume: 1.0 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): N pH: N/A Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	1.8	B

1D

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

TFSGLP0101

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 4077-015

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1O051903\O002225

Level : (low/med) LOW

Date Received: 05/13/03

% Moisture:

Decanted: (Y/N) N

Date Extracted: 05/16/03

Concentrated Extract Volume: 2000 (μ L)

Date Analyzed: 05/20/03

Injection Volume: 1.0 (μ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N

pH: N/A

Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	6.6	B

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

0503-DUP-01

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): WATER Lab Sample ID: 4077-017

Level (low/med): LOW Date Received: 05/13/2003

% Solids: _____

Concentration Units (ug/ L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	10	U		P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

0503-RB-01

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): WATER Lab Sample ID: 4077-009

Level (low/med): LOW Date Received: 05/13/2003

% Solids: _____

Concentration Units (ug/ L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	10	U		P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

0503-RB-01 SD

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): WATER Lab Sample ID: 4077-009 SD

Level (low/med): LOW Date Received: 05/13/2003

% Solids: _____

Concentration Units (ug/ L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	10	U		P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW0101

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): WATER Lab Sample ID: 4077-007

Level (low/med): LOW Date Received: 05/13/2003

% Solids: _____

Concentration Units (ug/ L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	45.2			P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW0201

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): WATER Lab Sample ID: 4077-008

Level (low/med): LOW Date Received: 05/13/2003

% Solids: _____

Concentration Units (ug/ L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	10	U		P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW0301

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): WATER Lab Sample ID: 4077-003

Level (low/med): LOW Date Received: 05/13/2003

% Solids: _____

Concentration Units (ug/ L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	10	U		P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW0401

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): WATER Lab Sample ID: 4077-014

Level (low/med): LOW Date Received: 05/13/2003

% Solids: _____

Concentration Units (ug/ L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	10	U		P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW0501

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): WATER Lab Sample ID: 4077-002

Level (low/med): LOW Date Received: 05/13/2003

% Solids: _____

Concentration Units (ug/ L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	10	U		P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW0601

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): WATER Lab Sample ID: 4077-005

Level (low/med): LOW Date Received: 05/13/2003

% Solids: _____

Concentration Units (ug/ L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	10	U		P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW0701

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): WATER Lab Sample ID: 4077-001

Level (low/med): LOW Date Received: 05/13/2003

% Solids: _____

Concentration Units (ug/ L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	10	U		P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW0901

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): WATER Lab Sample ID: 4077-006

Level (low/med): LOW Date Received: 05/13/2003

% Solids: _____

Concentration Units (ug/ L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	10	U		P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW1101

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): WATER Lab Sample ID: 4077-016

Level (low/med): LOW Date Received: 05/13/2003

% Solids: _____

Concentration Units (ug/ L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	10	U		P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW1201

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): WATER Lab Sample ID: 4077-004

Level (low/med): LOW Date Received: 05/13/2003

% Solids: _____

Concentration Units (ug/ L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	10	U		P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLMW1401

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): WATER Lab Sample ID: 4077-018

Level (low/med): LOW Date Received: 05/13/2003

% Solids: _____

Concentration Units (ug/ L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	9.2	J		P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

TFSGLP0101

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): WATER Lab Sample ID: 4077-015

Level (low/med): LOW Date Received: 05/13/2003

% Solids: _____

Concentration Units (ug/ L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	10	U		P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCBM-CONF-01

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): SOIL Lab Sample ID: 4077-010

Level (low/med): LOW Date Received: 05/13/2003

% Solids: 92

Concentration Units (ug/ L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	.543	U		
7439-89-6	Iron	2310			P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCBM-CONF-02

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): SOIL Lab Sample ID: 4077-011

Level (low/med): LOW Date Received: 05/13/2003

% Solids: 92

Concentration Units (ug/ L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	.543	U		
7439-89-6	Iron	4590			P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCBM-CONF-03

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): SOIL Lab Sample ID: 4077-012

Level (low/med): LOW Date Received: 05/13/2003

% Solids: 92

Concentration Units (ug/ L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	.543	U		
7439-89-6	Iron	8220			P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

BCBM-CONF-04

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No. N/A

Matrix (soil/water): SOIL Lab Sample ID: 4077-013

Level (low/med): LOW Date Received: 05/13/2003

% Solids: 93

Concentration Units (ug/ L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	.538	U		
7439-89-6	Iron	3610			P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

APPENDIX C

SUPPORT DOCUMENTATION

TETRA TECH NUS, INC.

CHAIN OF CUSTODY NUMBER 3826 ADL WOff 4077

PAGE 1 OF 2

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
CTO 297	NAS Key West	Chuck Bryan	803-649-7963	David Fuller - Accura
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
E. McKee, Barry Bogging		Emily McKee	305-216-7108	6017 Financial Drive
		CARRIER/WAYBILL NUMBER		CITY, STATE
		8370 0119 8590 FedEx		Norcross, GA

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2003	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAP (G) COMP (C)	No. OF CONTAINERS	BTEX, MTBE	TRPH	PAH	Lead	EDB	Arsenic	Iron	COMMENTS	
CONTAINER TYPE PLASTIC (P) or GLASS (G)									G	G	G	P	G	G	G		
PRESERVATIVE USED									HCl	HCl	[redacted]	HNO_3					
5/10	1135	TFSGLMW0701	TFS-MW-07	—	—	GW	G	11	X	X	X	X	X				4077-01 1
5/10	1010	TFSGLMW0501	TFS-MW-05	—	—	GW	G	11	X	X	X	X	X				2
5/10	0855	TFSGLMW0301	TFS-MW-03	—	—	GW	G	11	X	X	X	X	X				3
5/10	1130	TFSGLMW1201	TFS-MW-12	—	—	GW	G	11	X	X	X	X	X				4
5/10	10:10	TFSGLMW0601	TFS-MW-06	—	—	GW	G	11	X	X	X	X	X				5
5/10	0855	TFSGLMW0901	TFS-MW-09	—	—	GW	G	11	X	X	X	X	X				6
5/11	1015	TFSGLMW0101	TFS-MW-01	—	—	GW	G	13	X	X	X	X	X			MS/MSD	7
5/11	1210	TFSGLMW0201	TFS-MW-02	—	—	GW	G	11	X	X	X	X	X				8
5/12	0904	0503-RB-01		—	—	QC	G	11	X	X	X	X	X				9
5/12	0800	BCBM-CONF-01	BCBM-CONF-01	0	2	SO	G	2						X	X		4077-01 0
5/12	0805	BCBM-CONF-02	BCBM-CONF-02	0	2	SO	G	2						X	X		1
5/12	0825	BCBM-CONF-03	BCBM-CONF-03	0	2	SO	G	2						X	X		2
5/12	0835	BCBM-CONF-04	BCBM-CONF-04	0	2	SO	G	2						X	X		3

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY: E. McKee	5/12/03	1630	1. RECEIVED BY: FedEx		
2. RELINQUISHED BY: FedEx	051303	09:20	2. RECEIVED BY: [signature]	051303	09:20
3. RELINQUISHED BY:			3. RECEIVED BY:		

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 3827 PAGE 2 OF 2

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
CTO 297	NAS Key West	Chuck Bryan	803-649-7963	Accura - David Fuller
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Emily McKee, Gary Bryan		Emily McKee	305-216-7108	6017 Financial Drive
		CARRIER/WAYBILL NUMBER		CITY, STATE
		8370 0119 8590 FedEx		Norcross, GA

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G, G, G, G, G

PRESERVATIVE USED: HCl, HCl, HNO3

DATE YEAR 2003	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAP (G) COMP (C)	No. OF CONTAINERS	BTEX, MTBE	TRPH	PAH	Lead	EDB				COMMENTS
5/11	1130	TFSGLMW0401	TFS-MW-04	—	—	GW	G	11	X	X	X	X	X				4077-014
5/11	0915	TFSGLP0101	TFS-P-01	—	—	GW	G	11	X	X	X	X	X				5
5/11	1020	TFSGLMW1101	TFS-MW-11	—	—	GW	G	11	X	X	X	X	X				6
5/11	0000	0503-DUP-01		—	—	GW	G	11	X	X	X	X	X				7
5/11	0845	TFSGLMW1401	TFS-MW-14	—	—	GW	G	11	X	X	X	X	X				8
		TB00341/TB00342		—	—	QC	—	2	X								9

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
Emily McKee	5/12/03	1630	FEDEX		
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
FEDEX	05 13 03	09:12	[illegible]	05 13 03	09:20
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

ACCURA ANALYTICAL LABORATORY, INC. (AAL)
6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800
FL Certification #E87429 LA Certification #04079 NC Certification #483
SC Certification #98015 USACE-MRD Approved

Case Narrative

AAL Work Order # 4077

Client Project: NAS Key West / CTO # 279
Project Number: N5079-WR342
Project Manager: Chuck Bryan

Accura Analytical Laboratory Inc. certifies that the results meet all requirements of the NELAC Standards.

The data package includes a 4 page case narrative, 532 report pages and a list of common EPA qualifier codes.

The following items were noted concerning this work order:

Receiving Notations:

1. The following samples were received at Accura Analytical Laboratory Inc. on May 12, 2003 at 9:20am:

Client Sample ID		AAL Work Order Number
TFSGLMW0701	BCBM-CONF-02	4077
TFSGLMW0501	BCBM-CONF-03	
TFSGLMW0301	BCBM-CONF-04	
TFSGLMW1201	TFSGLMW0401	
TFSGLMW0601	TFSGLP0101	
TFSGLMW0901	TFSGLMW1101	
TFSGLMW0101	0503-DUP-01	
TFSGLMW0201	TFSGLMW1401	
0503-RB-01	TB00341/TB00342	
BCBM-CONF-01		

2. The samples were received at 5°C.

Brian G Burns — *May 13, 2003*
Brian Burns — Date
Receiving

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BTEX Notations:

1. The pH of the water samples was <2.0 prior to the BTEX analysis.

Sumathi Mudium — *May 28, 2003*
Sumathi Mudium — Date
BTEX Analyst

SVOC/PAH Notations:

1. The following spike recoveries were outside the laboratory-derived limits due to possible matrix interference (15315 QC):

   SVOC-SW-846-8270C
   Matrix Spike – Fluoranthene, Benzo[a]anthracene, Chrysene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, Indeno[1,2,3-c,d]pyrene, Dibenz[a,h]anthracene, Benzo[g,h,i]perylene
   Matrix Spike Duplicate –Benzo[a]anthracene, Chrysene, Benzo[k]fluoranthene, Benzo[a]pyrene, Indeno[1,2,3-c,d]pyrene, Dibenz[a,h]anthracene, Benzo[g,h,i]perylene

2. The relative percent difference between the matrix spike and matrix spike duplicate was outside the laboratory-derived limit for the following analytes (15315 QC):

   SVOC-SW-846-8270C
   Benzo[a]anthracene, Chrysene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, Indeno[1,2,3-c,d]pyrene, Dibenz[a,h]anthracene, Benzo[g,h,i]perylene

3. The sample, which corresponds to the MS/MSD for 15315 QC, ran dry during the extraction process. The sample, however, was re-extracted and that extract matched the results in the original MS/MSD. The only sample corresponding to this batch for this WO# is TFSGLMW0601.

4. The following spike recoveries were outside the laboratory-derived limits due to possible matrix interference (15359 QC):

   SVOC-SW-846-8270C
   Matrix Spike – 2-methylnaphthalene, 1-methylnaphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo[a]anthracene, Chrysene, Indeno[1,2,3-c,d]pyrene, Benzo[g,h,i]perylene
   Matrix Spike Duplicate –Indeno[1,2,3-c,d]pyrene, Benzo[g,h,i]perylene

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5. The relative percent difference between the matrix spike and matrix spike duplicate was outside the laboratory-derived limit for the following analytes (15359 QC):

   SVOC-SW-846-8270C
   Naphthalene, 2-methylnaphthalene, 1-methylnaphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo[a]anthracene, Chrysene

6. The following spike recoveries were outside the laboratory-derived limits due to possible matrix interference (15371 QC):

   SVOC-SW-846-8270C
   Matrix Spike –Phenanthrene, Anthracene, Fluoranthene, Benzo[a]anthracene, Chrysene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, Indeno[1,2,3-c,d]pyrene, Dibenz[a,h]anthracene, Benzo[g,h,i]perylene
   Matrix Spike Duplicate – Phenanthrene, Anthracene, Fluoranthene, Benzo[a]anthracene, Chrysene, Benzo[k]fluoranthene, Benzo[a]pyrene, Indeno[1,2,3-c,d]pyrene, Benzo[g,h,i]perylene

Chris Pittman — *May 29, 2003*
Chris Pittman — Date
SVOC Analyst

FLA-PRO Notations:

1. The following surrogates were outside the method specified limit.

FL_PRO
OTP:TFSGLMW0701, TFSGLMW0501, TFSGLMW0301, TFSGLMW0601, TFSGLMW0901, 0503-RB-01, TFSGLMW1101, 0503-DUP-01, TFSGLMW1401.
C39: TFSGLMW0301, 0503-RB-01.

2.The Method Blank was less than the reported detection limit for FL_PRO analyses submitted for this work order.

3. The following spike recoveries were outside the method specified limits.

FL_PRO
Matrix Spike and Matrix Spike Duplicate.

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ACCURA ANALYTICAL LABORATORY, INC. (AAL)
6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800
FL Certification #E87429 LA Certification #04079 NC Certification #483
SC Certification #98015 USACE-MRD Approved

Case Narrative

Prashant Bagade — June 13, 2003
Prashant Bagade — Date
DRO Analyst

I certify that the electronic diskette deliverables exactly match the data summary forms for this report.

June 17, 2003
John Amirtham — Date
Manager-Quality Assurance

These case narrative notations have been reviewed by:

June 17, 2003
Thomas Gatch — Date
Project Manager

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4077

HOLDING TIME

07/02/03

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
UG/L	0503-DUP-01	4077-017	NORMAL	4077	M	05/11/03	05/21/03	06/03/03	10	13	23
UG/L	0503-RB-01	4077-009	NORMAL	4077	M	05/12/03	05/22/03	06/03/03	10	12	22
UG/L	0503-RB-01 MD	4077-009	MD	4077	M	05/12/03	05/22/03	06/03/03	10	12	22
UG/L	0503-RB-01 MS	4077-009	MS	4077	M	05/12/03	05/22/03	06/03/03	10	12	22
UG/L	0503-RB-01 MSD	4077-009	MSD	4077	M	05/12/03	05/22/03	06/03/03	10	12	22
UG/L	0503-RB-01 PDS	4077-009	PDSPK	4077	M	05/12/03	05/22/03	06/03/03	10	12	22
UG/L	0503-RB-01 SD	4077-009	SE	4077	M	05/12/03	05/22/03	06/03/03	10	12	22
MG/KG	15355 BKS	15355 BKS	LCS	4077	M	/ /	05/16/03	05/19/03	0	3	0
MG/KG	15355 BLK	15355 BLK	M_BLANK	4077	M	/ /	05/16/03	05/19/03	0	3	0
MG/KG	15355 BSD	15355 BSD	LCSD	4077	M	/ /	05/16/03	05/19/03	0	3	0
UG/L	15392 BKS	15392 BKS	LCS	4077	M	/ /	05/21/03	06/03/03	0	13	0
UG/L	15392 BLK	15392 BLK	M_BLANK	4077	M	/ /	05/21/03	06/03/03	0	13	0
UG/L	15392 BSD	15392 BSD	LCSD	4077	M	/ /	05/21/03	06/03/03	0	13	0
UG/L	15408 BKS	15408 BKS	LCS	4077	M	/ /	05/22/03	06/03/03	0	12	0
UG/L	15408 BLK	15408 BLK	M_BLANK	4077	M	/ /	05/22/03	06/03/03	0	12	0
UG/L	15408 BSD	15408 BSD	LCSD	4077	M	/ /	05/22/03	06/03/03	0	12	0
MG/KG	BCBM-CONF-01	4077-010	NORMAL	4077	M	05/12/03	05/16/03	05/19/03	4	3	7
MG/KG	BCBM-CONF-02	4077-011	NORMAL	4077	M	05/12/03	05/16/03	05/19/03	4	3	7
MG/KG	BCBM-CONF-03	4077-012	NORMAL	4077	M	05/12/03	05/16/03	05/19/03	4	3	7
MG/KG	BCBM-CONF-04	4077-013	NORMAL	4077	M	05/12/03	05/16/03	05/19/03	4	3	7
MG/KG	BCBM-CONF-04 MD	4077-013	MD	4077	M	05/12/03	05/16/03	05/19/03	4	3	7
MG/KG	BCBM-CONF-04 MS	4077-013	MS	4077	M	05/12/03	05/16/03	05/19/03	4	3	7
MG/KG	BCBM-CONF-04 MSD	4077-013	MSD	4077	M	05/12/03	05/16/03	05/19/03	4	3	7
UG/L	TFSGLMW0101	4077-007	NORMAL	4077	M	05/11/03	05/22/03	06/03/03	11	12	23

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
UG/L	TFSGLMW0201	4077-008	NORMAL	4077	M	05/11/03	05/22/03	06/03/03	11	12	23
UG/L	TFSGLMW0301	4077-003	NORMAL	4077	M	05/10/03	05/22/03	06/03/03	12	12	24
UG/L	TFSGLMW0401	4077-014	NORMAL	4077	M	05/11/03	05/21/03	06/03/03	10	13	23
UG/L	TFSGLMW0501	4077-002	NORMAL	4077	M	05/10/03	05/22/03	06/03/03	12	12	24
UG/L	TFSGLMW0601	4077-005	NORMAL	4077	M	05/10/03	05/22/03	06/03/03	12	12	24
UG/L	TFSGLMW0701	4077-001	NORMAL	4077	M	05/10/03	05/22/03	06/03/03	12	12	24
UG/L	TFSGLMW0901	4077-006	NORMAL	4077	M	05/10/03	05/22/03	06/03/03	12	12	24
UG/L	TFSGLMW1101	4077-016	NORMAL	4077	M	05/11/03	05/21/03	06/03/03	10	13	23
UG/L	TFSGLMW1201	4077-004	NORMAL	4077	M	05/10/03	05/22/03	06/03/03	12	12	24
UG/L	TFSGLMW1401	4077-018	NORMAL	4077	M	05/11/03	05/21/03	06/03/03	10	13	23
UG/L	TFSGLMW1401 MD	4077-018	MD	4077	M	05/11/03	05/21/03	06/03/03	10	13	23
UG/L	TFSGLMW1401 MS	4077-018	MS	4077	M	05/11/03	05/21/03	06/03/03	10	13	23
UG/L	TFSGLMW1401 MSD	4077-018	MSD	4077	M	05/11/03	05/21/03	06/03/03	10	13	23
UG/L	TFSGLP0101	4077-015	NORMAL	4077	M	05/11/03	05/21/03	06/03/03	10	13	23
UG/L	0503-DUP-01	4077-017	NORMAL	4077	OV	05/11/03	05/20/03	05/21/03	9	1	10
UG/L	0503-RB-01	4077-009	NORMAL	4077	OV	05/12/03	05/20/03	05/21/03	8	1	9
UG/L	15329 BKS	15329 BKS	LCS	4077	OV	/ /	05/16/03	05/16/03	0	0	0
UG/L	15329 BLK	15329 BLK	M_BLANK	4077	OV	/ /	05/16/03	05/16/03	0	0	0
UG/L	15364 BKS	15364 BKS	LCS	4077	OV	/ /	05/20/03	05/21/03	0	1	0
UG/L	15364 BLK	15364 BLK	M_BLANK	4077	OV	/ /	05/20/03	05/21/03	0	1	0
UG/L	TB00341/TB00342	4077-019	NORMAL	4077	OV	05/10/03	05/16/03	05/16/03	6	0	6
UG/L	TFSGLMW0101	4077-007	NORMAL	4077	OV	05/11/03	05/20/03	05/21/03	9	1	10
UG/L	TFSGLMW0201	4077-008	NORMAL	4077	OV	05/11/03	05/20/03	05/21/03	9	1	10
UG/L	TFSGLMW0301	4077-003	NORMAL	4077	OV	05/10/03	05/20/03	05/21/03	10	1	11
UG/L	TFSGLMW0401	4077-014	NORMAL	4077	OV	05/11/03	05/20/03	05/21/03	9	1	10
UG/L	TFSGLMW0501	4077-002	MSD	4077	OV	05/10/03	05/20/03	05/21/03	10	1	11
UG/L	TFSGLMW0601	4077-005	NORMAL	4077	OV	05/10/03	05/20/03	05/21/03	10	1	11

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
UG/L	TFSGLMW0601 MS	4077-005	MS	4077	OV	05/10/03	05/16/03	05/16/03	6	0	6
UG/L	TFSGLMW0601 MSD	4077-005	MSD	4077	OV	05/10/03	05/16/03	05/16/03	6	0	6
UG/L	TFSGLMW0701	4077-001	NORMAL	4077	OV	05/10/03	05/20/03	05/21/03	10	1	11
UG/L	TFSGLMW0901	4077-006	NORMAL	4077	OV	05/10/03	05/20/03	05/21/03	10	1	11
UG/L	TFSGLMW1101	4077-016	NORMAL	4077	OV	05/11/03	05/20/03	05/21/03	9	1	10
UG/L	TFSGLMW1201	4077-004	NORMAL	4077	OV	05/10/03	05/20/03	05/21/03	10	1	11
UG/L	TFSGLMW1401	4077-018	NORMAL	4077	OV	05/11/03	05/20/03	05/21/03	9	1	10
UG/L	TFSGLP0101	4077-015	NORMAL	4077	OV	05/11/03	05/20/03	05/21/03	9	1	10
%	0503-DUP-01	4077-017	NORMAL	4077	PAH	05/11/03	05/16/03	05/20/03	5	4	9
%	0503-RB-01	4077-009	NORMAL	4077	PAH	05/12/03	05/16/03	05/20/03	4	4	8
UG/L	15315 BKS	15315 BKS	LCS	4077	PAH	/ /	05/14/03	05/20/03	0	6	0
UG/L	15315 BLK	15315 BLK	M_BLANK	4077	PAH	/ /	05/14/03	05/20/03	0	6	0
%	15340 BKS	15340 BKS	LCS	4077	PAH	/ /	05/15/03	05/19/03	0	4	0
%	15340 BLK	15340 BLK	M_BLANK	4077	PAH	/ /	05/15/03	05/19/03	0	4	0
%	15345 BKS	15345 BKS	LCS	4077	PAH	/ /	05/16/03	05/20/03	0	4	0
%	15345 BLK	15345 BLK	M_BLANK	4077	PAH	/ /	05/16/03	05/20/03	0	4	0
UG/L	15359 BKS	15359 BKS	LCS	4077	PAH	/ /	05/16/03	05/20/03	0	4	0
UG/L	15359 BLK	15359 BLK	M_BLANK	4077	PAH	/ /	05/16/03	05/20/03	0	4	0
UG/L	15371 BKS	15371 BKS	LCS	4077	PAH	/ /	05/16/03	05/21/03	0	5	0
UG/L	15371 BLK	15371 BLK	M_BLANK	4077	PAH	/ /	05/16/03	05/21/03	0	5	0
UG/L	TFSGLMW0101	4077-007	NORMAL	4077	PAH	05/11/03	05/16/03	05/21/03	5	5	10
%	TFSGLMW0101 MS	4077-007	MS	4077	PAH	05/11/03	05/16/03	05/20/03	5	4	9
%	TFSGLMW0101 MSD	4077-007	MSD	4077	PAH	05/11/03	05/16/03	05/20/03	5	4	9
%	TFSGLMW0201	4077-008	NORMAL	4077	PAH	05/11/03	05/16/03	05/20/03	5	4	9
%	TFSGLMW0301	4077-003	NORMAL	4077	PAH	05/10/03	05/16/03	05/20/03	6	4	10
%	TFSGLMW0401	4077-014	NORMAL	4077	PAH	05/11/03	05/16/03	05/20/03	5	4	9
%	TFSGLMW0501	4077-002	NORMAL	4077	PAH	05/10/03	05/16/03	05/20/03	6	4	10

