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NAS PENSACOLA  
5090.3a

SITE ASSESSMENT LETTER REPORT ADDENDUM II FOR SITE 1116 BRONSON NAS  
PENSACOLA FL  
02/08/2002  
TETRA TECH INC



**TETRA TECH NUS, INC.**

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TtNUS/TAL-02-008/0401-5.3

04010509

February 8, 2002

Project Number 0401

Tracie Vaught  
Remedial Project Manager  
Technical Review/Federal Facilities  
Florida Department of Environmental Protection  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

**Reference:** Clean Contract No. N62467-94-D0888  
Contract Task Order No. 0112

**Subject:** Site Assessment Report Addendum II  
For Site 1116, Outlying Landing Field Bronson  
Pensacola, Florida

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit the Site Assessment Report (SAR) Addendum II for the referenced Contract Task Order (CTO). This report has been prepared for the U.S. Navy Southern Division Naval Facilities Engineering Command under CTO-0112, for the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888.

**Site Assessment Report Addendum Objectives.** The objective of this SAR Addendum is to address comments regarding the previous SAR Addendum (March 14, 2001) that were expressed by the Florida Department of Environmental Protection (FDEP) in the technical review letter (April 20, 2001). A copy of the technical review letter is included as Attachment A.

**Previous investigations.** In June 1994, a petroleum release was detected in the area of the heating-oil storage tanks at Site 1116. The petroleum-contaminated soil was removed and a closure assessment was performed by Naval Air Station (NAS) Pensacola Navy Public Works Center (NPWC). In March 1997, a Contamination Assessment Report (CAR) for Outlying Landing Field (OLF) Bronson, Site 1116, Pensacola, Florida was submitted by NAS Pensacola NPWC to the FDEP for review. Upon review of the CAR, the FDEP issued a letter providing comments on the CAR and requesting additional site assessment and preparation of a SAR Addendum for the site. A SAR Addendum letter report was submitted March 14, 2001 which addressed the FDEP comments and summarized the work performed by TtNUS and the resulting data. Upon review of the SAR Addendum, the FDEP issued a letter providing additional comments and requesting additional site assessment and preparation of an additional SAR Addendum for the site.

**Response To Comments.**

*Comment 1. Page 2 of the report indicates that a new monitoring well MW-5 was installed and sampled. Table 1 and attachments D and E indicate no analytical results for a groundwater sample from this monitoring well. This data should be submitted in an addendum report.*

At the time of the SAR Addendum fieldwork in July 2000, monitoring well MW-5 could not be located. Therefore an additional monitoring well, designated MW-9, was installed to replace MW-5. Monitoring well MW-9 was installed approximately fifteen feet east of MW-5 (Figure 1) and sampled in lieu of MW-5

for the SAR Addendum. During subsequent site investigation activities, MW-5 was located beneath a pile of debris and sampled. The results of this sampling event are included in this report.

*Comment 2. Figure 2, Free Product Delineation Map indicates that free product has not been completely assessed at the site. I recommend that additional borings and monitoring wells be conducted in order to complete the delineation of free product.*

During August 2001, TtNUS personnel advanced 13 additional soil borings at Site 1116 (Figure 2). Stained soil, petroleum odor, and positive Organic Vapor Analyzer (OVA) field screening responses were observed in soil samples collected at three soil boring locations, SB-7, SB-8, and SB-10 (Table 1). Each of these three soil samples was collected from below the water table. Three of the soil borings (SB-6, SB-11, and SB-12) were converted to monitoring wells (MW-10, MW-11, and MW-12). Soil boring logs and well installation diagrams are included in Attachment B.

On August 21, 2001, free product thickness and static water level data were collected. Free product was detected in monitoring wells MW-1 (1.53 feet) and MW-7 (1.65 feet). The free product was a high viscosity material similar to Bunker C fuel oil. The free product and water level measurements are summarized in Table 2. Top of casing survey and water level data are included in Attachment B.

Soil boring observations and free product detections were used to delineate free product. An estimate of the extent of free product present at the site is shown on Figure 2.

*Comment 3. Figure 3, Groundwater Potentiometric Surface Map for February 15, 2001 does not have data from MW-4, MW-5 and MW-9. Groundwater elevation data should be collected from all monitoring wells on the site. The groundwater elevation data presented is for a period more than 7 months after the groundwater analytical data (July 9, 2000). Groundwater elevation data should be collected and presented at the time groundwater sampling was conducted.*

At the time of the first SAR Addendum investigation, monitoring wells MW-4 and MW-5 could not be located. A round of static water level measurements were made from existing site monitoring wells on August 21, 2001, before groundwater sample collection (Table 2). Figure 3 is a groundwater potentiometric surface map prepared from this data.

**Groundwater Sampling.** A round of groundwater samples were collected from August 22 to 24, 2001. The selected site monitoring wells were purged prior to collecting groundwater samples. Monitoring wells MW-1 and MW-7 were not sampled due to the presence of free product. Purging and sampling were performed with a peristaltic pump using the low flow quiescent method. The groundwater samples were analyzed for polycyclic aromatic hydrocarbons (PAHs) by Method 8270 and total recoverable petroleum hydrocarbons (TRPHs) by the Florida Petroleum Range Organics (FL-PRO) method. Groundwater sampling field data are provided in Attachment B. Following collection of the groundwater samples, the sample bottles were packed on ice and shipped via overnight transport to GPL Laboratories for analysis.

Upon receipt of the samples at the laboratory, it was discovered that some of the bottles had broken during shipment. Additional samples were collected on September 25 and 26, 2002 to replace the broken bottles. Three wells, MW-4, DW-6, and MW-11 were resampled for TRPH and a duplicate sample from MW-2 was resampled for TRPH and PAHs. The sample identifications of the samples collected during the resampling event end with a suffix of A.