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
%	TFSGLMW0601	4077-005	NORMAL	4077	PAH	05/10/03	05/16/03	05/20/03	6	4	10
%	TFSGLMW0701	4077-001	NORMAL	4077	PAH	05/10/03	05/16/03	05/20/03	6	4	10
%	TFSGLMW0901	4077-006	NORMAL	4077	PAH	05/10/03	05/16/03	05/20/03	6	4	10
%	TFSGLMW1101	4077-016	NORMAL	4077	PAH	05/11/03	05/16/03	05/20/03	5	4	9
%	TFSGLMW1201	4077-004	NORMAL	4077	PAH	05/10/03	05/16/03	05/20/03	6	4	10
%	TFSGLMW1401	4077-018	NORMAL	4077	PAH	05/11/03	05/16/03	05/20/03	5	4	9
UG/L	TFSGLMW1401 MS	4077-018	MS	4077	PAH	05/11/03	05/16/03	05/20/03	5	4	9
UG/L	TFSGLMW1401 MSD	4077-018	MSD	4077	PAH	05/11/03	05/16/03	05/20/03	5	4	9
%	TFSGLP0101	4077-015	NORMAL	4077	PAH	05/11/03	05/16/03	05/20/03	5	4	9
%	TPB0QGLMW1901 MS	4072-003	MS	4077	PAH	05/09/03	05/15/03	05/19/03	6	4	10
%	TPB0QGLMW1901 MSD	4072-003	MSD	4077	PAH	05/09/03	05/15/03	05/19/03	6	4	10
MG/L	0503-DUP-01	4077-017	NORMAL	4077	TPH	05/11/03	05/16/03	05/20/03	5	4	9
MG/L	0503-RB-01	4077-009	NORMAL	4077	TPH	05/12/03	05/16/03	05/20/03	4	4	8
MG/L	15340 BKS	15340 BKS	LCS	4077	TPH	/ /	05/15/03	05/19/03	0	4	0
MG/L	15340 BLK	15340 BLK	M_BLANK	4077	TPH	/ /	05/15/03	05/19/03	0	4	0
MG/L	15345 BKS	15345 BKS	LCS	4077	TPH	/ /	05/16/03	05/20/03	0	4	0
MG/L	15345 BLK	15345 BLK	M_BLANK	4077	TPH	/ /	05/16/03	05/20/03	0	4	0
MG/L	TFSGLMW0101	4077-007	NORMAL	4077	TPH	05/11/03	05/16/03	05/20/03	5	4	9
MG/L	TFSGLMW0101 MS	4077-007	MS	4077	TPH	05/11/03	05/16/03	05/20/03	5	4	9
MG/L	TFSGLMW0101 MSD	4077-007	MSD	4077	TPH	05/11/03	05/16/03	05/20/03	5	4	9
MG/L	TFSGLMW0201	4077-008	NORMAL	4077	TPH	05/11/03	05/16/03	05/20/03	5	4	9
MG/L	TFSGLMW0301	4077-003	NORMAL	4077	TPH	05/10/03	05/16/03	05/20/03	6	4	10
MG/L	TFSGLMW0401	4077-014	NORMAL	4077	TPH	05/11/03	05/16/03	05/20/03	5	4	9
MG/L	TFSGLMW0501	4077-002	MS	4077	TPH	05/10/03	05/16/03	05/20/03	6	4	10
MG/L	TFSGLMW0601	4077-005	NORMAL	4077	TPH	05/10/03	05/16/03	05/20/03	6	4	10
MG/L	TFSGLMW0701	4077-001	NORMAL	4077	TPH	05/10/03	05/16/03	05/20/03	6	4	10
MG/L	TFSGLMW0901	4077-006	NORMAL	4077	TPH	05/10/03	05/16/03	05/20/03	6	4	10

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
MG/L	TFSGLMW1101	4077-016	NORMAL	4077	TPH	05/11/03	05/16/03	05/20/03	5	4	9
MG/L	TFSGLMW1201	4077-004	NORMAL	4077	TPH	05/10/03	05/16/03	05/20/03	6	4	10
MG/L	TFSGLMW1401	4077-018	NORMAL	4077	TPH	05/11/03	05/16/03	05/20/03	5	4	9
MG/L	TFSGLP0101	4077-015	NORMAL	4077	TPH	05/11/03	05/16/03	05/20/03	5	4	9
MG/L	TPB0QGLMW1901 MS	4072-003	MS	4077	TPH	05/09/03	05/15/03	05/19/03	6	4	10
MG/L	TPB0QGLMW1901 MSD	4072-003	MSD	4077	TPH	05/09/03	05/15/03	05/19/03	6	4	10

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.
15329 BLK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Lab File ID :A051603\A07074 SDG No. : N/A

Date Analyzed : 05/16/03 Lab Sample ID : A051603\A07074

GC Column : _____ ID : 0 (mm) Time Analyzed : 10:58

Instrument ID : HP-MSA Heated Purge (Y/N) : _____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

EPA SAMPLE NO..	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1 15329 BKS	15329 BKS	A051603\A07075	11:27
2 TFSGLMW0701	4077-001	A051603\A07079	13:21
3 TFSGLMW0501	4077-002	A051603\A07080	13:49
4 TFSGLMW0301	4077-003	A051603\A07081	14:17
5 TFSGLMW1201	4077-004	A051603\A07082	14:45
6 TFSGLMW0601	4077-005	A051603\A07083	15:12
7 TFSGLMW0901	4077-006	A051603\A07084	15:40
8 TFSGLMW0101	4077-007	A051603\A07085	16:08
9 TFSGLMW0201	4077-008	A051603\A07086	16:35
10 0503-RB-01	4077-009	A051603\A07087	17:03
11 TFSGLMW0401	4077-014	A051603\A07088	17:31
12 TFSGLP0101	4077-015	A051603\A07089	17:58
13 TB00341/TB00342	4077-019	A051603\A07090	18:26
14 TFSGLMW1101	4077-016	A051603\A07091	18:54
15 0503-DUP-01	4077-017	A051603\A07092	19:21
16 TFSGLMW1401	4077-018	A051603\A07093	19:49
17 TFSGLMW0601 MS	4077-005 MS	A051603\A07094	20:17
18 TFSGLMW0601 MSD	4077-005 MSD	A051603\A07095	20:44

Comments _____

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

15329 BLK

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO. :	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	15329 BLK
Sample wt/vol:	5.00 (g/mL) ML	Lab File ID:	A051603\A07074
Level (low/med):	LOW	Date Received:	
% Moisture: not dec.	0	Date Analyzed:	05/16/03
GC Column:	ID: .32 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-43-2	Benzene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-88-3	Toluene	1.0	U
1330-20-7	Xylenes (total)	3.0	U

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : SAS No. :

Lab File ID : SDG No. : N/A

Instrument ID : HP-MSA BFB Injection Date : 04/22/03

GC Column : ID : (mm) BFB Injection Time : 11:19

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	23.9
75	30.0 - 60.0%of mass 95	55.7
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 100.0% of mass 95	62.9
175	5.0 - 9.0% of mass 174	4.7 (7.5)1
176	95.0 - 101.0% of mass 174	60.9 (96.9)1
177	5.0 - 9.0% of mass 176	4.5 (7.3)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS :

	EPA SAMPLE NO	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD001A38	VSTD001A38	A042203\A06745	04/22/03	11:39
2	VSTD010A38	VSTD010A38	A042203\A06746	04/22/03	12:06
3	VSTD005A38	VSTD005A38	A042203\A06747	04/22/03	13:09
4	VSTD020A38	VSTD020A38	A042203\A06748	04/22/03	13:37
5	VSTD050A38	VSTD050A38	A042203\A06749	04/22/03	14:04
6	VSTD100A38	VSTD100A38	A042203\A06750	04/22/03	14:32
7	VSTD200A38	VSTD200A38	A042203\A06751	04/22/03	15:55
8	VSTD050A39	VSTD050A39	A042203\A06752	04/22/03	16:38

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-MSA SDG No. : N/A

GC Column: _____ ID: _____ (mm) Calibration Date(s): 04/22/03 04/22/03

Heated Purge (Y/N) : N Calibration Times: 11:39 15:55

LAB FILE ID: RRF1 = A042203\A06745 RRF10 = A042203\A06746

RRF5 = A042203\A06747 RRF20 = A042203\A06748 RRF50 = A042203\A06749

COMPOUND		RRF1	RRF10	RRF5	RRF20	RRF50	RRF	% RSD
Benzene	*	1.943	2.480	2.830	2.616	2.344		
Ethylbenzene	*	1.613	2.053	2.272	2.113	1.881		
Methyl tert-butyl ether	*	1.650	2.043	2.287	2.191	1.977		
Toluene	*	1.431	1.725	1.944	1.773	1.548		
Xylenes (total)	*	0.550	0.715	0.804	0.725	0.648		

Compounds with required minimum RRF
* Compounds with maximum %RSD Values
All other compounds must meet a minimum RRF of 0.010.

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-MSA Calibration Date(s): 04/22/03 04/22/03

GC Column: DB ID: _____ (mm) Calibration Times: 11:39 15:55

Heated Purge (Y/N) : N

LAB FILE ID: RRF100 = A042203\A06750 RRF200 = A042203\A06751

COMPOUND		RRF100	RRF200	RRF	% RSD	
Benzene	*	2.505	2.309	2.432	11.41	
Ethylbenzene	*	1.941	1.655	1.933	12.40	
Methyl tert-butyl ether	*	2.098	2.039	2.041	9.87	
Toluene	*	1.583	1.379	1.626	12.30	
Xylenes (total)	*	0.671	0.580	0.670	13.07	
1,2-Dichloroethane-d4	*	0.998	0.945	1.029	7.30	
Bromofluorobenzene	*	1.250	1.107	1.354	13.93	*
Toluene-d8	*	1.333	1.184	1.420	12.08	*

Compounds with required minimum RRF
* Compounds with maximum %RSD Values
All other compounds must meet a minimum RRF of 0.010.

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name : ACCURA ANALYTICAL LAB
Contract : N5079-WR342
Lab Code : ACCURA
Case No. :
SAS No. :
Lab File ID :
SDG No. : N/A
Instrument ID : HP-MSA
BFB Injection Date : 05/16/03
GC Column : ID : (mm)
BFB Injection Time : 09:53

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	27.4
75	30.0 - 60.0%of mass 95	60.7
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.3 (0.5)1
174	50.0 - 100.0% of mass 95	56.7
175	5.0 - 9.0% of mass 174	4.3 (7.6)1
176	95.0 - 101.0% of mass 174	56.1 (99.0)1
177	5.0 - 9.0% of mass 176	3.9 (6.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS :

	EPA SAMPLE NO	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD050A56	VSTD050A56	A051603\A07073	05/16/03	10:13
2	15329 BLK	15329 BLK	A051603\A07074	05/16/03	10:58
3	15329 BKS	15329 BKS	A051603\A07075	05/16/03	11:27
4	TFSGLMW0701	4077-001	A051603\A07079	05/16/03	13:21
5	TFSGLMW0501	4077-002	A051603\A07080	05/16/03	13:49
6	TFSGLMW0301	4077-003	A051603\A07081	05/16/03	14:17
7	TFSGLMW1201	4077-004	A051603\A07082	05/16/03	14:45
8	TFSGLMW0601	4077-005	A051603\A07083	05/16/03	15:12
9	TFSGLMW0901	4077-006	A051603\A07084	05/16/03	15:40
10	TFSGLMW0101	4077-007	A051603\A07085	05/16/03	16:08
11	TFSGLMW0201	4077-008	A051603\A07086	05/16/03	16:35
12	0503-RB-01	4077-009	A051603\A07087	05/16/03	17:03
13	TFSGLMW0401	4077-014	A051603\A07088	05/16/03	17:31
14	TFSGLP0101	4077-015	A051603\A07089	05/16/03	17:58
15	TB00341/TB00342	4077-019	A051603\A07090	05/16/03	18:26
16	TFSGLMW1101	4077-016	A051603\A07091	05/16/03	18:54
17	0503-DUP-01	4077-017	A051603\A07092	05/16/03	19:21
18	TFSGLMW1401	4077-018	A051603\A07093	05/16/03	19:49
19	TFSGLMW0601 MS	4077-005 MS	A051603\A07094	05/16/03	20:17
20	TFSGLMW0601 MSD	4077-005 MSD	A051603\A07095	05/16/03	20:44

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-MSA SDG No. : N/A

Lab File ID A051603\A07073.D Calibration Date: 05/16/03 Time: 10:13

EPA Sample No. : VSTD050A56 Init. Calib. Date(s): 04/22/03 04/22/03

Heated Purge (Y/N) : _____ Init.Calib. Times: 11:39 15:55

GC Column: _____ ID: _____ (mm)

COMPOUND		$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Benzene	*	2.432	2.216	0.100	-8.90	20.0
Ethylbenzene	*	1.932	1.808	0.100	-6.45	20.0
Methyl tert-butyl ether	*	2.041	2.000	0.100	-2.01	20.0
Toluene	*	1.626	1.473	0.100	-9.43	20.0
Xylenes (total)	*	0.670	0.586	0.100	-12.56	20.0
1,2-Dichloroethane-d4	*	1.029	0.9666	0.100	-6.09	20.0
Bromofluorobenzene	*	1.354	1.1828	0.100	-12.62	20.0
Toluene-d8	*	1.420	1.3022	0.100	-8.32	20.0

Compounds with required minimum RRF

* Compounds with maximum %RSD values

All other Compounds must meet a minimum RRF of 0.010

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No. : _____ SAS No. : _____

SDG No. : N/A

	EPA SAMPLE NO.	SMC1	SMC2	SMC3	OTHER	
		(DCE) #	(BFB) #	(TOL) #		TOT OUT
1	15329 BLK	100	94	96		0
2	15329 BKS	103	93	97		0
3	TFSGLMW0701	106	92	93		0
4	TFSGLMW0501	102	93	94		0
5	TFSGLMW0301	101	91	94		0
6	TFSGLMW1201	102	91	92		0
7	TFSGLMW0601	101	92	93		0
8	TFSGLMW0901	95	85	85		0
9	TFSGLMW0101	104	91	94		0
10	TFSGLMW0201	99	87	90		0
11	0503-RB-01	100	91	97		0
12	TFSGLMW0401	90	86	92		0
13	TFSGLP0101	102	92	94		0
14	TB00341/TB00342	97	89	93		0
15	TFSGLMW1101	96	87	89		0
16	0503-DUP-01	97	88	89		0
17	TFSGLMW1401	100	91	91		0
18	TFSGLMW0601 MS	100	91	93		0
19	TFSGLMW0601 MSD	103	92	94		0

		QC LIMITS
SMC1	(DCE) = 1,2-Dichloroethane-d4	(60 - 124)
SMC2	(BFB) = 4-Bromofluorobenzene	(50 - 144)
SMC3	(TOL) = Toluene-D8	(80 - 109)
Other		(-)

Column to be used to flag recovery values

* Values outside of contract required QC limits

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVER

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA CASE No. : _____ SAS No. : _____

Matrix Spike - EPA Sample No. TFSGLMW0601 SDG No. : N/A

COMPOUND	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC #	QC LIMITS REC.
Benzene	50	0	50	100	64-136
Ethylbenzene	50	0	51	102	78-114
Methyl tert-butyl ether	50	0	54	108	51-137
Toluene	50	0	48	96	75-115
Xylenes (total)	150	0	140	93	47-159

COMPOUND	SPIKE ADDED ug/L	MSD CONCENTRATION ug/L	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC
Benzene	50	49	98	2	25	64-136
Ethylbenzene	50	49	98	4	25	78-114
Methyl tert-butyl ether	50	53	106	2	25	51-137
Toluene	50	46	92	4	25	75-115
Xylenes (total)	150	140	93	0	25	47-159

Column to be used to flag recovery and RPD Values with and asterisk.

* Values outside of QC limits

RPD 0 Out of 5 Outside Limit

Spike Recovery : 0 Out of 10 Outside limits

Comments : _____

3A

WATER VOLATILE BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Blank Spike - EPA Sample No. : 15329 BKS

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BKS CONCENTRATION (ug/L)	BKS % REC #	QC LIMITS REC.
Benzene	50	0	48	96	63-133
Ethylbenzene	50	0	49	98	77-114
Methyl tert-butyl ether	50	0	51	102	65-120
Toluene	50	0	47	94	76-114
Xylenes (total)	150	0	140	93	59-142

Column to be used to flag recovery and RPD values with and asterisk

* Values outside of QC limits

RPD : 0 out of 5 outside limits

Spike Recovery : 0 out of 10 outside limits

Comments : _____

4C
PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.
15364 BLK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : _____

Lab File ID 05-21-03\E02970.D Lab Sample ID : 15364 BLK

Matrix : (soil/ water) WATER Extraction : (Type) 05/20/03

Sulfur Cleanup: (Y/N N Date Extracted : 05/20/03

Date Analyzed (1) 05/21/03 Date Analyzed (2) 05/21/03

Time Analyzed (1) 17:04 Time Analyzed (2) 17:04

Instrument ID (1) HP-GCE Instrument ID (2) HP-GCE

GC Column (1) HP-5 ID : _____ (mm) GC Column (2) _____ ID : _____ (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	EPA SAMPLE NO..	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	15364 BKS	15364 BKS	05/21/03	05/21/03
2	TFSGLMW0701	4077-001	05/21/03	05/21/03
3	TFSGLMW0501	4077-002	05/21/03	05/21/03
4	TFSGLMW0501	4077-002 MS	05/21/03	05/21/03
5	TFSGLMW0501	4077-002 MSD	05/21/03	05/21/03
6	TFSGLMW0301	4077-003	05/21/03	05/21/03
7	TFSGLMW1201	4077-004	05/21/03	05/21/03
8	TFSGLMW0601	4077-005	05/21/03	05/21/03
9	TFSGLMW0901	4077-006	05/21/03	05/21/03
10	TFSGLMW0101	4077-007	05/21/03	05/21/03
11	0503-RB-01	4077-009	05/21/03	05/21/03
12	0503-DUP-01	4077-017	05/21/03	05/21/03

Comments _____

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

15364 BLK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : _____

Lab File ID 05-21-03\E02970.D Lab Sample ID : 15364 BLK

Matrix : (soil/ water) WATER Extraction : (Type) 05/20/03

Sulfur Cleanup: (Y/N N Date Extracted : 05/20/03

Date Analyzed (1) 05/21/03 Date Analyzed (2) 05/21/03

Time Analyzed (1) 17:04 Time Analyzed (2) 17:04

Instrument ID (1) HP-GCE Instrument ID (2) HP-GCE

GC Column (1) HP-5 ID : _____ (mm) GC Column (2) DB-1701 ID : _____ (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	EPA SAMPLE NO..	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	TFSGLMW0201	4077-008	05/21/03	05/21/03
2	TFSGLMW0401	4077-014	05/21/03	05/21/03
3	TFSGLP0101	4077-015	05/21/03	05/21/03
4	TFSGLMW1101	4077-016	05/21/03	05/21/03
5	TFSGLMW1401	4077-018	05/21/03	05/21/03

Comments _____

1 E

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

15364 BLK

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: _____ SAS No.: BLK SDG No.: N/A

Matrix : WATER Lab Sample Id: 15364 BLK

Sample wt/vol: 35 (g/ml): ML Lab File ID: 05-21-03\E02970

% Moisture: 0 Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) EXT_SW8011 Date Extracted: 05/20/03

Concentrated Extract Volume: 2000 (µ L) Date Analyzed: 05/21/03

Injection Volume: 2 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): _____ pH: _____ Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

8D
PESTICIDE INITIAL ANALYTICAL SEQUENCE

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

GC Column: HP-5 ID: 0.53 (mm) SDG No. : N/A

Instrument ID: HP-GCE Init. Calib. Date(s): 05/13/03 05/13/03

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX _____ DCB _____

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
EIBLK-E69	EIBLK-E69	05/13/03	14:38		
EDBSTD-07-E69	EDBSTD-07-E69	05/13/03	14:59		
EDBSTD-06-E69	EDBSTD-06-E69	05/13/03	15:21		
EDBSTD-05-E69	EDBSTD-05-E69	05/13/03	15:43		
EDBSTD-04-E69	EDBSTD-04-E69	05/13/03	16:04		
EDBSTD-03-E69	EDBSTD-03-E69	05/13/03	16:26		
EDBSTD-02-E69	EDBSTD-02-E69	05/13/03	16:47		
EDBSTD-01-E69	EDBSTD-01-E69	05/13/03	17:09		
EDBSTD-REF-E70	EDBSTD-REF-E70	05/13/03	17:51		
EDBSTD-05-CCV-E70-01	EDBSTD-05-CCV-E70-01	05/13/03	18:13		
EDBSTD-05-CCV-E71-03	EDBSTD-05-CCV-E71-03	05/14/03	00:17		

QC LIMITS
(± 0.05 MINUTES)
(± 0.10 MINUTES)

TCX = Tetrachloro-m-xylene
DCB = Decachlorobiphenyl

Column used to flag retention time values with and asterisk.
* Value outside of QC limits.

8D
PESTICIDE INITIAL ANALYTICAL SEQUENCE

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

GC Column: HP-5 ID: 0.53 (mm) SDG No. : N/A

Instrument ID: HP-GCE Init. Calib. Date(s): 05/13/03 05/13/03

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX _____ DCB _____

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
EDBSTD-REF-E78	EDBSTD-REF-E78	05/21/03	16:21		
EDBSTD-05-CCV-E78-01	EDBSTD-05-CCV-E78	05/21/03	16:42		
EDBSTD-05-CCV-E78-01	EDBSTD-05-CCV-E79	05/21/03	23:51		

QC LIMITS
(± 0.05 MINUTES)
(± 0.10 MINUTES)

TCX = Tetrachloro-m-xylene
DCB = Decachlorobiphenyl

Column used to flag retention time values with and asterisk.
* Value outside of QC limits.

8D
PESTICIDE INITIAL ANALYTICAL SEQUENCE

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

GC Column: HP-5 ID: _____ (mm) SDG No. : N/A

Instrument ID: HP-GCE Init. Calib. Date(s): 05/13/03 05/13/03

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX _____ DCB _____

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
15364 BLK	15364 BLK	05/21/03	17:04		
15364 BKS	15364 BKS	05/21/03	17:26		
TFSGLMW0701	4077-001	05/21/03	17:47		
TFSGLMW0501	4077-002	05/21/03	18:08		
TFSGLMW0501	4077-002 MS	05/21/03	18:30		
TFSGLMW0501	4077-002 MSD	05/21/03	18:51		
TFSGLMW0301	4077-003	05/21/03	19:13		
TFSGLMW1201	4077-004	05/21/03	19:34		
TFSGLMW0601	4077-005	05/21/03	19:56		
TFSGLMW0901	4077-006	05/21/03	20:17		
TFSGLMW0101	4077-007	05/21/03	20:38		
TFSGLMW0201	4077-008	05/21/03	21:00		
0503-RB-01	4077-009	05/21/03	21:21		
TFSGLMW0401	4077-014	05/21/03	21:43		
TFSGLP0101	4077-015	05/21/03	22:04		
TFSGLMW1101	4077-016	05/21/03	22:25		
0503-DUP-01	4077-017	05/21/03	22:47		
TFSGLMW1401	4077-018	05/21/03	23:08		
ZZZZZ	ZZZZZ	05/22/03	00:12		
ZZZZZ	ZZZZZ	05/22/03	00:34		
ZZZZZ	ZZZZZ	05/22/03	00:55		
ZZZZZ	ZZZZZ	05/22/03	01:17		
ZZZZZ	ZZZZZ	05/22/03	01:38		
ZZZZZ	ZZZZZ	05/22/03	01:59		

QC LIMITS
(± 0.05 MINUTES)
(± 0.10 MINUTES)

TCX = Tetrachloro-m-xylene
DCB = Decachlorobiphenyl

Column used to flag retention time values with and asterisk.
* Value outside of QC limits.

8D
PESTICIDE INITIAL ANALYTICAL SEQUENCE

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

GC Column: DB-1701 ID: 0.53 (mm) SDG No. : N/A

Instrument ID: HP-GCE Init. Calib. Date(s): 05/13/03 05/13/03

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX _____ DCB _____

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
EIBLK-E69	EIBLK-E69	05/13/03	14:38		
EDBSTD-07-E69	EDBSTD-07-E69	05/13/03	14:59		
EDBSTD-06-E69	EDBSTD-06-E69	05/13/03	15:21		
EDBSTD-05-E69	EDBSTD-05-E69	05/13/03	15:43		
EDBSTD-04-E69	EDBSTD-04-E69	05/13/03	16:04		
EDBSTD-03-E69	EDBSTD-03-E69	05/13/03	16:26		
EDBSTD-02-E69	EDBSTD-02-E69	05/13/03	16:47		
EDBSTD-01-E69	EDBSTD-01-E69	05/13/03	17:09		
EDBSTD-REF-E70	EDBSTD-REF-E70	05/13/03	17:51		
EDBSTD-05-CCV-E70-01	EDBSTD-05-CCV-E70-01	05/13/03	18:13		
EDBSTD-05-CCV-E71-04	EDBSTD-05-CCV-E71-04	05/14/03	00:17		

QC LIMITS
(± 0.05 MINUTES)
(± 0.10 MINUTES)

TCX = Tetrachloro-m-xylene
DCB = Decachlorobiphenyl

Column used to flag retention time values with and asterisk.
* Value outside of QC limits.

8D
PESTICIDE INITIAL ANALYTICAL SEQUENCE

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

GC Column: DB-1701 ID: 0.53 (mm) SDG No. : N/A

Instrument ID: HP-GCE Init. Calib. Date(s): 05/13/03 05/13/03

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX _____ DCB _____

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
EDBSTD-REF-E78	EDBSTD-REF-E78	05/21/03	16:21		
EDBSTD-05-CCV-E78-02	EDBSTD-05-CCV-E78	05/21/03	16:42		
EDBSTD-05-CCV-E78-01	EDBSTD-05-CCV-E79	05/21/03	23:51		

QC LIMITS
(± 0.05 MINUTES)
(± 0.10 MINUTES)

TCX = Tetrachloro-m-xylene
DCB = Decachlorobiphenyl

Column used to flag retention time values with and asterisk.
* Value outside of QC limits.

8D
PESTICIDE INITIAL ANALYTICAL SEQUENCE

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

GC Column: DB-1701 ID: _____ (mm) SDG No. : N/A

Instrument ID: HP-GCE Init. Calib. Date(s): 05/13/03 05/13/03

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX _____ DCB _____

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
15364 BLK	15364 BLK	05/21/03	17:04		
15364 BKS	15364 BKS	05/21/03	17:26		
TFSGLMW0701	4077-001	05/21/03	17:47		
TFSGLMW0501	4077-002	05/21/03	18:08		
TFSGLMW0501	4077-002 MS	05/21/03	18:30		
TFSGLMW0501	4077-002 MSD	05/21/03	18:51		
TFSGLMW0301	4077-003	05/21/03	19:13		
TFSGLMW1201	4077-004	05/21/03	19:34		
TFSGLMW0601	4077-005	05/21/03	19:56		
TFSGLMW0901	4077-006	05/21/03	20:17		
TFSGLMW0101	4077-007	05/21/03	20:38		
TFSGLMW0201	4077-008	05/21/03	21:00		
0503-RB-01	4077-009	05/21/03	21:21		
TFSGLMW0401	4077-014	05/21/03	21:43		
TFSGLP0101	4077-015	05/21/03	22:04		
TFSGLMW1101	4077-016	05/21/03	22:25		
0503-DUP-01	4077-017	05/21/03	22:47		
TFSGLMW1401	4077-018	05/21/03	23:08		
ZZZZZ	ZZZZZ	05/22/03	00:12		
ZZZZZ	ZZZZZ	05/22/03	00:34		
ZZZZZ	ZZZZZ	05/22/03	00:55		
ZZZZZ	ZZZZZ	05/22/03	01:17		
ZZZZZ	ZZZZZ	05/22/03	01:38		
ZZZZZ	ZZZZZ	05/22/03	01:59		

TCX = Tetrachloro-m-xylene
DCB = Decachlorobiphenyl

QC LIMITS
(± 0.05 MINUTES)
(± 0.10 MINUTES)

Column used to flag retention time values with and asterisk.
* Value outside of QC limits.

6C

PESTICIDES ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-GCE Calibration Date(s): 05/13/03 05/13/03

GC Column : HP-5 ID : _____ (mm) Calibration Times: 16:47 16:47

LAB FILE ID: CCF1 = 05-13-03\E02910.D CCF2 = 05-13-03\E02909.D

CCF3 = 05-13-03\E02908.D CCF4 = 05-13-03\E02907.D CCF5 = 05-13-03\E02906.D

COMPOUND	CCF1	CCF2	CCF3	CCF4	CCF5	CCF	% RSD
1,2-Dibromoethane (EDB)	1409598.358	1333437.292	1535365.900	1450269.046	1417512.847		

* Compounds with required minimum RRF and maximum %RSD Values
All other compounds must meet a minimum RRF of 0.010.

SW8011

6C

PESTICIDES ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-GCE Calibration Date(s): 05/13/03 05/13/03

GC Column : HP-5 ID : (mm) Calibration Times: 16:47 16:47

LAB FILE I CCF6 = 05-13-03\E02905.D CCF7 = 05-13-03\E02904.D

COMPOUND	CCF6	CCF7	$\overline{CCF}$	% RSD
1,2-Dibromoethane (EDB)	1290808.513	1263939.005	1385847.280	6.89

* Compounds with required minimum RRF and maximum %RSD Values

6D

PESTICIDES ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-GCE Calibration Date(s): 05/13/03 05/13/03

GC Column : DB-1701 ID : _____ (mm) Calibration Times: 16:26 16:26

LAB FILE ID: CCF1 = 05-13-03\E02910.D CCF2 = 05-13-03\E02909.D

CCF3 = 05-13-03\E02908.D CCF4 = 05-13-03\E02907.D CCF5 = 05-13-03\E02906.D

COMPOUND	CCF1	CCF2	CCF3	CCF4	CCF5	CCF	% RSD
1,2-Dibromoethane (EDB)	1234744.730	1283142.741	1398669.829	1340918.089	1425612.417		

* Compounds with required minimum RRF and maximum %RSD Values
All other compounds must meet a minimum RRF of 0.010.

SW8011

6C

PESTICIDES ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-GCE Calibration Date(s): 05/13/03 05/13/03

GC Column : DB-1701 ID : (mm) Calibration Times: 16:26 16:26

LAB FILE I CCF6 = 05-13-03\E02905.D CCF7 = 05-13-03\E02904.D

COMPOUND	CCF6	CCF7	$\overline{CCF}$	% RSD
1,2-Dibromoethane (EDB)	1282962.734	1281862.924	1321130.495	5.28

* Compounds with required minimum RRF and maximum %RSD Values

7C

PESTICIDES CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCE SDG No. : N/A

Lab File ID 05-21-03\E02969.D Calibration Date: 05/21/03 Time: 16:42

EPA Sample No. : EDBSTD-05-CC Init. Calib. Date(s): 05/13/03 05/13/03

GC Column: HP-5 ID: 0.53 (mm) Init.Calib. Times: 15:43 17:09

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
1,2-Dibromoethane (EDB)	1385847.280	1500811.086		8.30	

All other Compounds must meet a minimum RRF of 0.01

7D

PESTICIDES CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCE SDG No. : N/A

Lab File ID 05-21-03\E02969.D Calibration Date: 05/21/03 Time: 16:42

EPA Sample No. : EDBSTD-05-CC Init. Calib. Date(s): 05/13/03 05/13/03

GC Column: DB-1701 ID: 0.53 (mm) Init.Calib. Times: 15:43 17:09

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
1,2-Dibromoethane (EDB)	1321130.495	1276323.894		-3.39	

All other Compounds must meet a minimum RRF of 0.01

7D

PESTICIDES CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCE SDG No. : N/A

Lab File ID 05-21-03\E02989.D Calibration Date: 05/21/03 Time: 23:51

EPA Sample No. : EDBSTD-05-CC Init. Calib. Date(s): 05/13/03 05/13/03

GC Column: HP-5 ID: 0.53 (mm) Init.Calib. Times: 15:43 17:09

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
1,2-Dibromoethane (EDB)	1385847.280	1413717.182		2.01	

All other Compounds must meet a minimum RRF of 0.01

7C

PESTICIDES CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCE SDG No. : N/A

Lab File ID 05-21-03\E02989.D Calibration Date: 05/21/03 Time: 23:51

EPA Sample No. : EDBSTD-05-CC Init. Calib. Date(s): 05/13/03 05/13/03

GC Column: DB-1701 ID: 0.53 (mm) Init.Calib. Times: 15:43 17:09

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
1,2-Dibromoethane (EDB)	1321130.495	1274747.192		-3.51	

All other Compounds must meet a minimum RRF of 0.01

7D

PESTICIDES CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCE SDG No. : N/A

Lab File ID 05-21-03\E02968.D Calibration Date: 05/21/03 Time: 16:21

EPA Sample No. : EDBSTD-REF-E Init. Calib. Date(s): 05/13/03 05/13/03

GC Column: HP-5 ID: 0.53 (mm) Init.Calib. Times: 15:43 17:09

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
1,2-Dibromoethane (EDB)	1385847.280	1265125.200		-8.71	

All other Compounds must meet a minimum RRF of 0.01

7C

PESTICIDES CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCE SDG No. : N/A

Lab File ID 05-21-03\E02968.D Calibration Date: 05/21/03 Time: 16:21

EPA Sample No. : EDBSTD-REF-E Init. Calib. Date(s): 05/13/03 05/13/03

GC Column: DB-1701 ID: 0.53 (mm) Init.Calib. Times: 15:43 17:09

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
1,2-Dibromoethane (EDB)	1321130.495	1166298.982		-11.72	

All other Compounds must meet a minimum RRF of 0.01

3E

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA CASE No. : _____ SAS No. : _____ SDG No. : N/A

Matrix Spike - EPA Sample No. TFSGLMW0501

COMPOUND	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC #	QC LIMITS REC.
1,2-Dibromoethane (EDB)	0.20	0	0.23	115	60-140

COMPOUND	SPIKE ADDED ug/L	MSD CONCENTRATION ug/L	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC
1,2-Dibromoethane (EDB)	0.20	0.24	120	4	20	60-140

Column to be used to flag recovery and RPD Values with and asterisk.

* Values outside of QC limits

RPD 0 Out of 1 outside Limits

Spike Recovery : 0 Out of 2 outside limits

Comments : _____

3E

WATER PESTICIDE BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Blank Spike - EPA Sample No. : 15364 BKS

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BKS CONCENTRATION (ug/L)	BKS % REC #	QC LIMITS REC.
1,2-Dibromoethane (EDB)	0.20	0	0.27	135	60-140

Column to be used to flag recovery and RPD values with and asterisk

* Values outside of QC limits

RPD : 0 out of 2 outside limits

Spike Recovery : 0 out of 4 outside limits

Comments : _____

4B
SEMIVOLATILE METHOD BLANK SUMMAR`

EPA SAMPLE NO.
15315 BLK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : SAS No. : SDG No. : N/A

Lab File ID : 1B052003\B42216.D Lab Sample ID : 15315 BLK

Instrument ID : HP-MSB Date Extracted : 05/14/03

Matrix : (soil/ water) WATER Date Analyzed : 05/20/03

Level : (low/med) LOW Time Analyzed : 16:47

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD :

	EPA SAMPLE NO..	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
1	15315 BKS	15315 BKS	1B052003\B42213.I	05/20/03
2	TPB0QGLMW1901 MS	4072-003 MS	1B052003\B42214.I	05/20/03
3	TPB0QGLMW1901 MSD	4072-003 MSD	1B052003\B42215.I	05/20/03
4	TFSGLMW0601	4077-005	1B052003\B42223.I	05/20/03

COMMENTS:

3C

WATER SEMIVOLATILE BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Blank Spike - EPA Sample No. 15315 BKS

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BKS CONCENTRATION (ug/L)	BKS % REC #	QC LIMITS REC.
1-Methylnaphthalene	50	0	43	86	35-96
2-Methylnaphthalene	50	0	42	84	37-113
Acenaphthene	50	0	44	88	47-119
Acenaphthylene	50	0	43	86	60-110
Anthracene	50	0	43	86	68-109
Benzo(a)anthracene	50	0	45	90	51-124
Benzo(a)pyrene	50	0	43	86	41-135
Benzo(b)fluoranthene	50	0	45	90	25-167
Benzo(g,h,i)perylene	50	0	39	78	34-135
Benzo(k)fluoranthene	50	0	50	100	43-131
Chrysene	50	0	44	88	52-126
Dibenz(a,h)Anthracene	50	0	41	82	38-134
Fluoranthene	50	0	43	86	66-122
Fluorene	50	0	43	86	56-119
Indeno(1,2,3-c,d)Pyrene	50	0	40	80	38-130
Naphthalene	50	0	41	82	12-146
Phenanthrene	50	0	45	90	74-104
Pyrene	50	0	50	100	49-127

Column to be used to flag recovery and RPD values with and asterisk

* Values outside of QC limits

RPD 0 out of 18 outside limit

Spike Recovery 0 out of 36 outside limit

Comments : _____

1D
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
15315 BLK

Lab Name : ACCURA ANALYTICAL LAB
Contract: N5079-WR342
Lab Code : ACCURA
Case No.:
SAS No.:
SDG No.: N/A
Matrix : (soil/water) WATER
Lab Sample Id: 15315 BLK
Sample wt/vol: 1000 (g/ml): ML
Lab File ID: 1B052003\B42216
Level : (low/med) LOW
Date Received:
% Moisture: 0 Decanted: (Y/N) N
Date Extracted: 05/14/03
Concentrated Extract Volume: 1000 (µ L)
Date Analyzed: 05/20/03
Injection Volume: 1.0 (µ L)
Dilution Factor: 1.0
GPC Cleanup (Y/N): N pH: N/A
Extraction : (Type) SW3520C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
90-12-0	1-Methylnaphthalene	1.0	U
91-57-6	2-Methylnaphthalene	1.0	U
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	1.0	U
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

4B
SEMIVOLATILE METHOD BLANK SUMMAR'

EPA SAMPLE NO.
15359 BLK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : SAS No. : SDG No. : N/A

Lab File ID : 1B052003\B42224.D Lab Sample ID : 15359 BLK

Instrument ID : HP-MSB Date Extracted : 05/16/03

Matrix : (soil/ water) WATER Date Analyzed : 05/20/03

Level : (low/med) LOW Time Analyzed : 19:45

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD :

	EPA SAMPLE NO..	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
1	15359 BKS	15359 BKS	1B052003\B42225.I	05/20/03
2	TFSGLMW1401	4077-018	1B052003\B42226.I	05/20/03
3	TFSGLMW1401 MS	4077-018 MS	1B052003\B42227.I	05/20/03
4	TFSGLMW1401 MSD	4077-018 MSD	1B052003\B42228.I	05/20/03
5	TFSGLMW0701	4077-001	1B052103\B42260.I	05/21/03
6	TFSGLMW0501	4077-002	1B052103\B42261.I	05/21/03
7	TFSGLMW0301	4077-003	1B052103\B42262.I	05/21/03
8	TFSGLMW1201	4077-004	1B052103\B42263.I	05/21/03
9	TFSGLMW0901	4077-006	1B052103\B42265.I	05/22/03

COMMENTS:

3C

WATER SEMIVOLATILE BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Blank Spike - EPA Sample No. 15359 BKS

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BKS CONCENTRATION (ug/L)	BKS % REC #	QC LIMITS REC.
1-Methylnaphthalene	50	0	36	72	35-96
2-Methylnaphthalene	50	0	36	72	37-113
Acenaphthene	50	0	39	78	47-119
Acenaphthylene	50	0	39	78	60-110
Anthracene	50	0	40	80	68-109
Benzo(a)anthracene	50	0	43	86	51-124
Benzo(a)pyrene	50	0	43	86	41-135
Benzo(b)fluoranthene	50	0	50	100	25-167
Benzo(g,h,i)perylene	50	0	33	66	34-135
Benzo(k)fluoranthene	50	0	40	80	43-131
Chrysene	50	0	41	82	52-126
Dibenz(a,h)Anthracene	50	0	34	68	38-134
Fluoranthene	50	0	41	82	66-122
Fluorene	50	0	40	80	56-119
Indeno(1,2,3-c,d)Pyrene	50	0	34	68	38-130
Naphthalene	50	0	35	70	12-146
Phenanthrene	50	0	43	86	74-104
Pyrene	50	0	46	92	49-127

Column to be used to flag recovery and RPD values with and asterisk

* Values outside of QC limits

RPD 0 out of 18 outside limit

Spike Recovery 0 out of 36 outside limit

Comments : _____

1D

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

15359 BLK

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.:

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 15359 BLK

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1B052003\B42224

Level : (low/med) LOW

Date Received:

% Moisture: 0 Decanted: (Y/N) N

Date Extracted: 05/16/03

Concentrated Extract Volume: 1000 (µ L)

Date Analyzed: 05/20/03

Injection Volume: 1.0 (µ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N pH: N/A

Extraction : (Type) SW3510C

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
90-12-0	1-Methylnaphthalene	1.0	U
91-57-6	2-Methylnaphthalene	1.0	U
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	1.0	U
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

4B
SEMIVOLATILE METHOD BLANK SUMMAR'

EPA SAMPLE NO.
15371 BLK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : SAS No. : SDG No. : N/A

Lab File ID : 1B052103\B42249.D Lab Sample ID : 15371 BLK

Instrument ID : HP-MSB Date Extracted : 05/16/03

Matrix : (soil/ water) WATER Date Analyzed : 05/21/03

Level : (low/med) LOW Time Analyzed : 18:06

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD :

	EPA SAMPLE NO..	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
1	15371 BKS	15371 BKS	1B052103\B42246.I	05/21/03
2	TFSGLMW0101 MS	4077-007 MS	1B052103\B42247.I	05/21/03
3	TFSGLMW0101 MSD	4077-007 MSD	1B052103\B42248.I	05/21/03
4	TFSGLMW0101	4077-007	1B052103\B42250.I	05/21/03
5	TFSGLMW0201	4077-008	1B052103\B42251.I	05/21/03
6	0503-RB-01	4077-009	1B052103\B42252.I	05/21/03
7	TFSGLMW0401	4077-014	1B052103\B42253.I	05/21/03
8	TFSGLP0101	4077-015	1B052103\B42254.I	05/21/03
9	TFSGLMW1101	4077-016	1B052103\B42255.I	05/21/03
10	0503-DUP-01	4077-017	1B052103\B42256.I	05/21/03

COMMENTS:

3C

WATER SEMIVOLATILE BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Blank Spike - EPA Sample No. 15371 BKS

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BKS CONCENTRATION (ug/L)	BKS % REC #	QC LIMITS REC.
1-Methylnaphthalene	50	0	34	68	35-96
2-Methylnaphthalene	50	0	34	68	37-113
Acenaphthene	50	0	36	72	47-119
Acenaphthylene	50	0	36	72	60-110
Anthracene	50	0	37	74	68-109
Benzo(a)anthracene	50	0	39	78	51-124
Benzo(a)pyrene	50	0	39	78	41-135
Benzo(b)fluoranthene	50	0	42	84	25-167
Benzo(g,h,i)perylene	50	0	31	62	34-135
Benzo(k)fluoranthene	50	0	41	82	43-131
Chrysene	50	0	38	76	52-126
Dibenz(a,h)Anthracene	50	0	32	64	38-134
Fluoranthene	50	0	39	78	66-122
Fluorene	50	0	37	74	56-119
Indeno(1,2,3-c,d)Pyrene	50	0	32	64	38-130
Naphthalene	50	0	32	64	12-146
Phenanthrene	50	0	39	78	74-104
Pyrene	50	0	43	86	49-127

Column to be used to flag recovery and RPD values with and asterisk

* Values outside of QC limits

RPD 0 out of 18 outside limit

Spike Recovery 0 out of 36 outside limit

Comments : _____

1D

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

15371 BLK

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA Case No.:

SAS No.: SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 15371 BLK

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1B052103\B42249

Level : (low/med) LOW

Date Received:

% Moisture: 0 Decanted: (Y/N) N

Date Extracted: 05/16/03

Concentrated Extract Volume: 1000 (µ L)

Date Analyzed: 05/21/03

Injection Volume: 1.0 (µ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N pH: N/A

Extraction : (Type) SW3520C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
90-12-0	1-Methylnaphthalene	1.0	U
91-57-6	2-Methylnaphthalene	1.0	U
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	1.0	U
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Lab File ID : _____ DFTPP Injection Date : 05/12/03

Instrument ID : HP-MSB DFTPP Injection Time : 15:13

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	46.3
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	59.7
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	49.2
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.5
275	10.0 - 30.0% of mass 198	24.7
365	Greater than 1.0% of mass 198	2.2
441	Present, but less than mass 443	8.4
442	40.0 - 110.0% of mass 198	57.8
443	17.0 - 23.0% of mass 442	11.0 (18.9)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS :

	EPA SAMPLE NO	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	SSTD050B52	SSTD050B52	1B051203\B42113	05/12/03	15:23
2	SSTD001B52	SSTD001B52	1B051203\B42114	05/12/03	15:44
3	SSTD010B52	SSTD010B52	1B051203\B42115	05/12/03	16:03
4	SSTD020B52	SSTD020B52	1B051203\B42116	05/12/03	16:24
5	SSTD080B52	SSTD080B52	1B051203\B42117	05/12/03	16:43
6	SSTD120B52	SSTD120B52	1B051203\B42118	05/12/03	17:04
7	SSTD160B52	SSTD160B52	1B051203\B42119	05/12/03	17:24

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-MSB Calibration Date(s): 05/12/03 05/12/03

Calibration Times: 15:23 17:24

LAB FILE ID:

RRF1 = 1B051203\B42114 RRF10 = 1B051203\B42115

RRF20 = 1B051203\B42116 RRF50 = 1B051203\B42113 RRF80 = 1B051203\B42117

COMPOUND	RRF1	RRF10	RRF20	RRF50	RRF80	$\overline{RRF}$	% RSD
1-Methylnaphthalene	0.628	0.600	0.618	0.609	0.592	0.610	
2-Methylnaphthalene	0.512	0.518	0.539	0.543	0.528	0.528	
Acenaphthene *	1.157	1.193	1.201	1.188	1.145	1.177	
Acenaphthylene	1.848	1.950	1.974	2.014	1.918	1.941	
Anthracene	1.162	1.200	1.193	1.200	1.191	1.189	
Benzo(a)anthracene	1.077	0.991	1.020	1.097	1.092	1.056	
Benzo(a)pyrene *	1.363	1.313	1.362	1.492	1.520	1.410	
Benzo(b)fluoranthene	1.541	1.487	1.565	1.760	1.615	1.594	
Benzo(g,h,i)perylene	1.126	1.139	1.155	1.219	1.237	1.175	
Benzo(k)fluoranthene	1.507	1.376	1.382	1.460	1.631	1.471	
Chrysene	1.117	1.027	1.005	1.017	1.024	1.038	
Dibenz(a,h)Anthracene	1.016	1.124	1.146	1,255	1.299	1.168	
Fluoranthene *	1.076	1.096	1.125	1.148	1.160	1.121	
Fluorene	1.279	1.297	1.310	1.326	1.278	1.298	
Indeno(1,2,3-c,d)Pyrene	1.294	1.364	1.383	1.488	1.537	1.413	
Naphthalene	1.023	1.027	1.032	1.035	1.010	1.026	
Phenanthrene	1.103	1.101	1.108	1.086	1.067	1.093	
Pyrene	1.250	1.277	1.267	1.295	1.261	1.270	
2-Fluorobiphenyl	1.155	1.247	1.256	1.253	1.215	1.225	
o-Terphenyl	0.514	0.532	0.541	0.555	0.581	0.545	
Nitrobenzene-d5	0.363	0.364	0.376	0.406	0.404	0.383	
Terphenyl-d14	0.757	0.778	0.795	0.851	0.847	0.806	

Compounds with required minimum RRF
* Compounds with maximum %RSD Values
All other compounds must meet a minimum RRF of

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-MSB Calibration Date(s): 05/12/03 05/12/03

Calibration Times: 15:23 16:03

LAB FILE ID: RRF120 = 1B051203\B42118 RRF160 = 1B051203\B42119

COMPOUND	RRF120	RRF160	$\overline{RRF}$	% RSD
1-Methylnaphthalene	0.571	0.558	0.597	4.22
2-Methylnaphthalene	0.515	0.515	0.524	2.37
Acenaphthene *	1.137	1.079	1.157	3.67
Acenaphthylene	1.897	1.857	1.923	3.17
Anthracene	1.154	1.141	1.177	2.08
Benzo(a)anthracene	1.095	1.080	1.065	3.92
Benzo(a)pyrene *	1.507	1.493	1.436	6.00
Benzo(b)fluoranthene	1.739	1.756	1.638	6.92
Benzo(g,h,i)perylene	1.238	1.240	1.193	4.28
Benzo(k)fluoranthene	1.477	1.451	1.469	5.85
Chrysene	1.036	1.001	1.032	3.81
Dibenz(a,h)Anthracene	1.313	1.316	1.210	9.58
Fluoranthene *	1.139	1.138	1.126	2.65
Fluorene	1.261	1.247	1.285	2.15
Indeno(1,2,3-c,d)Pyrene	1.552	1.558	1.454	7.29
Naphthalene	0.974	0.952	1.008	3.20
Phenanthrene	1.069	1.021	1.079	2.81
Pyrene	1.225	1.208	1.255	2.40
2-Fluorobiphenyl	1.222	1.211	1.223	2.88
o-Terphenyl	0.568	0.514	0.544	4.75
Nitrobenzene-d5	0.402	0.398	0.387	4.98
Terphenyl-d14	0.808	0.792	0.804	4.30

Compounds with required minimum RRF
* Compounds with maximum %RSD Values
All other compounds must meet a minimum RRF of 0.010.

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : SAS No. : SDG No. : N/A

Lab File ID : DFTPP Injection Date : 05/20/03

Instrument ID : HP-MSB DFTPP Injection Time : 15:08

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0 - 60.0% of mass 198	49.1	
68	Less than 2.0% of mass 69	0.0	(0.0)1
69	Mass 69 relative abundance	61.7	
70	Less than 2.0% of mass 69	0.0	(0.0)1
127	40.0 - 60.0% of mass 198	52.4	
197	Less than 1.0% of mass 198	0.0	
198	Base Peak, 100% relative abundance	100.0	
199	5.0 to 9.0% of mass 198	6.6	
275	10.0 - 30.0% of mass 198	22.9	
365	Greater than 1.0% of mass 198	2.6	
441	Present, but less than mass 443	10.1	
442	40.0 - 110.0% of mass 198	69.2	
443	17.0 - 23.0% of mass 442	13.0	(18.8)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS :

	EPA SAMPLE NO	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	SSTD050B63	SSTD050B63	1B052003\B42212	05/20/03	15:19
2	15315 BKS	15315 BKS	1B052003\B42213	05/20/03	15:41
3	TPB0QGLMW1901 MS	4072-003 MS	1B052003\B42214	05/20/03	16:03
4	TPB0QGLMW1901 MSD	4072-003 MSD	1B052003\B42215	05/20/03	16:25
5	15315 BLK	15315 BLK	1B052003\B42216	05/20/03	16:47
6	TFSGLMW0601	4077-005	1B052003\B42223	05/20/03	19:22
7	15359 BLK	15359 BLK	1B052003\B42224	05/20/03	19:45
8	15359 BKS	15359 BKS	1B052003\B42225	05/20/03	20:07
9	TFSGLMW1401	4077-018	1B052003\B42226	05/20/03	20:29
10	TFSGLMW1401 MS	4077-018 MS	1B052003\B42227	05/20/03	20:51
11	TFSGLMW1401 MSD	4077-018 MSD	1B052003\B42228	05/20/03	21:13

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-MSB Calibration Date: 05/20/03 Time: 15:19

Lab File ID 1B052003\B42212.D Init. Calib. Date(s): 05/12/03 05/12/03

EPA Sample No. : SSTD050B63 Init.Calib. Times: 15:23 16:43

GC Column: ZB-5 ID: .25 (mm)

COMPOUND		RRF	RRF50	MIN RRF	%D	MAX %D
1-Methylnaphthalene		0.597	0.607		1.68	
2-Methylnaphthalene		0.524	0.556		5.96	
Acenaphthene	*	1.157	1.212		4.71	20.0
Acenaphthylene		1.923	2.033		5.76	
Anthracene		1.177	1.200		1.93	
Benzo(a)anthracene		1.065	1.075		0.99	
Benzo(a)pyrene	*	1.436	1.479		3.05	20.0
Benzo(b)fluoranthene		1.638	1.673		2.19	
Benzo(g,h,i)perylene		1.193	1.012		-15.17	
Benzo(k)fluoranthene		1.469	1.651		12.35	
Chrysene		1.032	1.016		-1.55	
Dibenz(a,h)Anthracene		1.210	1.065		-11.97	
Fluoranthene	*	1.126	1.134		0.68	20.0
Fluorene		1.285	1.298		1.02	
Indeno(1,2,3-c,d)Pyrene		1.454	1.283		-11.75	
Naphthalene		1.008	1.041		3.33	
Phenanthrene		1.079	1.143		5.87	
Pyrene		1.255	1.357		8.12	
2-Fluorobiphenyl		1.223	1.279		4.61	
Nitrobenzene-d5		0.387	0.438		12.92	
o-Terphenyl		0.544	0.625		14.90	
Terphenyl-d14		0.804	0.916		13.96	

Compounds with required minimum RRF
* Compounds with maximum %RSD Values
All other compounds must meet a minimum RRF of 0.01

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : SAS No. : SDG No. : N/A

Lab File ID : DFTPP Injection Date : 05/21/03

Instrument ID : HP-MSB DFTPP Injection Time : 16:27

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0 - 60.0% of mass 198	46.8	
68	Less than 2.0% of mass 69	0.0	(0.0)1
69	Mass 69 relative abundance	57.8	
70	Less than 2.0% of mass 69	0.0	(0.0)1
127	40.0 - 60.0% of mass 198	50.5	
197	Less than 1.0% of mass 198	0.0	
198	Base Peak, 100% relative abundance	100.0	
199	5.0 to 9.0% of mass 198	6.6	
275	10.0 - 30.0% of mass 198	23.3	
365	Greater than 1.0% of mass 198	2.3	
441	Present, but less than mass 443	9.2	
442	40.0 - 110.0% of mass 198	61.3	
443	17.0 - 23.0% of mass 442	12.0	(19.5)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS :

	EPA SAMPLE NO	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	SSTD050B64	SSTD050B64	1B052103\B42245	05/21/03	16:38
2	15371 BKS	15371 BKS	1B052103\B42246	05/21/03	16:59
3	TFSGLMW0101 MS	4077-007 MS	1B052103\B42247	05/21/03	17:21
4	TFSGLMW0101 MSD	4077-007 MSD	1B052103\B42248	05/21/03	17:43
5	15371 BLK	15371 BLK	1B052103\B42249	05/21/03	18:06
6	TFSGLMW0101	4077-007	1B052103\B42250	05/21/03	18:28
7	TFSGLMW0201	4077-008	1B052103\B42251	05/21/03	18:50
8	0503-RB-01	4077-009	1B052103\B42252	05/21/03	19:12
9	TFSGLMW0401	4077-014	1B052103\B42253	05/21/03	19:34
10	TFSGLP0101	4077-015	1B052103\B42254	05/21/03	19:56
11	TFSGLMW1101	4077-016	1B052103\B42255	05/21/03	20:18
12	0503-DUP-01	4077-017	1B052103\B42256	05/21/03	20:41
13	TFSGLMW0701	4077-001	1B052103\B42260	05/21/03	22:09
14	TFSGLMW0501	4077-002	1B052103\B42261	05/21/03	22:31
15	TFSGLMW0301	4077-003	1B052103\B42262	05/21/03	22:54
16	TFSGLMW1201	4077-004	1B052103\B42263	05/21/03	23:16
17	TFSGLMW0901	4077-006	1B052103\B42265	05/22/03	00:00

7D

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-MSB Calibration Date: 05/21/03 Time: 16:38

Lab File ID 1B052103\B42245.D Init. Calib. Date(s): 05/12/03 05/12/03

EPA Sample No. : SSTD050B64 Init.Calib. Times: 15:23 16:43

GC Column: ZB-5 ID: .25 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
1-Methylnaphthalene	0.597	0.621		4.02	
2-Methylnaphthalene	0.524	0.561		6.99	
Acenaphthene *	1.157	1.210		4.56	20.0
Acenaphthylene	1.923	2.017		4.93	
Anthracene	1.177	1.194		1.40	
Benzo(a)anthracene	1.065	1.072		0.70	
Benzo(a)pyrene *	1.436	1.486		3.54	20.0
Benzo(b)fluoranthene	1.638	1.615		-1.37	
Benzo(g,h,i)perylene	1.193	1.028		-13.88	
Benzo(k)fluoranthene	1.469	1.687		14.79	
Chrysene	1.032	1.021		-1.12	
Dibenz(a,h)Anthracene	1.210	1.079		-10.82	
Fluoranthene *	1.126	1.134		0.71	20.0
Fluorene	1.285	1.311		1.99	
Indeno(1,2,3-c,d)Pyrene	1.454	1.305		-10.21	
Naphthalene	1.008	1.048		3.97	
Phenanthrene	1.079	1.121		3.86	
Pyrene	1.255	1.352		7.76	
2-Fluorobiphenyl	1.223	1.266		3.54	
Nitrobenzene-d5	0.387	0.451		16.48	
Terphenyl-d14	0.804	0.916		13.89	

Compounds with required minimum RRF
* Compounds with maximum %RSD Values
All other compounds must meet a minimum RRF of 0.01

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ SAS NO.: _____ SDG NO.: N/A

	EPA SAMPLE NO.	S1 (FBP)	S2 (NBZ)	S3 (TPH)	S4 (OTPH)	S5 ()	S6 ()	S7 ()	S8 ()	TOT OUT
1	15315 BKS				100					0
2	TPB0QGLMW1901 MS				83					0
3	TPB0QGLMW1901 MSD				82					0
4	15315 BLK				92					0
5	TFSGLMW0601				98					0
6	15359 BLK	74	75	110						0
7	15359 BKS	83	85	100						0
8	TFSGLMW1401	55	56	62						0
9	TFSGLMW1401 MS	36	40	45						0
10	TFSGLMW1401 MSD	56	56	60						0
11	15371 BKS	76	77	96						0
12	TFSGLMW0101 MS	76	79	32						0
13	TFSGLMW0101 MSD	76	76	37						0
14	15371 BLK	75	76	98						0
15	TFSGLMW0101	78	85	25						0
16	TFSGLMW0201	82	78	44						0
17	0503-RB-01	77	75	97						0
18	TFSGLMW0401	88	89	47						0
19	TFSGLP0101	83	77	50						0
20	TFSGLMW1101	87	82	78						0
21	0503-DUP-01	90	88	40						0
22	TFSGLMW0701	67	68	88						0
23	TFSGLMW0501	66	67	82						0

		QC LIMITS	
S1	(FBP) = 2-Fluorobiphenyl	(18 - 96)	
S2	(NBZ) = Nitrobenzene-d5	(25 -114)	
S3	(TPH) = p-Terphenyl	(18 - 142)	
S4	(OTPH) = o-Terphenyl	(18 - 136)	
S5		(-)	
S6		(-)	
S7		(-)	(advisory)
S8		(-)	(advisory)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ SAS NO.: _____ SDG NO.: N/A

	EPA SAMPLE NO.	S1 (FBP)	S2 (NBZ)	S3 (TPH)	S4 ()	S5 ()	S6 ()	S7 ()	S8 ()	TOT OUT
24	TFSGLMW0301	52	48	73						0
25	TFSGLMW1201	63	63	73						0
26	TFSGLMW0901	63	63	77						0

		QC LIMITS	
S1	(FBP) = 2-Fluorobiphenyl	(-)	
S2	(NBZ) = Nitrobenzene-d5	(-)	
S3	(TPH) = p-Terphenyl	(-)	
S4		(-)	
S5		(-)	
S6		(-)	
S7		(-)	(advisory)
S8		(-)	(advisory)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA CASE No. : _____ SAS No. : _____ SDG No. : N/A

Matrix Spike - EPA Sample No TFSGLMW0101 MS

COMPOUND	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC #	QC LIMITS REC.
1-Methylnaphthalene	50	27	53	52	35-95
2-Methylnaphthalene	50	22	51	58	41-106
Acenaphthene	50	0	35	70	46-118
Acenaphthylene	50	0	35	70	61-109
Anthracene	50	0	31	62 *	69-106
Benzo(a)anthracene	50	0	17	34 *	52-121
Benzo(a)pyrene	50	0	12	24 *	33-136
Benzo(b)fluoranthene	50	0	11	22 *	23-166
Benzo(g,h,i)perylene	50	0	7.6	15 *	35-129
Benzo(k)fluoranthene	50	0	13	26 *	42-127
Chrysene	50	0	15	30 *	52-123
Dibenz(a,h)Anthracene	50	0	7.5	15 *	17-164
Fluoranthene	50	0	29	58 *	66-122
Fluorene	50	0	35	70	56-116
Indeno(1,2,3-c,d)Pyrene	50	0	7.7	15 *	27-150
Naphthalene	50	35	58	46	13-138
Phenanthrene	50	0.31	35	69 *	74-103
Pyrene	50	0	32	64	49-126

COMPOUND	SPIKE ADDED ug/L	MSD CONCENTRATION ug/L	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC
1-Methylnaphthalene	50	58	62	18	20	35-95
2-Methylnaphthalene	50	55	66	13	20	41-106
Acenaphthene	50	36	72	3	20	46-118
Acenaphthylene	50	36	72	3	20	61-109
Anthracene	50	32	64	3	20	69-106
Benzo(a)anthracene	50	19	38	11	20	52-121
Benzo(a)pyrene	50	13	26	8	20	33-136
Benzo(b)fluoranthene	50	14	28	24 *	20	23-166
Benzo(g,h,i)perylene	50	8.7	17	13	20	35-129
Benzo(k)fluoranthene	50	14	28	7	20	42-127
Chrysene	50	17	34	13	20	52-123
Dibenz(a,h)Anthracene	50	8.3	17	13	20	17-164
Fluoranthene	50	30	60	3	20	66-122
Fluorene	50	37	74	6	20	56-116
Indeno(1,2,3-c,d)Pyrene	50	8.7	17	13	20	27-150

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA CASE No. : _____ SAS No. : _____ SDG No. : N/A

Matrix Spike - EPA Sample No TFSGLMW0101 MS

COMPOUND	SPIKE ADDED ug/L	MSD CONCENTRATION ug/L	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC
Naphthalene	50	62	54	16	20	13-138
Phenanthrene	50	36	71	3	20	74-103
Pyrene	50	34	68	6	20	49-126

Column to be used to flag recovery and RPD Values with and asterisk.
* Values outside of QC limits

RPD 1 Out of 18 outside Limit

Spike Recovery : 20 Out of 36 outside limit

Comments : _____

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA CASE No. : _____ SAS No. : _____ SDG No. : N/A

Matrix Spike - EPA Sample No TFSGLMW1401 MS

COMPOUND	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC #	QC LIMITS REC.
1-Methylnaphthalene	50	0	16	32 *	35-95
2-Methylnaphthalene	50	0	16	32 *	41-106
Acenaphthene	50	0	18	36 *	46-118
Acenaphthylene	50	0	18	36 *	61-109
Anthracene	50	0	19	38 *	69-106
Benzo(a)anthracene	50	0	19	38 *	52-121
Benzo(a)pyrene	50	0	18	36	33-136
Benzo(b)fluoranthene	50	0	19	38	23-166
Benzo(g,h,i)perylene	50	0	12	24 *	35-129
Benzo(k)fluoranthene	50	0	21	42	42-127
Chrysene	50	0	19	38 *	52-123
Dibenz(a,h)Anthracene	0	0	12	1200 *	17-164
Fluoranthene	50	0	19	38 *	66-122
Fluorene	50	0	18	36 *	56-116
Indeno(1,2,3-c,d)Pyrene	50	0	13	26 *	27-150
Naphthalene	50	0	16	32	13-138
Phenanthrene	50	0	20	40 *	74-103
Pyrene	50	0	21	42 *	49-126

COMPOUND	SPIKE ADDED ug/L	MSD CONCENTRATION ug/L	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC
1-Methylnaphthalene	50	25	50	44 *	20	35-95
2-Methylnaphthalene	50	25	50	44 *	20	41-106
Acenaphthene	50	27	54	40 *	20	46-118
Acenaphthylene	50	27	54	40 *	20	61-109
Anthracene	50	28	56	38 *	20	69-106
Benzo(a)anthracene	50	26	52	31 *	20	52-121
Benzo(a)pyrene	50	21	42	15	20	33-136
Benzo(b)fluoranthene	50	22	44	15	20	23-166
Benzo(g,h,i)perylene	50	12	24	0	20	35-129
Benzo(k)fluoranthene	50	24	48	13	20	42-127
Chrysene	50	26	52	31 *	20	52-123
Dibenz(a,h)Anthracene	50	12	24	192 *	20	17-164
Fluoranthene	50	29	58	42 *	20	66-122
Fluorene	50	28	56	43 *	20	56-116
Indeno(1,2,3-c,d)Pyrene	50	13	26	0	20	27-150

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA CASE No. : _____ SAS No. : _____ SDG No. : N/A

Matrix Spike - EPA Sample No TFSGLMW1401 MS

COMPOUND	SPIKE ADDED ug/L	MSD CONCENTRATION ug/L	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC
Naphthalene	50	24	48	40 *	20	13-138
Phenanthrene	50	30	60	40 *	20	74-103
Pyrene	50	33	66	44 *	20	49-126

Column to be used to flag recovery and RPD Values with and asterisk.
* Values outside of QC limits

RPD 13 Out of 18 outside Limit

Spike Recovery : 20 Out of 36 outside limit

Comments : _____

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.
15345 BLK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : SAS No. : SDG No. : N/A

Lab File ID 1O051903\O002209.D Lab Sample ID : 15345 BLK

Instrument ID : HP-GCO Date Extracted : 05/16/03

Matrix : (soil/ water) WATER Date Analyzed : 05/20/03

Level : (low/med) LOW Time Analyzed : 00:53

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD :

	EPA SAMPLE NO..	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
1	15345 BKS	15345 BKS	1O051903\O002210	05/20/03
2	TFSGLMW0101 MS	4077-007 MS	1O051903\O002211	05/20/03
3	TFSGLMW0101 MSD	4077-007 MSD	1O051903\O002212	05/20/03
4	TFSGLMW0701	4077-001	1O051903\O002214	05/20/03
5	TFSGLMW0501	4077-002	1O051903\O002215	05/20/03
6	TFSGLMW0301	4077-003	1O051903\O002216	05/20/03
7	TFSGLMW1201	4077-004	1O051903\O002217	05/20/03
8	TFSGLMW0601	4077-005	1O051903\O002219	05/20/03
9	TFSGLMW0901	4077-006	1O051903\O002220	05/20/03
10	TFSGLMW0101	4077-007	1O051903\O002221	05/20/03
11	TFSGLMW0201	4077-008	1O051903\O002222	05/20/03
12	0503-RB-01	4077-009	1O051903\O002223	05/20/03
13	TFSGLMW0401	4077-014	1O051903\O002224	05/20/03
14	TFSGLP0101	4077-015	1O051903\O002225	05/20/03
15	TFSGLMW1101	4077-016	1O051903\O002226	05/20/03
16	0503-DUP-01	4077-017	1O051903\O002227	05/20/03
17	TFSGLMW1401	4077-018	1O051903\O002228	05/20/03

COMMENTS:

1D
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
15345 BLK

Lab Name : ACCURA ANALYTICAL LAB
Contract: N5079-WR342
Lab Code : ACCURA
Case No.:
SAS No.
SDG No.: N/A
Matrix : (soil/water) WATER
Lab Sample Id: 15345 BLK
Sample wt/vol: 1000 (g/ml): ML
Lab File ID: 1O051903\O002209
Level : (low/med) LOW
Date Received:
% Moisture: 0 Decanted: (Y/N) N
Date Extracted: 05/16/03
Concentrated Extract Volume: 2000 (µ L)
Date Analyzed: 05/20/03
Injection Volume: 1.0 (µ L)
Dilution Factor: 1.0
GPC Cleanup (Y/N): N pH: N/A
Extraction : (Type) SW3510C

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	1.2	J

8D
SEMIVOLATILES INITIAL ANALYTICAL SEQUENCE

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

GC Column: _____ ID: _____ (mm) SDG No. : N/A

Instrument ID: HP-GCO Init. Calib. Date(s): 05/08/03 05/08/03

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX _____ DCB _____

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
FLPRO0850	FLPRO0850	05/08/03	13:57		
FLPRO1700	FLPRO1700	05/08/03	14:46		
FLPRO2550	FLPRO2550	05/08/03	15:36		
FLPRO4250	FLPRO4250	05/08/03	16:26		
FLPRO5950	FLPRO5950	05/08/03	17:16		
FLPRO8500	FLPRO8500	05/08/03	18:05		
ZZZZZ	ZZZZZ	05/08/03	20:34		
ZZZZZ	ZZZZZ	05/08/03	21:24		
ZZZZZ	ZZZZZ	05/08/03	22:14		
ZZZZZ	ZZZZZ	05/08/03	23:03		
ZZZZZ	ZZZZZ	05/08/03	23:53		
ZZZZZ	ZZZZZ	05/09/03	00:42		
ZZZZZ	ZZZZZ	05/09/03	01:32		
ZZZZZ	ZZZZZ	05/09/03	02:22		
ZZZZZ	ZZZZZ	05/09/03	03:11		

TCX = Tetrachloro-m-xylene
DCB = Decachlorobiphenyl

QC LIMITS
(± 0.05 MINUTES)
(± 0.10 MINUTES)

Column used to flag retention time values with and asterisk.
* Value outside of QC limits.

8D
SEMIVOLATILES INITIAL ANALYTICAL SEQUENCE

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

GC Column: _____ ID: _____ (mm) SDG No. : N/A

Instrument ID: HP-GCO Init. Calib. Date(s): 05/08/03 05/08/03

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX _____ DCB _____

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
FLPRO595005	FLPRO595005	05/19/03	14:07		
ZZZZZ	ZZZZZ	05/19/03	14:57		
ZZZZZ	ZZZZZ	05/19/03	15:47		
ZZZZZ	ZZZZZ	05/19/03	16:36		
ZZZZZ	ZZZZZ	05/19/03	17:26		
ZZZZZ	ZZZZZ	05/19/03	18:16		
ZZZZZ	ZZZZZ	05/19/03	19:05		
ZZZZZ	ZZZZZ	05/19/03	19:55		
ZZZZZ	ZZZZZ	05/19/03	20:44		
ZZZZZ	ZZZZZ	05/19/03	21:34		
ZZZZZ	ZZZZZ	05/19/03	22:24		
FLPRO595006	FLPRO595006	05/19/03	23:13		
ZZZZZ	ZZZZZ	05/20/03	00:03		
15345 BLK	15345 BLK	05/20/03	00:53		
15345 BKS	15345 BKS	05/20/03	01:42		
TFSGLMW0101 MS	4077-007 MS	05/20/03	02:32		
TFSGLMW0101 MSD	4077-007 MSD	05/20/03	03:21		
ZZZZZ	ZZZZZ	05/20/03	04:11		
TFSGLMW0701	4077-001	05/20/03	05:01		
TFSGLMW0501	4077-002	05/20/03	05:50		
TFSGLMW0301	4077-003	05/20/03	06:40		
TFSGLMW1201	4077-004	05/20/03	07:29		
FLPRO595007	FLPRO595007	05/20/03	08:19		
TFSGLMW0601	4077-005	05/20/03	09:09		

QC LIMITS
(± 0.05 MINUTES)
(± 0.10 MINUTES)

TCX = Tetrachloro-m-xylene
DCB = Decachlorobiphenyl

Column used to flag retention time values with and asterisk.
* Value outside of QC limits.

8D
SEMIVOLATILES INITIAL ANALYTICAL SEQUENCE

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

GC Column: _____ ID: _____ (mm) SDG No. : N/A

Instrument ID: HP-GCO Init. Calib. Date(s): 05/08/03 05/08/03

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX _____ DCB _____

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
TFSGLMW0901	4077-006	05/20/03	09:58		
TFSGLMW0101	4077-007	05/20/03	10:48		
TFSGLMW0201	4077-008	05/20/03	11:37		
0503-RB-01	4077-009	05/20/03	12:27		
TFSGLMW0401	4077-014	05/20/03	13:17		
TFSGLP0101	4077-015	05/20/03	14:06		
TFSGLMW1101	4077-016	05/20/03	14:56		
0503-DUP-01	4077-017	05/20/03	15:45		
TFSGLMW1401	4077-018	05/20/03	16:35		
FLPRO595008	FLPRO595008	05/20/03	17:25		

QC LIMITS
(± 0.05 MINUTES)
(± 0.10 MINUTES)

TCX = Tetrachloro-m-xylene
DCB = Decachlorobiphenyl

Column used to flag retention time values with and asterisk.
* Value outside of QC limits.

6C

SEMIVOLATILES ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-GCO Calibration Date(s): 05/08/03 05/08/03

GC Column : DB ID : _____ (mm) Calibration Times: 13:57 13:57

LAB FILE ID: CCF1 = 1O050803\O002121.D CCF2 = 1O050803\O002122.D

CCF3 = 1O050803\O002123.D CCF4 = 1O050803\O002124.D CCF5 = 1O050803\O002125.D

COMPOUND	CCF1	CCF2	CCF3	CCF4	CCF5	CCF	% RSD
Petroleum Range Organics	8568.564	6050.746	5707.135	5484.709	5694.301		
o-Terphenyl	10664.216	9699.841	9752.611	9845.458	10898.201	10172.065	5.55
C(39)	392.640	386.574	376.844	401.438	462.935	404.086	8.44

* Compounds with required minimum RRF and maximum %RSD Values
All other compounds must meet a minimum RRF of 0.010.

6C

SEMIVOLATILES ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-GCO Calibration Date(s): 05/08/03 05/08/03

GC Column : DB ID : (mm) Calibration Times: 13:57 13:57

LAB FILE I CCF6 = 1O050803\O002126.D CCF7 = _____

COMPOUND	CCF6	CCF7	$\overline{CCF}$	% RSD
Petroleum Range Organics	5977.036		6247.082	18.50
o-Terphenyl				
C(39)				

* Compounds with required minimum RRF and maximum %RSD Values

7C

SEMIVOLATILES CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCO SDG No. : N/A

Lab File ID 1O051903\O002196.D Calibration Date: 05/19/03 Time: 14:07

EPA Sample No. : FLPRO595005 Init. Calib. Date(s): 05/08/03 05/08/03

GC Column: _____ ID: _____ (mm) Init.Calib. Times: 13:57 17:16

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
Petroleum Range Organics	6247.082	5220.945		-16.43	25.0
o-Terphenyl	10172.065	11574.941		13.79	
C(39)	404.086	398.132		-1.47	

All other Compounds must meet a minimum RRF of 0.01

7D

SEMIVOLATILES CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCO SDG No. : N/A

Lab File ID 1O051903\O002207.D Calibration Date: 05/19/03 Time: 23:13

EPA Sample No. : FLPRO595006 Init. Calib. Date(s): 05/08/03 05/08/03

GC Column: _____ ID: _____ (mm) Init.Calib. Times: 13:57 17:16

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
Petroleum Range Organics	6247.082	6000.696		-3.94	25.0
o-Terphenyl	10172.065	11563.175		13.68	
C(39)	404.086	447.976		10.86	

All other Compounds must meet a minimum RRF of 0.01

7C

SEMIVOLATILES CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCO SDG No. : N/A

Lab File ID 1O051903\O002218.D Calibration Date: 05/20/03 Time: 08:19

EPA Sample No. : FLPRO595007 Init. Calib. Date(s): 05/08/03 05/08/03

GC Column: _____ ID: _____ (mm) Init.Calib. Times: 13:57 17:16

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
Petroleum Range Organics	6247.082	6292.797		0.73	25.0
o-Terphenyl	10172.065	11512.863		13.18	
C(39)	404.086	462.598		14.48	

All other Compounds must meet a minimum RRF of 0.01

7D

SEMIVOLATILES CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCO SDG No. : N/A

Lab File ID 1O051903\O002229.D Calibration Date: 05/20/03 Time: 17:25

EPA Sample No. : FLPRO595008 Init. Calib. Date(s): 05/08/03 05/08/03

GC Column: _____ ID: _____ (mm) Init.Calib. Times: 13:57 17:16

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
Petroleum Range Organics	6247.082	6225.743		-0.34	25.0
o-Terphenyl	10172.065	11597.528		14.01	
C(39)	404.086	444.522		10.01	

All other Compounds must meet a minimum RRF of 0.01

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No. : _____ SAS NO. : _____ SDG NO. : N/A

	EPA SAMPLE NO.	S1 (C39)	S2 (OTPH)	S3 ( )	S4 ( )	S5 ( )	S6 ( )	S7 ( )	S8 ( )	TOT OUT
1	15345 BLK	73*	75							1
2	15345 BKS	77*	39*							2
3	TFSGLMW0101 MS	87	52							0
4	TFSGLMW0101 MSD	90	42							0
5	TFSGLMW0701	80*	61							1
6	TFSGLMW0501	67*	47							1
7	TFSGLMW0301	75*	35*							2
8	TFSGLMW1201	86	51							0
9	TFSGLMW0601	72*	69							1
10	TFSGLMW0901	80*	46							1
11	TFSGLMW0101	85	50							0
12	TFSGLMW0201	90	74							0
13	0503-RB-01	68*	41*							2
14	TFSGLMW0401	95	56							0
15	TFSGLP0101	93	49							0
16	TFSGLMW1101	60*	61							1
17	0503-DUP-01	73	80*							1
18	TFSGLMW1401	46	68*							1

		QC LIMITS	
S1	(C39) = C39	(-)	
S2	(OTPH) = o-Terphenyl	(-)	
S3		(-)	
S4		(-)	
S5		(-)	
S6		(-)	
S7		(-)	(advisory)
S8		(-)	(advisory)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA CASE No. : _____ SAS No. : _____ SDG No. : N/A

Matrix Spike - EPA Sample No. TFSGLMW0101 MS

COMPOUND	SPIKE ADDED mg/L	SAMPLE CONCENTRATION mg/L	MS CONCENTRATION mg/L	MS % REC #	QC LIMITS REC.
Petroleum Range Organics	8.5	17	31	165 *	41-101

COMPOUND	SPIKE ADDED mg/L	MSD CONCENTRATION mg/L	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC
Petroleum Range Organics	8.5	30	153	8	20	41-101

Column to be used to flag recovery and RPD Values with and asterisk.
* Values outside of QC limits

RPD 0 Out of 1 outside Limit

Spike Recovery : 2 Out of 2 outside limit

Comments : _____

3C

WATER SEMIVOLATILE BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Blank Spike - EPA Sample No. : 15345 BKS

COMPOUND	SPIKE ADDED	BLANK CONCENTRATION	BKS CONCENTRATION	BKS % REC #	QC LIMITS REC.
	(mg/L)	(mg/L)	(mg/L)		
Petroleum Range Organics	4.3	1.2	3.8	88	55-118

Column to be used to flag recovery and RPD values with and asterisk

* Values outside of QC limits

RPD 0 out of 1 outside limit

Spike Recovery 0 out of 2 outside limit

Comments : _____

USEPA - CLP

9 - IN
METHOD DETECTION LIMITS (ANNUALLY)

Lab Name ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Instrument Type: CLP ILM05.0 Instrument ID: TETRACEB Date: 09/13/2002

Preparation Method: CLP DIGESTION

Concentration Units (ug/L or mg/kg): UG/L

Analyte	Wavelength /Mass	CRQL	MDL
Iron	259.9	100	97

9.7 mg/Kg

Comments: _____

USEPA - CLP

9 - IN
METHOD DETECTION LIMITS (ANNUALLY)

Lab Name ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Instrument Type: CLP_ILM05.0 Instrument ID: TE61EA Date: 11/26/2002

Preparation Method: CLP_DIGESTION

Concentration Units (ug/L or mg/kg): UG/L

Analyte	Wavelength /Mass	CRQL	MDL
Arsenic	193.6	1.1	1.1

0.11 mg/Kg

Comments: _____

USEPA - CLP

12-IN
PREPARATION LOG

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Preparation Method: CLP

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
15355 BKS	05/16/2003	1.00	100
15355 BLK	05/16/2003	1.00	100
15355 BSD	05/16/2003	1.00	100
BCBM-CONF-04	05/16/2003	1.04	100
BCBM-CONF-04	05/16/2003	1.02	100
BCBM-CONF-04	05/16/2003	1.03	100
BCBM-CONF-01	05/16/2003	1.00	100
BCBM-CONF-02	05/16/2003	1.02	100
BCBM-CONF-04	05/16/2003	1.02	100
BCBM-CONF-03	05/16/2003	1.03	100

USEPA - CLP

12-IN
PREPARATION LOG

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Preparation Method: CLP

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
15392 BKS	05/21/2003		50
15392 BLK	05/21/2003		50
15392 BSD	05/21/2003		50
TFSGLMW1401	05/21/2003		50
TFSGLMW1401	05/21/2003		50
TFSGLMW1401	05/21/2003		50
0503-DUP-01	05/21/2003		50
TFSGLMW0401	05/21/2003		50
TFSGLMW1101	05/21/2003		50
TFSGLMW1401	05/21/2003		50
TFSGLP0101	05/21/2003		50

USEPA - CLP

12-IN
PREPARATION LOG

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Preparation Method: CLP

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
15408 BKS	05/22/2003		50
15408 BLK	05/22/2003		50
15408 BSD	05/22/2003		50
0503-RB-01	05/22/2003		50
0503-RB-01	05/22/2003		50
0503-RB-01	05/22/2003		50
0503-RB-01	05/22/2003		50
TFSGLMW0101	05/22/2003		50
TFSGLMW0201	05/22/2003		50
TFSGLMW0301	05/22/2003		50
TFSGLMW0501	05/22/2003		50
TFSGLMW0601	05/22/2003		50
TFSGLMW0701	05/22/2003		50
TFSGLMW0901	05/22/2003		50
TFSGLMW1201	05/22/2003		50

USEPA - CLP

2A-IN
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Initial Calibration Verification Source: _____

Continuing Calibration Verification Source: _____

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Arsenic	2000.0	2030.00	102	2000.0	2160.00	108	2140.00	107	P
Iron	2000.0	1990.00	100	2000.0	2010.00	101	1980.00	99	P

(1) Control Limits : Mercury 80-120; Other Metals 90-110; Cyanide 85-115

USEPA - CLP

2A-IN
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Initial Calibration Verification Source: _____

Continuing Calibration Verification Source: _____

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Arsenic				2000.0	2120.00	106	2080.00	104	P
Iron				2000.0	1960.00	98	1.92	0	P

(1) Control Limits : Mercury 80-120; Other Metals 90 - 110; Cyanide 85 - 115

3-IN
BLANKS

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Preparation Blank Matrix (soil/water): S

Preparation Blank Concentration Units (ug/L or mg/kg) MG/KG

Analyte	Initial Calib. Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank		
		C	1	C	2	C	3	C		C	M
Arsenic	1.0	U	1.0	U	1.7		1.0	U	1.000	U	P
Iron	100.0	U	100.0	U	100.0	U	100.0	U	3.000	U	P

USEPA - CLP

3-IN
BLANKS

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Preparation Blank Matrix (soil/water): S

Preparation Blank Concentration Units (ug/L or mg/kg) MG/KG

Analyte	Initial Calib. Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank		
		C	4	C	5	C	6	C		C	M
Arsenic			2.0	U							P
Iron			100	U							P

U S EPA - CLP

2B- IN
CRQL CHECK STANDARD

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: NRAS No. _____ SDG No.: N/A

CRQL Check Standard Source : _____

Concentration Units: ug /L

Analyte	CRQL Check Standard				
	Initial			Final	
	True	Found*	%R(1)	Found*	%R(1)
Arsenic	5.0	10.0	200		
Iron	100.0	110.0	110		

(1) Control Limits: 70-130 with the following exceptions:
ICP-AES - Antimony, Lead, and Thallium: 50-150.
ICP-MS - Cobalt, Manganese, and Zinc: 50-150.

* If applicable, enter the concentration qualifier "J" or "U" after the concentration in these columns (e.g., 0.20U for Mercury).

USEPA - CLP

4B-IN
ICP-MS INTERFERENCE CHECK SAMPLE

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

ICP -MS Number: TE61EA ICS Source: _____

Concentration Units: ug/L

Analyte	True		Found			
	Sol A.	Sol AB	Sol A	%R	Sol AB.	%R
Arsenic		2000			1830	92
Iron	50000	50000	48480	97	49010	98

USEPA - CLP

5A-IN
MATRIX SPIKE SAMPLE RECOVERY

EPA SAMPLE NO
BCBM-CONF-04 MS

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Matrix (soil/water): S

% Solids for Sample: 100 Level (low/med): LOW

Concentration Units (units: ug/ L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spike Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	% REC	Q	M
Arsenic	75 - 125	69		5	U	98	70		P
Iron	75 - 125	5279		3352.94		882	218	N	P

Comments: _____

USEPA - CLP

6-IN
DUPLICATES

EPA SAMPLE NO.

BCBM-CONF-04 MD

Lab Name: ACCURA ANALYTICAL LAB Contract.: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Matrix : (soil/water) S Level : (low/med) LOW

% Solids for Sample: _____ % Solids for Duplicate: _____

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Arsenic		5.0000	U	5.0000	U			P
Iron		3352.9412		3490.3846		4		P

USEPA - CLP

7-IN
LABORATORY CONTROL SAMPLE

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Solid LCS Source: _____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Aqueous (ug/L) Found	%R	Solid (mg/kg) True	Solid (mg/kg) Found	C	Limits		%R
Arsenic				100.0	101.7		75	125	102
Lead				900.0	879.1		75	125	98

USEPA - CLP

13-IN
ANALYSIS RUN LOG

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: NRAS No.: SDG No.: N/A

Instrument ID : TE61EA Analysis Method: CLP_ILM05.0

Start Date: 05/19/2003 End Date: 05/19/2003

Sample No.	D/F	Time	Analytes																									
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
STDBLK	1.00	10:34			X								X															
STD2	1.00	10:41			X								X															
STD5	1.00	10:44			X								X															
STD3	1.00	10:46			X								X															
STD4	1.00	10:53			X								X															
CRI-01	1.00	11:01			X								X															
ICV-01	1.00	11:08			X								X															
ICB-01	100.00	11:14			X								X															
ISA-01	1.00	11:21			X								X															
ISB-01	1.00	11:28			X								X															
CCV-01-01	1.00	12:31			X								X															
CCB-01-01	100.00	12:38			X								X															
15355 BLK	1.00	12:45			X								X															
15355 BKS	1.00	12:51			X								X															
15355 BSD	1.00	12:58			X								X															
CCV-01-02	1.00	13:59			X								X															
CCB-01-02	100.00	14:05			X								X															
CCV-01-03	1.00	14:43			X								X															
CCB-01-03	100.00	14:50			X								X															
BCBM-CONF-01	5.00	14:58			X								X															
BCBM-CONF-02	5.00	15:05			X								X															
BCBM-CONF-03	5.00	15:25			X								X															
BCBM-CONF-04	5.00	15:43			X								X															
BCBM-CONF-04 MD	5.00	15:50			X								X															
BCBM-CONF-04 MS	5.00	16:02			X								X															
BCBM-CONF-04 MSD	5.00	16:16			X								X															
CCV-01-04	1.00	16:26			X								X															
CCB-01-04	100.00	16:32			X								X															

Field Duplicates - 4077

	Sample		Duplicate		RPD %	Difference
	TFSGLMW0201		0503-DUP-01			
	UG/L		UG/L			
MTBE	1.1		1.0	U	9.5	0
1-Methylnaphthalene	1		1.6		20.7	0
Fluoranthene	1.0	U	0.2	J	133.3	1
Naphthalene	2.0		2.3		14.0	0
TPH	6.40	U	5.8	U	9.8	1

U S EPA - CLP

2B- IN
CRQL CHECK STANDARD

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: NRAS No. _____ SDG No.: N/A

CRQL Check Standard Source : _____

Concentration Units: ug /L

Analyte	CRQL Check Standard				
	Initial			Final	
	True	Found*	%R(1)	Found*	%R(1)
Lead	4.3	2.1	49		

(1) Control Limits: 70-130 with the following exceptions:
ICP-AES - Antimony, Lead, and Thallium: 50-150.
ICP-MS - Cobalt, Manganese, and Zinc: 50-150.

* If applicable, enter the concentration qualifier "J" or "U" after the concentration in these columns (e.g., 0.20U for Mercury).

USEPA - CLP

4B-IN
ICP-MS INTERFERENCE CHECK SAMPLE

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

ICP -MS Number: INDUCTIVELY COUP ICS Source: _____

Concentration Units: ug/L

Analyte	True		Found			
	Sol A.	Sol AB	Sol A	%R	Sol AB.	%R
Lead		1000			1048	105

USEPA - CLP

5A-IN
MATRIX SPIKE SAMPLE RECOVERY

EPA SAMPLE NO
0503-RB-01 MS

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Matrix (soil/water): W

% Solids for Sample: _____ Level (low/med): LOW

Concentration Units (units: ug/ L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spike Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	% REC	Q	M
Lead	75 - 125	1116		10	U	1000	112		P

Comments: _____

FORM VA-IN CLP_ILM05.0

USEPA - CLP

5A-IN
MATRIX SPIKE SAMPLE RECOVERY

EPA SAMPLE NO
TFSGLMW1401 MS

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Matrix (soil/water): W

% Solids for Sample: _____ Level (low/med): LOW

Concentration Units (units: ug/ L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spike Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	% REC	Q	M
Lead	75 - 125	1167		9.2	JB	1000	116		P

Comments: _____

FORM VA-IN CLP_ILM05.0

USEPA - CLP

5B-IN
POST-DIGESTION SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.
0503-RB-01

Lab Name ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: NRAS No. SDG No.: N/A

Matrix (soil/water): W Level (low/med): LOW

Concentration Units (units: ug /L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spike Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	% REC	Q	M
Lead		1056.60		2.50	U	1000.00	105.4		P

Comments:

USEPA - CLP

6-IN
DUPLICATES

EPA SAMPLE NO.

0503-RB-01 MD

Lab Name: ACCURA ANALYTICAL LAB Contract.: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Matrix : (soil/water) W Level : (low/med) LOW

% Solids for Sample: _____ % Solids for Duplicate: _____

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Lead		4.3000	U	4.3000	U			P

USEPA - CLP

6-IN
DUPLICATES

EPA SAMPLE NO.

TFSGLMW1401 MD

Lab Name: ACCURA ANALYTICAL LAB Contract.: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Matrix : (soil/water) W Level : (low/med) LOW

% Solids for Sample: _____ % Solids for Duplicate: _____

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Lead		9.2000	JB	8.7000	JB	6		P

USEPA - CLP

7-IN
LABORATORY CONTROL SAMPLE

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Solid LCS Source: _____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Aqueous (ug/L) Found	%R	Solid (mg/kg) True	Solid (mg/kg) Found	Solid (mg/kg) C	Solid (mg/kg) Limits		%R
Lead	1000.0	1071.10	107						

USEPA - CLP

7-IN
LABORATORY CONTROL SAMPLE

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Solid LCS Source: _____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Aqueous (ug/L) Found	%R	Solid (mg/kg) True	Solid (mg/kg) Found	Solid (mg/kg) C	Solid (mg/kg) Limits		%R
Lead	1000.0	1113.40	111						

U.S. EPA CLP
8-IN
ICP-AES and ICP-MS SERIAL DILUTIONS

EPA SAMPLE No.

0503-RB-01

Lab Name: ACCURA ANALYTICAL LAB Contract.: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No.: N/A

Matrix (soil/water): W Level (low/med): LOW

Concentration Units : ug / L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Lead	2.50	U	9.50	U	100	E	P

USEPA - CLP

9 - IN
METHOD DETECTION LIMITS (ANNUALLY)

Lab Name ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Instrument Type: CLP ILM05.0 Instrument ID: TETRACEB Date: 09/13/2002

Preparation Method: CLP DIGESTION

Concentration Units (ug/L or mg/kg): UG/L

Analyte	Wavelength /Mass	CRQL	MDL
Lead	220.4	4.3	3.4

Comments: _____

USEPA - CLP

13-IN
ANALYSIS RUN LOG

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Instrument ID : TETRACEB Analysis Method: CLP_ILM05.0

Start Date: 06/03/2003 End Date: 06/03/2003

Sample No.	D/F	Time	Analytes																									
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
STDBLK	1.00	11:52																										
STD2	1.00	11:57																										
STD4	1.00	12:06																										
STD3	1.00	12:10																										
CRI-01	1.00	12:15												X		79%												
ICV-01	1.00	12:27												X														
ICB-01	1.00	12:33												X														
ISA-01	1.00	12:38												X														
ISB-01	1.00	13:03												X														
CCV-01-02	1.00	13:51												X														
CCB-01-01	1.00	14:02												X														
15408 BLK	1.00	14:07												X														
15408 BKS	1.00	14:12												X														
15408 BSD	1.00	14:17												X														
TFSGLMW0701	1.00	14:25												X														
TFSGLMW0501	1.00	14:30												X														
TFSGLMW0301	1.00	14:35												X														
TFSGLMW1201	1.00	14:40												X														
TFSGLMW0601	1.00	14:45												X														
TFSGLMW0901	1.00	14:52												X														
TFSGLMW0101	1.00	14:56												X														
CCV-01-03	1.00	15:04												X														
CCB-01-02	1.00	15:09												X														
TFSGLMW0201	1.00	15:13												X														
0503-RB-01	1.00	15:18												X														
0503-RB-01 MD	1.00	15:23												X														
0503-RB-01 MS	1.00	15:27												X														
0503-RB-01 MSD	1.00	15:32												X														
0503-RB-01 SD	1.00	15:36												X														
0503-RB-01 PDS	1.00	15:41												X														
CCV-01-04	1.00	15:48												X														
CCB-01-03	1.00	15:54												X														

USEPA - CLP

13-IN
ANALYSIS RUN LOG

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Instrument ID : TETRACEB Analysis Method: CLP_ILM05.0

Start Date: 06/03/2003 End Date: 06/03/2003

Sample No.	D/F	Time	Analytes																									
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
15392 BLK	1.00	15:59												X														
15392 BKS	1.00	16:03												X														
15392 BSD	1.00	16:08												X														
TFSGLMW0401	1.00	16:15												X														
TFSGLP0101	1.00	16:20												X														
TFSGLMW1101	1.00	16:24												X														
0503-DUP-01	1.00	16:29												X														
TFSGLMW1401	1.00	16:34												X														
TFSGLMW1401 MD	1.00	16:38												X														
TFSGLMW1401 MS	1.00	16:43												X														
CCV-01-05	1.00	16:50												X														
CCB-01-04	1.00	16:58												X														
TFSGLMW1401 MSD	1.00	17:02												X														
CCV-01-06	1.00	17:10												X														
CCB-01-05	1.00	17:15												X														

USEPA - CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Initial Calibration Verification Source: _____

Continuing Calibration Verification Source: _____

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Lead	1000.0	1028.40	103	1000.0	1030.10	103	1038.90	104	P

(1) Control Limits : Mercury 80-120; Other Metals 90-110; Cyanide 85-115

USEPA - CLP

2A-IN
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Initial Calibration Verification Source: _____

Continuing Calibration Verification Source: _____

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Lead				1000.0	1067.20	107	1071.60	107	P

(1) Control Limits : Mercury 80-120; Other Metals 90-110; Cyanide 85-115

USEPA - CLP

2A-IN
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Initial Calibration Verification Source: _____

Continuing Calibration Verification Source: _____

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Lead				1000.0	1032.10	103			P

(1) Control Limits : Mercury 80-120; Other Metals 90 - 110; Cyanide 85 - 115

USEPA - CLP

3-IN
BLANKS

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Preparation Blank Matrix (soil/water): W

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

Analyte	Initial Calib. Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank		
		C	1	C	2	C	3	C		C	M
Lead	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P

USEPA - CLP

3-IN
BLANKS

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Preparation Blank Matrix (soil/water): W

Preparation Blank Concentration Units (ug/L or mg/kg) UG/L

Analyte	Initial Calib. Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank		
		C	1	C	2	C	3	C		C	M
Lead			10.0	U	10.0	U			10.0	U	P

APPENDIX C

FIELD LOG SHEETS

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS KW BCBM
Project No.: 2870

Sample ID No.: BCBM-SO-01-02
Sample Location: BCBM-SO-01
Sampled By: GG/CM
C.O.C. No.: 041702

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 4/17/02 Time: 1100 Method: Hand Auger Monitor Reading (ppm): —		Buff	Fine to coarse sand with Rock Frag - Oolitic LS

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

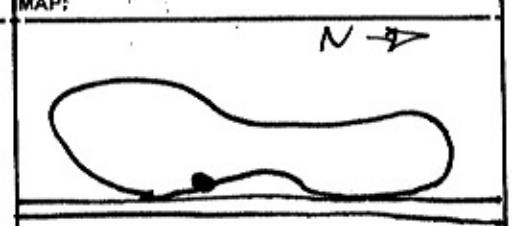
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	1-2oz	✓	

OBSERVATIONS / NOTES:

- moisture @ 18"

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
	0402-DUP-04

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of___

Project Site Name: NAS KW BCBM
Project No.: 2870

Sample ID No.: BCBM-SO-02-02
Sample Location: BCBM-SO-02
Sampled By: GG/CM
C.O.C. No.: 041702

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 4/17/02 Time: 1400 Method: Hand Auger Monitor Reading (ppm): —	0-2	Buff	Fine to coarse sand with Rock Frag - Oolite LS

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

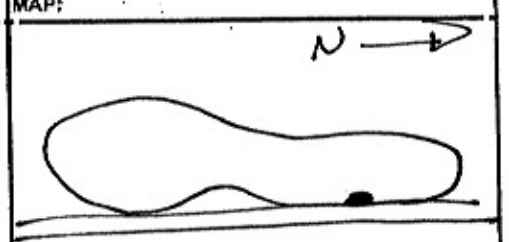
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL Metals	1-2 oz	✓	

OBSERVATIONS / NOTES:

- Moisture @ 24"

MAP:



Circle If Applicable:

MS/MSD	Duplicate ID No.: —

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS KW BCBM
Project No.: 2820

[] Surface Soil
[✓] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: BCBM-SO-03-02
Sample Location: BCBM-SO-03
Sampled By: GG/CM
C.O.C. No.: 041702

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 4/17/02 Time: 1450 Method: Hand Auger Monitor Reading (ppm): —		Buff	Fine to Medium Sandy Clay

COMPOSITE SAMPLE DATA:

Date: 4/17/02	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

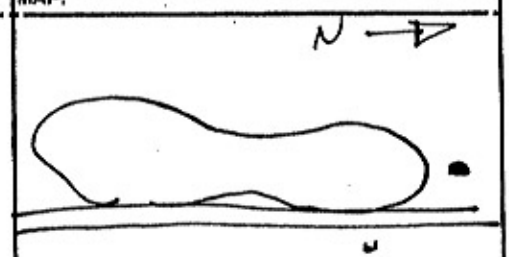
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL VMETALS	1-2oz	✓	

OBSERVATIONS / NOTES:

WET @ 1'

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.: —

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NAS RW BCBM
Project No.: 2870

[✓] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Sample ID No.: BCBM-50-04-02
Sample Location: BCBM-50-04
Sampled By: GG/CM
C.O.C. No.: GG 4/18/02 ~~04/18/02~~ 04/18/02

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 4/18/02 Time: 1020 Method: Hand Auger Monitor Reading (ppm):	0-2'	Buff	Fine to Coarse Sandy Silt with Rock Frag — Oolite LS

COMPOSITE SAMPLE DATA:

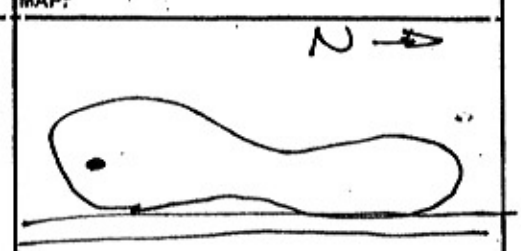
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	1-2oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS KW BCBM
Project No.: 2870

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Sample ID No.: BCBM-SO-04-24
Sample Location: BCBM-SO-04
Sampled By: GG/CM
C.O.C. No.: 041802

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 4/18/02 Time: 1025 Method: Hand Auger Monitor Reading (ppm):	2-4'	Buff	Fine to Coarse Sandy Silt with Rock Frags - Oolite LS

COMPOSITE SAMPLE DATA:

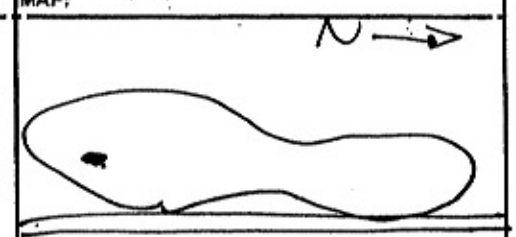
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VAL METALS	1-2oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS RW BCBM
Project No.: 2B70

Sample ID No.: BCBM-~~05~~ SO-05-02
Sample Location: BCBM-SO-05
Sampled By: CM/GG
C.O.C. No.: 04/18/02

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

Date: 4/18/02 Time: 1330 Method: HAND AUGER Monitor Reading (ppm): —	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
	0-1'	Buff	Fine to COARSE Sandy Silt with trace Clay - oolite LS

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

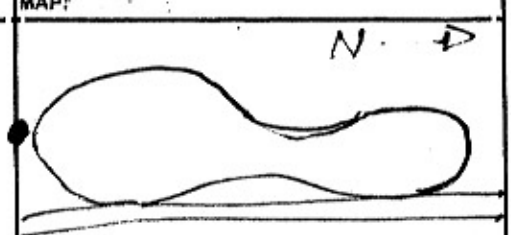
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	1 - 2 oz	✓	

OBSERVATIONS / NOTES:

- WATER @ 1'

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.: 0402-DUP-05

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS KW BCBM
Project No.: 2870

Sample ID No.: BCBM-SO-07-02
Sample Location: BCBM-SO-07
Sampled By: BG/CM
C.O.C. No.: 041902

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 4/19/02 Time: 0845 Method: Hand Auger Monitor Reading (ppm):	0-2'	Buff	Fine to medium sand with trace of silt. - Oolitic LS

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

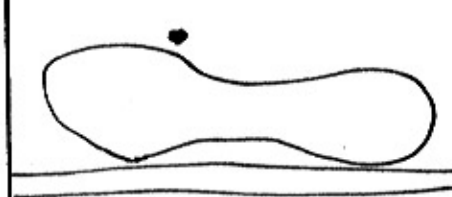
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	1 - 2oz	✓	

OBSERVATIONS / NOTES:

WATER @ 1.5'

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): [illegible]

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of___

Project Site Name: NAS KW BCBM
Project No.: 2820

Sample ID No.: BCBM-SO-08-02
Sample Location: BCBM-SO-08
Sampled By: GG/CM
C.O.C. No.: 041902

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 4/19/02 Time: 1020 Method: Hand Auger Monitor Reading (ppm):	0-1'	Buff	Fine to Medium Sandy Silt - Oolite LS

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

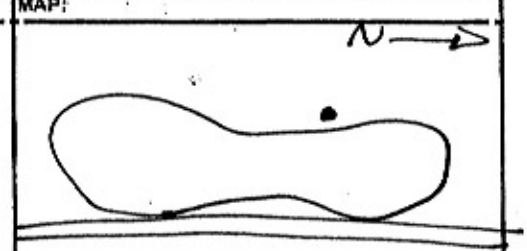
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL Metals	3-2oz	✓	

OBSERVATIONS / NOTES:

* water @ 8"

MAP:



Circle if Applicable: MS/MSD

Duplicate ID No.:

Signature(s):

BCBM-SO-08-02-MS
BCBM-SO-08-02-MSD

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS KW BCBM
Project No.: 2870

Sample ID No.: BCBM-SO-09-02
Sample Location: BCBM-SO-09
Sampled By: GG/CM
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 4/14/02 Time: 1125 Method: Hand Monitor Reading (ppm):	0-2'	Buff	Fine to Medium Silty Sand - Oolitic LS

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

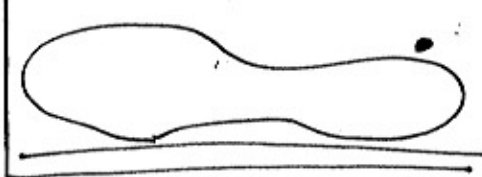
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL Metals	1-2oz	✓	

OBSERVATIONS / NOTES:

water @ 18"

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS KW BCBM
Project No.: 2820

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Sample ID No.: BCBM-SO-10-02
Sample Location: BCBM-SO-10
Sampled By: GG/CM
C.O.C. No.: 042202

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 4/20/02 Time: 0810 Method: Hand Auger Monitor Reading (ppm): —	0-2'	Buff	Fine to coarse silty sand -oolite LS

COMPOSITE SAMPLE DATA:

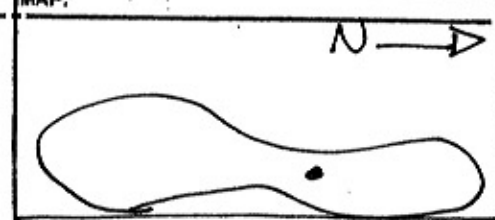
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL Metals	1-2oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.: —

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS KW BCBM
Project No.: 2870

Sample ID No.: BCBM-SO-10-24
Sample Location: BCBM-SO-10
Sampled By: EG/LM
C.O.C. No.: 042202

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 4/20/02 Time: 0820 Method: Hand Auger Monitor Reading (ppm): —	2-4'	Buff	Fine to Coarse Silty Sand - Oolite LS

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

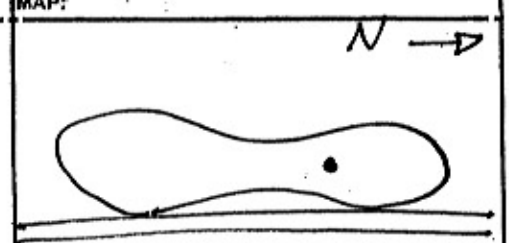
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL Metals	1-2 oz	✓	

OBSERVATIONS / NOTES:

Water \ Top of Rock @ 3.5'

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.: —

Signature(s): Chuck [illegible]
[illegible]

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS KW BCBM
Project No.: 2870

Sample ID No.: BCBM-SO-11-02
Sample Location: BCBM-SO-11
Sampled By: GG/CM/JZ
C.O.C. No.: 042202

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 4/20/02 Time: 1050 Method: Hand Auger Monitor Reading (ppm):	0-2'	Buff	FINE to COARSE SAND TR Silt with ROCK FRAG

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

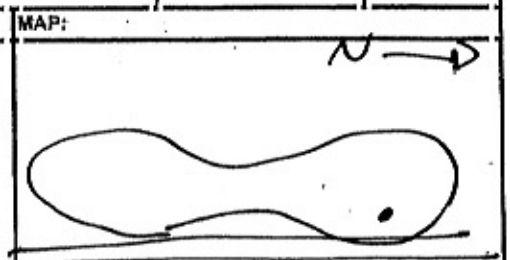
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	1-2 oz	✓	

OBSERVATIONS / NOTES:

Fill MATERIAL

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of___

Project Site Name: NAS KW BCBM
Project No.:

Sample ID No.: BCBM-SO-12-02
Sample Location: BCBM-SO-12
Sampled By: GG/JZ
C.O.C. No.: D42202

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 4/20/02 Time: 1515 Method: Grab Monitor Reading (ppm): –	0-2'	Grey	F/CO SAND W/TR SILT

COMPOSITE SAMPLE DATA:

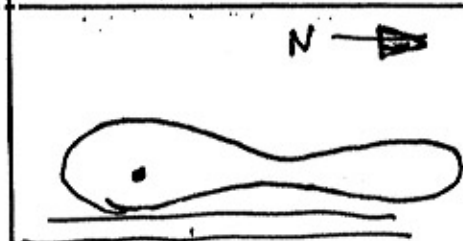
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL Metal	1-2oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NAS KW BCBM
Project No.:

Sample ID No.: BCBM-SO-12-24
Sample Location: BCBM-SO-12
Sampled By: GG/DZ
C.O.C. No.: 042202

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 4/20/02 Time: 1530 Method: Grab Monitor Reading (ppm): –	2-4	Buff	F/Co SAND w/TR SILT

COMPOSITE SAMPLE DATA:

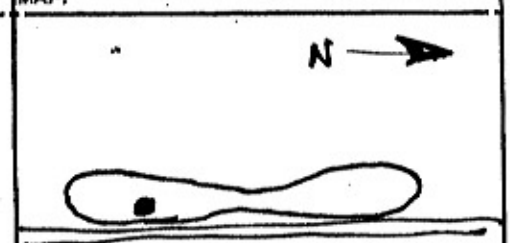
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL Metals	1-2oz Jar	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NAS KW BCBm
Project No.:

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: TEMPORARY
[] QA Sample Type:

Sample ID No.: BCBm-TW-01
Sample Location: BCBm-TW-01
Sampled By: M.L. Whitten
C.O.C. No.: 042202
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/20/02	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 0950								
Method: Low Flow Pump	clear	7.24	7.76	27.2	14	0.94	0.42	

PURGE DATA:

Date: 4/20/02	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Low Flow	1	7.17	7.63	27.2	455	1.24	0.41	
Monitor Reading (ppm): —	2	7.25	7.70	26.7	37	0.82	0.42	
Well Casing Diameter & Material	3	7.28	7.73	26.9	27	1.14	0.42	
Type: 1" PVC	4	7.24	7.76	27.2	14	0.94	0.42	
Total Well Depth (TD): 5 FT								
Static Water Level (WL): 4.5 FT								
One Casing Volume (gal/L): 0.02								
Start Purge (hrs): 0919								
End Purge (hrs): 0939								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 1 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TAL metals	HNO_3		

OBSERVATIONS / NOTES:

For ease of measurement ~1 quart water per vol.

0.5 x 0.04 gal/ft = 0.02
0.02 gal

Circle if Applicable:

MS/MSD	Duplicate ID No.: 0402 DUP-07

Signature(s): Michael L. Whitten

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NAS KW BCBM
Project No.:

[ ] Domestic Well Data
[ ] Monitoring Well Data
[X] Other Well Type: Temporary
[ ] QA Sample Type:

Sample ID No.: BCBM-TW-02
Sample Location: BCBM-TW-02
Sampled By: M.L. Whitten
C.O.C. No.: 0422.02
Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 4/20/02								
Time: 1110								
Method: Low Flow pump	almost clear	7.33	4.60	28.0	86	1.83	0.23	

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 4/20/02								
Method: Low Flow	1	7.39	4.75	27.7	999	2.02	0.24	
Monitor Reading (ppm):	2	7.44	4.63	27.9	999	3.02	0.26	
Well Casing Diameter & Material	3	7.33	4.60	28.0	86	1.83	0.23	
Type: 1" PVC								
Total Well Depth (TD): 5 ft								
Static Water Level (WL): 4.5 ft								
One Casing Volume (gal/L): 0.02 gal								
Start Purge (hrs): 1045 MW 1033								
End Purge (hrs): 1102								
Total Purge Time (min): 24 see notes								
Total Vol. Purged (gal/L): 3 QTS (.75 gal)								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TAL metals	HNO_3		

OBSERVATIONS / NOTES:

For ease of measurement, w/ QT water per volume

0.5 ft × 0.041 gal/ft ≈ 0.02 gal

Temporarily stopped purge at MW ~~0945~~ 1045; started back at MW ~~0950~~ 1050 due to well blowing empty
← (midway through second volume)

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s): Michael L. Whitten

End Purge (hrs): 1420

Total Purge Time (min): 20 see note

Total Vol. Purged (gal/L): 3 1/3 QTS (0.8 gal)

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TAL metals	HNO3		

OBSERVATIONS / NOTES:

For ease of measurement, ~1 QT water per vol.

5.0 - 2.9 = 2.1

2.1 ft x 0.041 gal/ft = 0.09 gal

purge stopped at 1357; restarted at 1408

purge stopped at 1410; restarted at 1414

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
		Michael L. Whitt

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NAS KW BCBM
Project No.: 2870

[] Domestic Well Data
[] Monitoring Well Data
[✓] Other Well Type: TEMP Well
[] QA Sample Type:

Sample ID No.: BCBM-TW-05
Sample Location: BCBM-TW-05
Sampled By: CM
C.O.C. No.: ~~TBD~~ 042202 CM
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 4/22/02								
Time: 1100								
Method: Low Flow	CLEAR	6.64	46.8	29.8	214	1.95	3.05	

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 4/22/02								
Method: Low Flow	1	6.66	46.3	30.2	89	1.98	3.01	
Monitor Reading (ppm): —	2	6.64	46.5	29.5	93	.98	3.03	
Well Casing Diameter & Material Type: 1" PVC	3	6.64	46.8	29.8	214	1.95	3.05	
Total Well Depth (TD): 5'								
Static Water Level (WL): 3'								
One Casing Volume(gal/L): 0.08								
Start Purge (hrs): 1030								
End Purge (hrs): 1100								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 1								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TAL METALS	HNO_3	1 - 500 ml	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
	—	[signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NAS KW BCBM
Project No.: 2870

[] Domestic Well Data
[] Monitoring Well Data
[x] Other Well Type: Temp Well
[] QA Sample Type:

Sample ID No.: BCBM-TW-06
Sample Location: BCBM-TW-06
Sampled By: CM
C.O.C. No.: 042202
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 4/22/02								
Time: 0830-0900								
Method: Low Flow	Clear	6.78	36.1	27.4	139	2.46	2.29	

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 4/22/02								
Method: Low Flow	2	6.76	35.8	27.3	218	2.45	2.28	
Monitor Reading (ppm): —	3	6.78	36.1	27.4	139	2.46	2.29	
Well Casing Diameter & Material								
Type: 1" PVC								
Total Well Depth (TD): 5'								
Static Water Level (WL): 3'								
One Casing Volume(gal/L): 0.08								
Start Purge (hrs) 0830								
End Purge (hrs): 0900								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 0.75								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TAL Metals	HNO_3	3 - 500 mL Poly	✓

OBSERVATIONS / NOTES:

Circle if Applicable:
MS/MSD
Duplicate ID No.: —

Signature(s):

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 4/22/03

Project Site Name: Black Beauty
Project No.: N2807

Sample Location: BCBM-TW-07
Sample ID No.: BCBM-TW-07
Sampled By: N/7 z

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:

Flow-Thru Cell Make\Model: e10
Serial Nos.:

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water	Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	Sal %	DTW ft BTOC	Flow Rate ml/min
0.5	0.01	0.038	0850	6.66	38.4	26.1	594	1.09	2.46	—	—
1	0.041	0.155	09:00	6.75	38.8	26.3	42	2.40	2.49		
2	0.163	0.617									
4	0.653	2.47									
6	1.469	5.56									
8	2.611	9.88									
10	4.08	15.44									
	[1 gal. = 3.785 L]										

PID Reading (ppm): 0.0

Well Casing Diameter: 4
Total Well Depth: 5'
Static Water Level: 3.35
Tube Intake Depth: 4'

Start Purge (hr): 0840
End Purge (hr): 0900
Total Purge Time (min): 20
Total Vol. Purged: 1.58

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	Sal %	DTW ft BTOC	Flow Rate ml/min
Date: 4/22/03									
Time: 0900	Clear	6.75	38.8	26.3	42	2.40	2.49	—	—

ANALYSES INFORMATION

Analysis	Preservative	Container Requirements	Collected
TAL metals	1+NO3	1 x 1L Poly	1

ADDITIONAL INFORMATION

Comments:
Stick up approx 2.5' above ground

Method:
[+] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[+] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: —
Duplicate ID No.: —

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NAS Key West (Black Point)
Project No.: 2870 CTO 0188

[ ] Domestic Well Data
[ ] Monitoring Well Data
[X] Other Well Type: TEMP
[ ] QA Sample Type:

Sample ID No.: BCBM-TW-08
Sample Location: TW-08
Sampled By: BRB
C.O.C. No.: 042202
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 042202
Time: 0915
Method: P-PUMP

Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
cloudy	6.19	45.6	26.2	598	1.85	2.97	

PURGE DATA:

Date: 042202
Method: P-PUMP
Monitor Reading (ppm): N/M
Well Casing Diameter & Material Type: 1" PVC
Total Well Depth (TD): 5.0
Static Water Level (WL): 2.95
One Casing Volume(gal/L): 0.84
Start Purge (hrs): 0830
End Purge (hrs): 0910
Total Purge Time (min): 40
Total Vol. Purged (gal/L): .5

Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
INITIAL	6.17	45.7	26.1	947	1.81	2.98	
1	6.17	45.7	26.1	825	1.81	2.97	
2	6.19	45.6	26.1	725	2.23	2.97	
3	6.19	45.6	26.2	601	1.86	2.97	

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TAL METALS	HNO3	1 500mL Poly	X

OBSERVATIONS / NOTES:

Circle If Applicable:
MS/MSD
Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NAS KW BCBM
Project No.:

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary
[] QA Sample Type:

Sample ID No.: BCBM-TW-09
Sample Location: BCBM-TW-09
Sampled By: M.L. Whitten
C.O.C. No.: 042202
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/20/02	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 1558								
Method: LOW FLOW PUMP		6.82	53.3	28.4	999	1.74	3.52	

PURGE DATA:

Date: 4/20/02	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: LOW FLOW	1	6.75	51.8	26.8	999	0.47	3.41	
Monitor Reading (ppm): -	2	6.83	52.8	26.6	999	1.21	3.52	
Well Casing Diameter & Material	3	6.82	53.3	28.4	999	1.74	3.52	
Type: 1" PVC								
Total Well Depth (TD): 5.0								
Static Water Level (WL): 3.6								
One Casing Volume (gal/L): 0.06								
Start Purge (hrs): 1527								
End Purge (hrs): 1553								
Total Purge Time (min): 14 note								
Total Vol. Purged (gal/L): 0.75 gal (3 QTS)								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TAL metals	HNO3		

OBSERVATIONS / NOTES:

5.0 - 3.6 = 1.4 1.4 x 0.041 = 0.06 gal

For ease of measurement, w/ 1 QT water per volume

purge stopped 1535 } 7 min.
" re-started 1542 }
" stopped 1546 } 5 min.
" re-started 1551 }

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): ML Whitten

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NAS KW BCBM
Project No.: 2870

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary well
[] QA Sample Type:

Sample ID No.: BCBM-TW-10
Sample Location: BCBM-TW-10
Sampled By: GG/CM
C.O.C. No.: 04 22.02
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4/28/02	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 1520								
Method: Low Flow Pump	clear	7.34	13.9	32.1	22	3.33	0.80	

PURGE DATA:

Date: 4/28/02	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Low Flow	2	7.22	13.8	31.0	199	2.55	0.79	
Monitor Reading (ppm): —	3	7.34	13.9	32.1	22	3.33	0.80	
Well Casing Diameter & Material Type: 1" PVC								
Total Well Depth (TD): 4.5								
Static Water Level (WL): 1.57								
One Casing Volume (gal/L): 0.06								
Start Purge (hrs): 14.01								
End Purge (hrs): 14.35								
Total Purge Time (min): 34								
Total Vol. Purged (gal/L): 0.75								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TAL Metals	HNO_3	1-500 ml P.	

OBSERVATIONS / NOTES:

0.041 gal/ft
x 1.5
205
041
0615 1 vol

Pumping must initially did not take initial readings

Circle if Applicable:

MS/MSD — Duplicate ID No.: —

Signature(s): Gary Gunter

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NAS Key West (Black Beauty)
Project No.:

[ ] Domestic Well Data
[ ] Monitoring Well Data
[X] Other Well Type: Temp
[ ] QA Sample Type:

Sample ID No.: BCBM-TW-11
Sample Location: TW-11
Sampled By: BRB
C.O.C. No.: 042202
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 042202								
Time: 1120								
Method: P-Pump	clear	6.98	37.8	28.9	38	2.16	2.42	

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 042202								
Method: P-PUMP	INITIAL	6.98	37.9	26.7	184	2.38	2.43	
Monitor Reading (ppm): N/M	1	6.96	37.9	26.8	139	2.31	2.42	
Well Casing Diameter & Material	2	6.95	37.9	26.9	100	2.27	2.42	
Type: 1" PVC	3	6.95	37.9	26.8	72	2.37	2.42	
Total Well Depth (TD): 5.0	4	6.96	37.9	26.8	60	2.30	2.42	
Static Water Level (WL): 4.20	5	6.98	37.8	26.9	68	2.24	2.42	
One Casing Volume(gal/L):								
Start Purge (hrs): 1005								
End Purge (hrs): 1115								
Total Purge Time (min): 70								
Total Vol. Purged (gal/L): 1.2								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TAL METALS	HNO3	1 1000 mL Poly	X

OBSERVATIONS / NOTES:

Circle if Applicable:
MS/MSD
Duplicate ID No.:

Signature(s):

Tetra Tech NUS
Groundwater Purging and Sampling Log

Date 4/22/02

Project Site Name: Black
Project No.: N2807

Sample Location: BCBM-TW-12

[ ] Domestic Well Data

Flow-Thru Cell Make\Model: U10

Sample ID No.: BCBM-TW-12

[X] Monitoring Well Data

Sampled By: MJS

Serial Nos.:

[ ] Other Well Type:

C-O-C No.:

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	Salinity %	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1110	6.91	28.5	26.9	708	2.26	1.79	—	—
1	0.041 / 0.155	1120	6.97	28.9	26.1	999	0.87	1.80		
2	0.163 / 0.617									
4	0.653 / 2.47									
6	1.469 / 5.56									
8	2.611 / 9.88									
10	4.08 / 15.44									
	[1 gal. = 3.785 L]									

PID Reading (ppm): 0.0

Well Casing Diameter: 1"
Total Well Depth: 5'
Static Water Level: 2.75
Tube Intake Depth: 3.0

Start Purge (hr): 1040
End Purge (hr): 1120
Total Purge Time (min): 40
Total Vol. Purged: 1.5 g

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	Salinity %	DTW ft BTOC	Flow Rate ml/min
Date: 4/22/02									
Time: 1120	cloudy	6.97	28.9	26.1	999	0.87	1.80	—	—

ANALYSES INFORMATION

Analysis	Preservative	Container Requirements	Collected
TAL metals	HNO3	1 x 1L poly	1

ADDITIONAL INFORMATION

Comments:
Extremely turbid

Method:
[✓] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[ ] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[✓] Teflon
[ ] Teflon-lined Polyethylene

QA/QC SAMPLES

MS/MSD:

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NAS KW BCBM
PROJECT NUMBER: 2870
DRILLING COMPANY: -
DRILLING RIG: Hand Auger

BORING No.: BCBM-TW-01
DATE: 4/17/02
GEOLOGIST: G. GUNTER
DRILLER: -

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Oolitic Limestone						
							Sampled as		Moisture @				
							F/C SAND w/		18"				
							Rock Fragments		wet @ 3.5ft				
				-45-									
				B)									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): --

Remarks:

Converted to Well: Yes ✓ No ___ Well I.D. #: BCBM-TW-01

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NAS KW BCBM
PROJECT NUMBER: 2870
DRILLING COMPANY: -
DRILLING RIG: Hard Auger

BORING No.: BCBM-TW-02
DATE: 4/17/02
GEOLOGIST: G Gunter
DRILLER:

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
							Oolitic LS						
							sampled as						
							F/Co SAND w						
							Rock Frag.						
				~4.5 BT									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): –

Remarks:

Converted to Well: Yes ✓ No ___ Well I.D. #: BCBM-TW-02

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NAS KW BCBM
PROJECT NUMBER: 2870
DRILLING COMPANY: –
DRILLING RIG: Hand Auger

BORING No.: BCBM-TW-03
DATE: 4/17/02
GEOLOGIST: GGunter
DRILLER: –

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
							F/Med SA CLAY						
				-2.5-									
							Oolitic LS						
				-4-			Sampled on F/Med						
				BT			Sandy Clay						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Temporary well (1" PVC Slotted w/ Hack Saw For 1 FT Screen) to 4 FT.

Drilling Area Background (ppm): –

Converted to Well: Yes ✓ No ___ Well I.D. #: BCBM-TW-03

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NAS KW BCBM.
PROJECT NUMBER: 2870
DRILLING COMPANY: –
DRILLING RIG: Hand Auger

BORING No.: BCBM-TW-04
DATE: 4/18/02
GEOLOGIST: GGunter
DRILLER: –

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
						Gray	Construction		Fill				
							Debris sampled		oolitic LS				
							as F/CoSA Silt						
							w/Rock Frag.						
				-4.5-		Buff	Same		oolitic LS				
				-5.5									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): –

Remarks:

Converted to Well: Yes _____ No _____ Well I.D. #: _____

BORING LOG

Tetra Tech NUS, Inc.

Page ___ of ___

PROJECT NAME/No.: NAS
GEOLOGIST: –
DRILLER/Co.: –
DRILLING RIG: Hand Auger

BORING NO.: BcBm-TW-05
DATE START: 4/18/02
GEOLOGIST: G. GUNTER
DRILLER:

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%) *	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Time	Remarks	PID/FID Reading (ppm)
				1			F/med Sa Clay-			wet @ 1 FT	
				2			Sediment				
				BT			oolitic Limestone				

* When rock coring, enter rock brokeness.

Remarks: Temporary Well (1" PVC w/1 FT Hacksaw Slotted Screen) to 2 FT

Background (ppm): –

Converted to Well: Yes ✓ No ____ Well I.D. #: BcBm-TW-05

BORING LOG

Tetra Tech NUS, Inc.

G 4/A/02 Page ___ of ___

PROJECT NAME/No.: NAS KW BCBM
GEOLOGIST: –
DRILLER/Co.: –
DRILLING RIG: Hand Auger

BORING NO.: BCBM-~~SB~~ TW-06
DATE START: 4/9/02
GEOLOGIST: G. GUNTER
DRILLER: –

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Time	Remarks	PID/FID Reading (ppm)
						Buff	oolitic LS encountered			wet @ 2"	
				1.5			at 0.2FT overlain				
				BT			by Sediment - F/med				
							Sand w/TR SILT				

* When rock coring, enter rock brokeness.

Background (ppm): –

Remarks: Temporary well (1" pvc w/1FT Hacksaw Slotted screen to 1.5FT

Converted to Well: Yes ✓ No _____ Well I.D. #: BCBM-TW-06

BORING LOG

Tetra Tech NUS, Inc.

Page ___ of ___

TW 66 4/19/02

PROJECT NAME/No.: NAS KW BCBM
GEOLOGIST: G GUNTER
DRILLER/Co.: –
DRILLING RIG: Hand Auger

BORING NO.: BCBM-~~SO~~-07
DATE START: 4/19/02
GEOLOGIST: –
DRILLER: –

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Time	Remarks	PID/FID Reading (ppm)
						Buff	F/med Sand Tr Silt				
				1.5						Wet at 1.5 FT	
						Buff	oolitic LS sampled				
				3.5			as F/Co Sandy				
				BT.			Silt				

* When rock coring, enter rock brokeness.

Remarks: Hacksaw PVC (1") SLOTTET (1 FT) to ~~at~~ 3.5 ~~FT~~

Background (ppm): —

Converted to Well: Yes ✓ No _____ Well I.D. #: BCBM-TW-07

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NAS KW BCBM
PROJECT NUMBER: 2870
DRILLING COMPANY: —
DRILLING RIG: Hand Auger

BORING No.: BCBM-TW-08
DATE: 4/19/02
GEOLOGIST: G. GUNTER
DRILLER: —

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
							F/Med Sa SILT						
				-2.5			Oolitic LS						
				-3.5 BT									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): —

Remarks: Temporary Well (1" PVC w/ Hacksaw Slotted (Ft Screen Section) to 3.5 FT.

Converted to Well: Yes ✓ No _____ Well I.D. #: BCBM-TW-08

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NAS KW BCBM
PROJECT NUMBER: 2B TO
DRILLING COMPANY: –
DRILLING RIG: Hand Auger

BORING No.: BCBM-TW-09
DATE: 4/19/02
GEOLOGIST: G. Gunter
DRILLER: –

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
						Buff	Silty F/med Sand						
				-1.5-					water @ 19"				
						wtt	Sand						
				-3.5- BT									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Temporary well (1" PVC w/ 1FT Hackson slotted screen) to 3.5 FT

Drilling Area Background (ppm): –

Converted to Well: Yes ✓ No ___ Well I.D. #: BCBM-TW-09

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NAS KW BCBM
PROJECT NUMBER: 2870
DRILLING COMPANY: -
DRILLING RIG: Hand Auger

BORING No.: BCBM-TW-10
DATE: 4/20/02
GEOLOGIST: G. GUNTER
DRILLER: -

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows/ 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							3LT4						
						Buff	F/Co SAND						
				3.5		Buff	Oolitic LS						
				4.5									
				BT									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): -

Remarks: Temporary well (1" PVC w/ Hacksaw SLOTTED Screen) (FT) to 4.5 Ft

Converted to Well: Yes ✓ No ___ Well I.D. #: BCBM-TW-10

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NAS KW BCBM
PROJECT NUMBER: 2870
DRILLING COMPANY: –
DRILLING RIG: Hand Auger

BORING No.: BCBM-TW-11
DATE: 4/20/02
GEOLOGIST: G. GUNTER
DRILLER: –

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
						Buff	F/Co SAND w/R		FILL				
							Silt and Rock						
				-2.5-			Frag.						
							Void		water @ 4 FT				
				-4-									
				-4.5-		Brn Blk	Construction		FILL				
				BT			Debris - Asphalt,						
							Correl Frag; TAR						
							Roofing material						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): –

Remarks: Temporary well (1" PVC w/ Slotted (Hacksaw) Screen) to 4.5 FT

Converted to Well: Yes ✓ No _____ Well I.D. #: BCBM-TW-11

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS KW BCBM
Project No.: 2870

Sample ID No.: BCBM-SD-01
Sample Location: BCBM-SD-01
Sampled By: GG/CM
C.O.C. No.: 041802

[] Surface Soil
[] Subsurface Soil
[✓] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 4/18/02 Time: 1405 Method: Hand Auger Monitor Reading (ppm):	0-3"	Buff	Fine to coarse sandy silt - oolitic LS

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

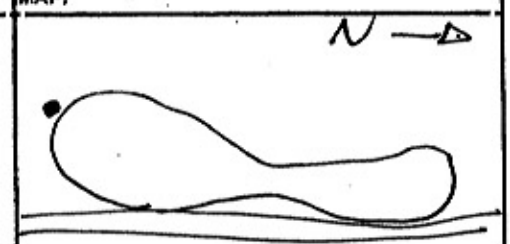
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL METALS	1-2oz	✓	

OBSERVATIONS / NOTES:

↓ WATER @ 3"

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS KW BCBM
Project No.: 2870

Sample ID No.: BCBM-SD-02
Sample Location: BCBM-SD-02
Sampled By: GG/CM
C.O.C. No.: 041902

- [ ] Surface Soil
- [ ] Subsurface Soil
- [x] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 4/19/02 Time: 1030 Method: Hand Auger Monitor Reading (ppm): —	0-6"	Buff	FINE to MEDIUM Silty Sand with LS

COMPOSITE SAMPLE DATA:

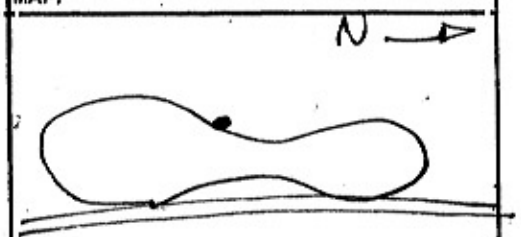
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL Metals	2-2 oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
	0402-DUP-06

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS KW BCBM
Project No.: 2870

[] Surface Soil
[] Subsurface Soil
[x] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: BCBM-SD-03
Sample Location: BCBM-SD-05
Sampled By: GC/CM
C.O.C. No.: 041902

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 4/19/02 Time: 1195 Method: Hand Auger Monitor Reading (ppm):	0-6"	Buff	Fine to Medium Sand with TR silt — Oolite LS

COMPOSITE SAMPLE DATA:

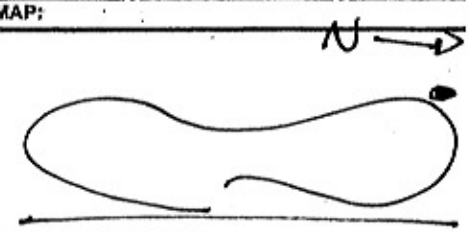
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL Metals	1-2oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NAS KW BCBM
Project No.: 2870

Sample ID No.: RB3-0402
Sample Location: RB3
Sampled By: G.
C.O.C. No.: 041902

[] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[X] QA Sample Type: Rinse Blank

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 4/19/02			
Time: 1545			
Method: Grab			
Monitor Reading (ppm): —			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other

OBSERVATIONS / NOTES:

Taken on Hand Auger

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NAS KW BCBM
Project No.: 2870

Sample ID No.: FB1-0402
Sample Location: FB1
Sampled By: GG
C.O.C. No.: 041902

[] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[X] QA Sample Type: FIELD BLANK

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 4/19/02			
Time: 0750			
Method: Grab			
Monitor Reading (ppm): —			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL Metal	1-500mL P.	✓	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): [illegible]

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: BCBM - NAF KW
Project No.: CTO 188, N2870

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: BCBM-SB-01-02
Sample Location: BCBM-SB-01
Sampled By: EM, GB
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 6/19/02 Time: 0900 Method: drill rig-auger Monitor Reading (ppm): 0.0	0-2'	light brown to gray	Sand w/clay

COMPOSITE SAMPLE DATA:

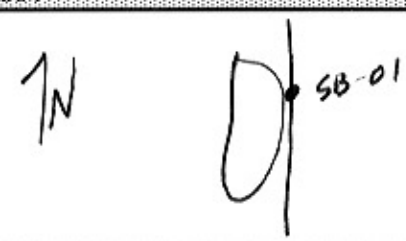
	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL metals	1 x 2oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Eg McKee

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: BCBM - NAF KW
Project No.: CTO 180, N2870

[X] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: BCBM-SB-01-24
Sample Location: BCBM-SB-01
Sampled By: EM, GB
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 6/19/02 Time: 0930 Method: drilling-auger Monitor Reading (ppm): 0.0	2-4'	light brown to grey	Sand w/clay

COMPOSITE SAMPLE DATA:

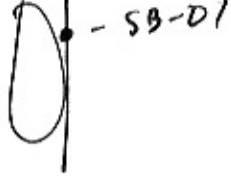
	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL metals	1 x 2oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Eg McKee

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: BCBH-NAF KW
Project No.: CTO 188 - N2870

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: BCBH-SB-02-02
Sample Location: BCBH-SB-02
Sampled By: EH, GB
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 6/19/02 Time: 1020 Method: drilling-auger Monitor Reading (ppm): 0.0	0-2'	light brown to gray	sand w/clay

COMPOSITE SAMPLE DATA:

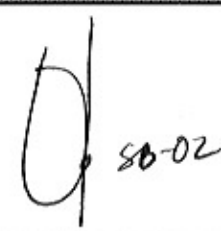
	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL metals	2 x 1oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): [illegible]

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: BCBY - NAF KW
Project No.: CTO 188, N2870

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: BCBY-SB-02-24
Sample Location: BCBY-SB-02
Sampled By: EM, GB
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 6/19/02 Time: 1100 Method: drilling auger Monitor Reading (ppm): 0.0	2-4'	light brown to gray	sand w/ some clay

COMPOSITE SAMPLE DATA:

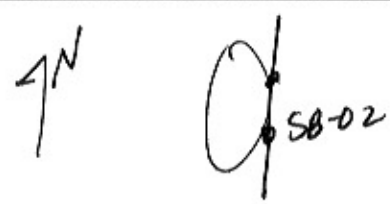
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL metals	1x 2oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: BCBM - NAF KW
Project No.: CTO 188, N2870

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: BCBM-SB03-02
Sample Location: BCBM-SB-03
Sampled By: GB
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 7/25/02 Time: 1500 Method: drill rig - auger Monitor Reading (ppm): —	0-2'	light brown to gray	Sand w/Clay

COMPOSITE SAMPLE DATA:

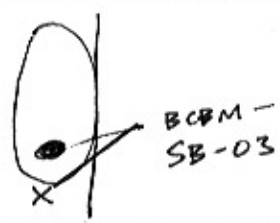
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL metals	1 x 2oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: BCBM-NAFKW
Project No.: CTO 100, N2070

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: BCBM-SB-03-24
Sample Location: BCBM-SB-03
Sampled By: GB
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 7/25/02 Time: 1500 Method: drilling Monitor Reading (ppm): —	2-4'	light brown to grey	Sand w/ clay - odtic/limestone

COMPOSITE SAMPLE DATA:

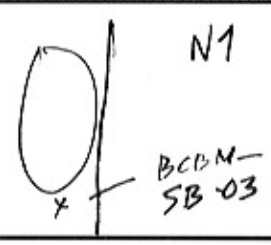
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL metals	1x 2oz		

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: BCBM-NAF KW
Project No.: CTO 188, N2870

Sample ID No.: BCBM-SB-04-02
Sample Location: BCBM-SB-04
Sampled By: GB
C.O.C. No.:

[✓] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[✓] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 7/26/02 Time: 0900 Method: drilling Monitor Reading (ppm): —	2-4'	light brown to grey	fine to coarse sandy silt with rock fragments - oolite

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

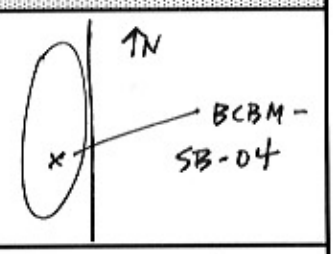
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL metals	1x2oz	✓	

OBSERVATIONS / NOTES:

- on top of mound

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: BCBM - NAF KW
Project No.: CTO 188, N2870

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: BCBM-SB-04-24
Sample Location: BCBM-SB-04
Sampled By: GB
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 7/26/02 Time: 0900 Method: drilling Monitor Reading (ppm): —	2-4'	light brown to grey	fine to coarse sandy silt w/ rock fragments - oolite

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

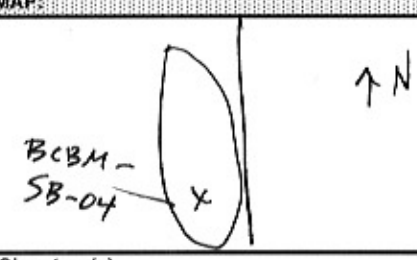
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL metals	1 x 2oz	✓	

OBSERVATIONS / NOTES:

- on top of mound (southern end)

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of___

Project Site Name: Bacillia Blast Media (NAFKW) Disposal
Project No.: CTO 188, N2870

Sample ID No.: BCBM-SB05-02
Sample Location: BCBM-SB05
Sampled By: GB
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 8/6/02 Time: 1400 Method: drill tripod Monitor Reading (ppm): 0.0	0-2'	light brown/grey	Sand + clay, very moist

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

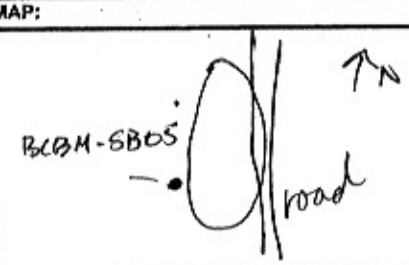
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL metals	1x 2oz	✓	

OBSERVATIONS / NOTES:

- too wet and slippery for split spoon, used bowl + spoon

MAP:



Circle If Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of___

Project Site Name: BCBM - NAF KW
Project No.: CTO 188, N2870

Sample ID No.: BCBM-SB05-24
Sample Location: BCBM-SB05
Sampled By: GB
C.O.C. No.:

[X] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 8/6/02 Time: 1400 Method: drill tripod Monitor Reading (ppm): 0.0	2-4'	light brown/grey	Sand + clay, very wet

COMPOSITE SAMPLE DATA:

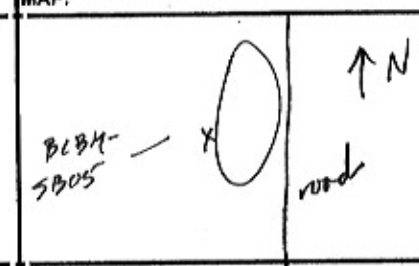
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL metals	1 x 2oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: BCBM - NAF KW
Project No.: CTO 188, N2870

Sample ID No.: BCBM-SB06-02
Sample Location: BCBM-SB06
Sampled By: CB
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 8/5/02 Time: 1500 Method: drill tripod Monitor Reading (ppm): —	0-2'	light brown, gray	Sand + clay

COMPOSITE SAMPLE DATA:

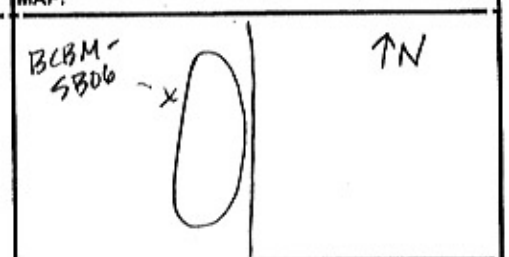
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL metals	1x 2oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: BCBM - NAF KW
Project No.: CTO 188, N2870

Sample ID No.: BCBM-SB06-24
Sample Location: BCBM-SB06
Sampled By: GB
C.O.C. No.:

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9/6/02 Time: 1500 Method: drill mixed Monitor Reading (ppm): —	2-4'	light brown, grey	sand + clay

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

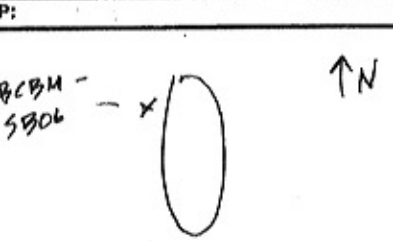
BM

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TAL metals	1x 2oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAF Key West - Boca Chica Beach Media
PROJECT NUMBER: N2870, CTO 188
DRILLING COMPANY: Precision Drilling
DRILLING RIG:

BORING No.: BCBM-MW-01
DATE: 6/19/02
GEOLOGIST: Gary Braganza
DRILLER: Scott Hauge

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							clay/sand - light		BCBM-SB-02-02 collected from	ϕ	ϕ	ϕ	ϕ
							brown to white		0-2' bls				
									BCBM-SB-01-24 collected from	ϕ			
									2-4' bls				
	5												
							oolitic limestone						
							light brown, porous					ϕ	
							moderately consolidated						
	10												
	12											ϕ	

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks: Metals analysis on samples

Converted to Well: Yes X No _____ Well I.D. #: BCBM-MW-01

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAF KW-Black Beauty
PROJECT NUMBER: CTO 188, N2870
DRILLING COMPANY: Precision
DRILLING RIG:

BORING No.: BCBM-MW-02
DATE: 6/19/02
GEOLOGIST: Gary Bruganza
DRILLER: Scott Hauge

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							clay/sand		BCBM-SB-02-02		ϕ		0
	2						light brown to white		(from 0-2' bls)	ϕ			
									BCBM-SB-02-24				
									from 22-24' bls	ϕ		ϕ	
	5												
							oolitic limestone						
							light brown, porous						
							moderately consolidated					ϕ	
	10												
												ϕ	
	12												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Metals analysis on samples

Drilling Area Background (ppm): 0

Converted to Well: Yes X No ____ Well I.D. #: BCBM-MW-02

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAF Key West - Black Beauty
PROJECT NUMBER: CTO 108, N2870
DRILLING COMPANY: US Drilling
DRILLING RIG: Ardco - Mobile B40L
BORING No.: MW - 3
DATE: 1/25/02
GEOLOGIST: GB
DRILLER: Kevin

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							clayey sand, light brown to white pebbles + cobbles						
2										Ø	Ø	·	·
2													
5													
							Oolitic limestone, light brown, porous moderately consolidated			Ø		Ø	
10													
12													

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Converted to Well: Yes ✓ No _____ Well I.D. #: MW-03

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAF Key West - Black Beauty
PROJECT NUMBER:
DRILLING COMPANY: US Drilling
DRILLING RIG: Arctic Mobile B40L

BORING No.: MW-04
DATE: 7/25/02
GEOLOGIST: Gary Pongrac
DRILLER: Keron

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							coarse sand + debris						
2							rocks, boulders +			∅		∅	
							cobbles - unsorted						
							material						
5							↓			∅		∅	
							↓						
							Oolite limestone			∅		∅	
							brown to light brown.						
10							porous, moderately						
							consolidated, few shell						
							fragments						
							↓						
15													

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAF KeyWest - Black Beauty
PROJECT NUMBER:
DRILLING COMPANY: U.S. Drilling
DRILLING RIG: Tripod
BORING No.: MW-05
DATE: 8/6/02
GEOLOGIST: Gary Bungy
DRILLER: Mark James

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							clayey sand, light						
							brown, very moist, poorly			Ø		Ø	
							consolidated, limestone						
							cobbles + shell fragments						
5							↓			Ø		Ø	
							oolitic limestone						
							light brown to gray						
							porous, shell fragments						
10													
12							↓						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): Ø

Converted to Well: Yes ✓ No _____ Well I.D. #: MW-05

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAF Key West Black Beauty
PROJECT NUMBER:
DRILLING COMPANY: U.S. Drilling
DRILLING RIG: Tripod.
BORING No.: MW-06
DATE: 8/6/02
GEOLOGIST: Gary Bungay
DRILLER: Mark James.

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							clayey sand, white to light brown, mod. consolidated, some coliths			Ø		Ø	
5							oolitic limestone			Ø		Ø	
							light grey, very porous, mod. consolidated						
10													
12													

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): Ø

Converted to Well: Yes ✓ No _____ Well I.D. #: MW-06

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NAF Key West
Project No.: 2870

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: BCBM-MW-01-0702
Sample Location: BCBM-MW-01
Sampled By: EM, GB
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 7/19/02								
Time: 1450								
Method: low flow	clear	6.95	8.54	28.2	0	0.15	0.47	

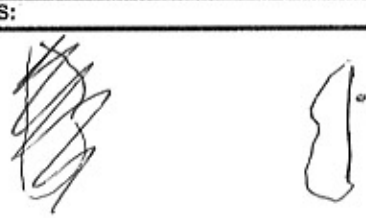
PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 7/19/02								
Method: low flow	1 gal	7.03	7.86	29.1	0	1.06	0.43	clear
Monitor Reading (ppm): —	1.5 gal	6.96	8.38	28.6	0	0.15	0.46	
Well Casing Diameter & Material	2.5 gal	6.95	8.48	28.3	0	0.16	0.46	
Type: 2" PVC	3.5 gal	6.95	8.54	28.2	0	0.15	0.47	
Total Well Depth (TD): 14.88								
Static Water Level (WL): 6.35								
One Casing Volume(gal/L): 0.50								
Start Purge (hrs): 1400								
End Purge (hrs): 1450								
Total Purge Time (min): 50								
Total Vol. Purged (gal/L): 3.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
metals	HNO3	1 L POLY	✓

OBSERVATIONS / NOTES:



0.16 (15 - 6.35)
0.50
3
2.70

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	DUP-01-0702

Signature(s): Eng Meler

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Boca Chica Blast Media - NAF KEW
Project No.: N2870

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: BCBM-MW-02-0702
Sample Location: BCBM-MW-02
Sampled By: EM, GB
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 7/19/02								
Time: 1600								
Method: low flow	Clear	6.83	15.0	28.3	0	0.20	0.87	

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 7/19/02								
Method: low flow	0.5 gal	6.83	16.5	28.4	0	0.55	0.97	
Monitor Reading (ppm): —	1 gal	6.83	16.3	28.3	0	0.28	0.95	
Well Casing Diameter & Material	2 gal	6.83	15.6	28.2	0	0.21	0.91	
Type: 2" PVC	3 gal	6.83	15.4	28.2	0	0.18	0.90	
Total Well Depth (TD): 14.89	4 gal	6.83	15.0	28.3	0	0.20	0.87	
Static Water Level (WL): 6.45								
One Casing Volume(gal/L): 1.35 gal								
Start Purge (hrs): 1510								
End Purge (hrs): 1600								
Total Purge Time (min): 50								
Total Vol. Purged (gal/L): 4.0 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TAL metals	HNO_3	1 L PE	✓

OBSERVATIONS / NOTES:

14.89
6.45
8.44

2 3
8.44 1.35
0.16 3
5064 4.05
8440
13504

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Eg Meter

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: Nacks Bay
Project No.:

[] Domestic Well Data
[] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: BCB1-MW-03
Sample Location: BCB1
Sampled By: SV
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 7-30-02								
Time: 1210								
Method: Peristaltic		7.05	40.1	28.9	16	2.32	2.55	

PURGE DATA:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 0845								
Method: Peristaltic	1	7.22	41.5	28.3	779	5.26	2.67	
Monitor Reading (ppm):		7.15	40.7	28.5	289	2.53	2.62	
Well Casing Diameter & Material		7.15	39.7	28.7	66	1.89	2.55	
Type: 2" PVC		7.15	40.3	28.8	48	1.81	2.59	
Total Well Depth (TD): 18'		7.14	40.2	28.9	16	2.42	2.58	
Static Water Level (WL): 9.39		7.15	40.1	28.9	16	2.32	2.58	
One Casing Volume(gal/L): 1.37								
Start Purge (hrs): 0845								
End Purge (hrs): 1040								
Total Purge Time (min): 55								
Total Vol. Purged (gal/L): 8.25								

SAMPLE COLLECTION INFORMATION: Analysis	Preservative	Container Requirements	Collected
Dissolved LEAD	HNO3		✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Black Beauty
Project No.:

Sample ID No.: BCBM-MW01
Sample Location: BCBM
Sampled By: SL
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

[] Domestic Well Data
[] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 2-30-02								
Time: 1520								
Method: Peristaltic		6.52	54.8	30.2	49	.73	3.65	

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 2-30-02		6.60	54.9	29.8	715	.18	3.67	
Method: Peristaltic		6.65	55.2	30.1	227	2.22	3.66	
Monitor Reading (ppm):		6.61	55.5	30.3	245	.03	3.61	
Well Casing Diameter & Material		6.59	54.8	30.2	171	.40	3.63	
Type: 2" PVC		6.59	55.0	30.7	164	BDL	3.65	
Total Well Depth (TD): 15.0		6.55	54.9	30.9	134	.09	3.63	
Static Water Level (WL): 2.25		6.52	55.2	30.7	97	.24	3.66	
One Casing Volume(gal/L): 1.5		6.57	55.2	30.3	73	1.17	3.66	
Start Purge (hrs): 1230		6.56	54.9	30.8	44	1.19	3.66	
End Purge (hrs): 1355		6.57	54.9	30.8	29	.22	3.64	
Total Purge Time (min): 85		6.57	54.8	30.8	[illegible]	.73	3.65	
Total Vol. Purged (gal/L): 15.8								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Lead	HNO3		✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Florida Department of Environmental Protection
GROUNDWATER SAMPLING LOG

SITE NAME: NAF Key West		SITE LOCATION: Black Beauty	
WELL NO: MW-5	SAMPLE ID: BCBM-MW-05-08-080 2	DATE: 8/7/02	

PURGING DATA

WELL DIAMETER (in): 2"	TOTAL WELL DEPTH (ft): 14.31	STATIC DEPTH TO WATER (ft): 3.02	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) X WELL CAPACITY = High tide

= (12.00 – 3.02) X 0.16 = 1.43

PURGE METHOD: Peristaltic pump	PURGE INITIATED AT: 12:35	PURGE ENDED AT: 13:30	TOTAL VOL. PURGED (gal): 5000

TIME	VOLUME PURGED (gal)	CUMUL. VOLUME PURGED (gal)	PURGE RATE (gpm)	DEPTH TO WATER (ft)	pH	TEMP. (°C)	COND. (µmhos)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR SAL	ODOR
12:35	0	0	100	3.02	6.26	27.5	46.0	0.71	222	2.89	[illegible]
12:45	1000	1000	100	3.02	5.98	28.7	39.6	0.17	122	2.55	"
12:55	1000	2000	100	3.02	5.91	28.9	40.2	0.19	107	2.58	"
13:05	1000	3000	100	3.02	5.90	28.4	40.1	0.20	100	2.58	"
13:10	500	3500	100	3.02	5.87	28.5	40.1	0.10	90	2.57	"
13:20	1000	4500	100	3.02	5.87	28.6	40.0	0.25	88	2.58	"
13:30	1000	5500	100	3.02	5.87	28.6	40.0	0.20	85	2.63	"

WELL CAPACITY (Gallons per Foot): 0.75" = 0.02; 1" = 0.04, 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: GARY BRAGANZA / Gary Braganza		SAMPLER(S) SIGNATURE(S): Gary Braganza	
SAMPLING METHOD(S): Peristaltic pump		SAMPLING INITIATED AT: 13:35	SAMPLING ENDED AT: 13:40
FIELD DECONTAMINATION: Y (N)	FIELD-FILTERED: Y (N)		DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (mL)	FINAL pH	
	PE		HNO_3			METALS

REMARKS:

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; PE = POLYETHYLENE; O = OTHER (SPECIFY)

NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

TetraTechNUS,Inc Fax:9545705974 NOV 1 2002 12:19 P.05

Florida Department of Environmental Protection
GROUNDWATER SAMPLING LOG

SITE NAME: NAF Key West		SITE LOCATION: Black Beauty	
WELL NO: MW-06	SAMPLE ID: BCBM-MW-06-08-0802	DATE: 8/8/02	

PURGING DATA

WELL DIAMETER (in): 2"	TOTAL WELL DEPTH (ft): 14.03	STATIC DEPTH TO WATER (ft): 3.80	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) X WELL CAPACITY = (low tide)

= (12.00 – 3.80) X 0.16 = 1.31

PURGE METHOD: Peristaltic pump	PURGE INITIATED AT: 8:30	PURGE ENDED AT: 9:20	TOTAL VOL. ml PURGED (gal): 5000

TIME	VOLUME PURGED (gal)	CUMUL. VOLUME PURGED (gal) ml	PURGE RATE (gpm) ml	DEPTH TO WATER (ft)	pH	TEMP. (°C)	COND. (µmhos)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR SAL	ODOR
8:30	0	0	100	3.80	6.14	27.9	46.1	0.98	205	3.02	strong sulfur
8:40	1000	1000	100	3.80	6.07	26.7	47.9	0.18	141	3.05	
8:50	1000	2000	100	"	6.07	26.9	45.3	0.05	137	2.96	
9:00	1000	3000	100	"	6.07	27.0	46.1	0.02	157	3.05	
9:10	1000	4000	100	"	6.08	27.0	45.8	0.09	166	3.02	
9:20	1000	5000	100	"	6.08	27.0	45.2	0.03	216	3.00	

WELL CAPACITY (Gallons per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: GARY BRAGANZA		SAMPLER(S) SIGNATURE(S): Gary Braganza	
SAMPLING METHOD(S): Peristaltic pump		SAMPLING INITIATED AT: 9:25	SAMPLING ENDED AT: 9:30
FIELD DECONTAMINATION: Y (N)	FIELD-FILTERED: Y (N)		DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (mL)	FINAL pH	
	PE		HNO_3			TAL METALS

REMARKS:

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; PE = POLYETHYLENE; O = OTHER (SPECIFY)

NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

TetraTechNUS,Inc Fax:9545705974 Nov 1 2002 12:19 P.02

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS Key West - Blast Media
Project No.: CTO 188

Sample ID No.: BCBM-CONF-01
Sample Location: BCBM-CONF-01
Sampled By: EM/CB
C.O.C. No.: 3826

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 5/12/03 Time: 0800 Method: hand auger Monitor Reading (ppm): —	0 - 2	off-white - grey	unsorted sand, gravel + limestone cobbles, pebbles + boulders, organic debris

COMPOSITE SAMPLE DATA:

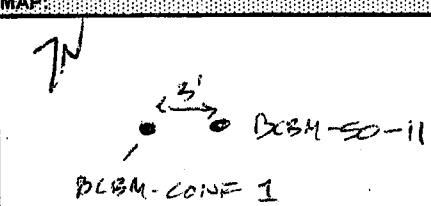
	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Arsenic	4 oz	✓	
Iron	4 oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): E. Mattice

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS Key West - Blast Media
Project No.: CTO 188

[X] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Sample ID No.: BCBM-CONF-02
Sample Location: BCBM-CONF-02
Sampled By: EM/CB
C.O.C. No.: 3826

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 5/12/03 Time: 0805 Method: hand auger Monitor Reading (ppm): —	0-2'	gray-white	unsorted sand, gravel + limestone pebbles, cobbles + boulders.

COMPOSITE SAMPLE DATA:

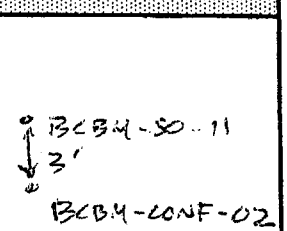
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Arsenic	4oz	✓	
Iron	4oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): E. Meher

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS Key West - Blast Media
Project No.: CTO 188

Sample ID No.: BCBM-CONF-03
Sample Location: BCBM-CONF-03
Sampled By: EM/CB
C.O.C. No.: 3826

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 5/12/03 Time: 0825 Method: hand auger Monitor Reading (ppm): —	0-2'	gray-white	unsorted debris - sand, limestone + gravel - pebbles + cobbles.

COMPOSITE SAMPLE DATA:

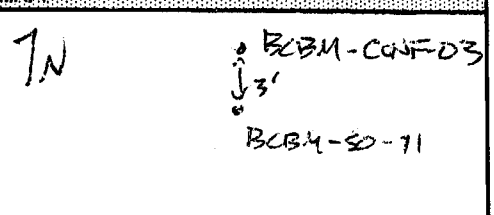
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Arsenic	4 oz	✓	
Iron	4 oz		

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): E. Melcer

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NAS Key West - Blast Media
Project No.: CTI 154

Sample ID No.: BCBM-CONF-04
Sample Location: BCBM-CONF-04
Sampled By: EM/GB
C.O.C. No.: 3826

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 6/12/03 Time: 0835 Method: hand auger Monitor Reading (ppm): —	0-2'	grey-off white	unsorted pebbles, coarse sand, gravel + limestone, cobbles + pebbles

COMPOSITE SAMPLE DATA:

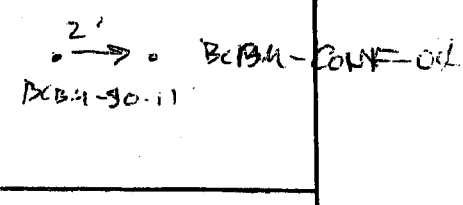
	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
Arsenic	4 oz	✓	
Pbn	4 oz	✓	

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): E. McRae

APPENDIX D

UCL CALCULATIONS

ARSENIC PROUCL RESULTS

From File P:\Government\Key West\ER,N (CTO 188)\RI

Summary Statistics for	ARSENIC
Number of Samples	17
Minimum	0.2
Maximum	2.9
Mean	0.846824
Median	0.52
Standard Deviation	0.850228
Variance	0.722887
Coefficient of Variation	1.00402
Skewness	1.633514

95 % UCL (Normal Data)

Student's t	1.206843

95 % UCL (Adjusted for Skewness)

Adjusted CLT	1.273305
Modified t	1.220459

95 % Non-parametric UCL

CLT	1.18601
Jackknife	1.206843
Standard Bootstrap	1.17284
Bootstrap t	1.452783
Chebyshev (Mean, Std)	1.745674

Summary Statistics for	ln(ARSENIC UCL DAT
Minimum	-1.60944
Maximum	1.064711
Mean	-0.54777
Standard Deviation	0.858931
Variance	0.737762
Shapiro-Wilk Test Statisitic	0.918855
Shapiro-Wilk 5% Critical Value	0.892

Data Are Lognormal at 5% Significance Level

Estimates Assuming Lognormal Distribution

MLE Mean	0.836196
MLE Standard Deviation	0.873515
MLE Coefficient of Variation	1.044629
MLE Skewness	4.273839
MLE Median	0.578236
MLE 80% Quantile	1.194854
MLE 90% Quantile	1.743602
MLE 95% Quantile	2.375406
MLE 99% Quantile	4.263541
MVU Estimate of Median	0.565809
MVU Estimate of Mean	0.813024
MVU Estimate of Std. Dev.	0.772423
MVU Estimate of SE of Mean	0.183517

UCL Assuming Lognormal Distribution

95% H-UCL	1.423788
95% Chebyshev (MVUE) UCL	1.612957
99% Chebyshev (MVUE) UCL	2.638997

Recommended UCL to use:

H-UCL