Positive detections of petroleum constituents in groundwater samples collected during this assessment were reported from four monitoring wells. TRPH was reported at concentrations above standard laboratory detection limits in the groundwater samples from MW-4, MW-5, MW-10, and MW-12. The TRPH concentration reported for MW-4 exceeded the Groundwater Cleanup Target Level (GCTL); concentrations in the other three wells were below the GCTL. PAHs were below standard laboratory detection limits in the groundwater samples collected from Site 1116 monitoring wells. The analytical

results for the monitoring wells are summarized in Table 3. Copies of the validated laboratory analytical data are provided in Attachment C.

**Conclusions.**

- Free petroleum product was detected in two monitoring wells and three soil borings at the site. The petroleum product is a high viscosity material similar to Bunker C fuel oil. The estimated extent of the free product, based on soil sample observations and free product thickness measurements in the monitoring wells, is a rectangular area of approximately 2,250 square feet centered on monitoring well MW-1. Current free product thickness ranges from 1.65 feet in MW-7 to 1.53 feet in MW-1. In February 2001, free product thickness was 2.50 feet in MW-7 and 1.20 feet in MW-1.
- Groundwater impact appears to be limited to the vicinity of the free product plume. TRPH was reported at a concentration above the GCTL in MW-4. Other TRPH detections were below the GCTL. PAH concentrations were below standard laboratory detection limits.
- Soil impact appears to be limited to the capillary fringe or smear zone. Observations of free product and positive OVA field screening responses during this assessment were limited to soil samples collected from below the water table.

**Recommendations.** The data collected during the additional soil and groundwater assessment performed in August and September 2001 delineate the extent of petroleum impact previously reported at the site. TiNUS recommends the implementation of free product recovery measures at this site and preparation of a Remedial Action Plan for free product removal only.

If you have any questions with regard to this submittal, please contact me at (850) 385 -9899.

Sincerely,



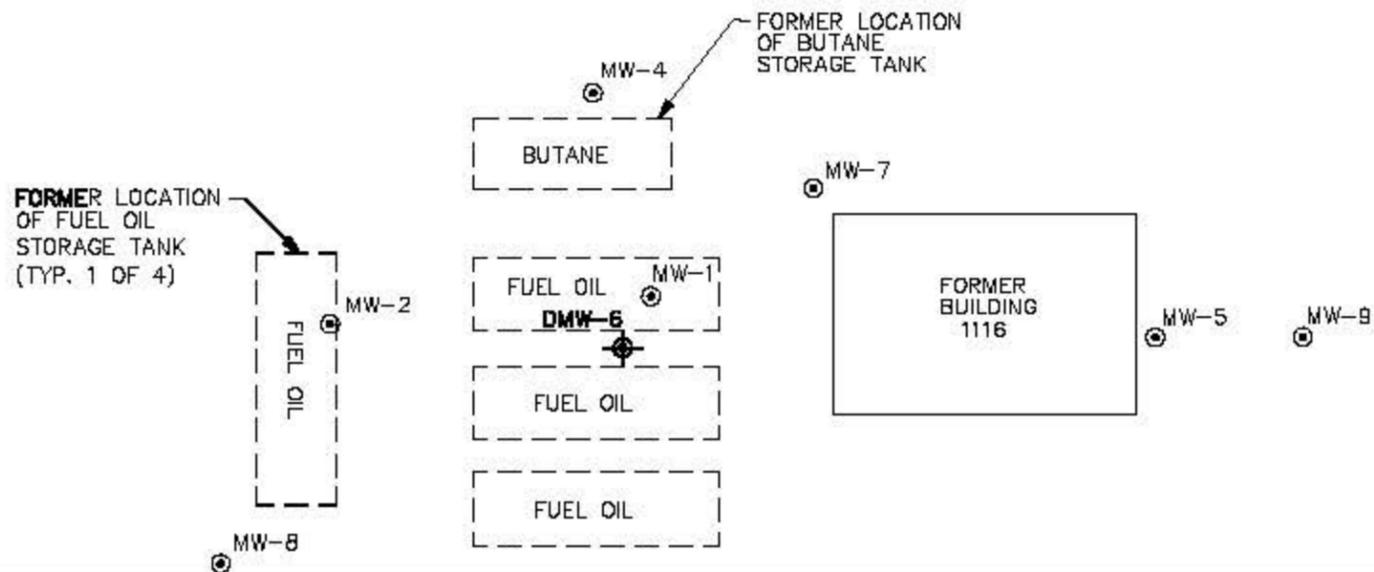
Gerald A. Walker, P.G.  
Task Order Manager  
Florida License No. PG-0001180

WDO/wdo

Enclosures

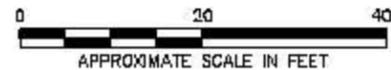
cc: B. Glover, SOUTHNAVFACENGCOM  
Greg Campbell, NAS Pensacola NPWC  
D. Wroblewski (cover letter only), TiNUS  
M. Perry/file, TiNUS  
Tallahassee File

## FIGURES



**LEGEND:**

- ⊙ MW-9 MONITORING WELL LOCATION AND DESIGNATION
- ⊕ DMW-6 DEEP MONITORING WELL LOCATION AND DESIGNATION



SOURCE: LOCATIONS OF ROADS AND FORMER LOCATIONS OF BUILDINGS AND TANKS ARE TAKEN FROM N.A.S. DRAWING NO. 23032 DATED JUNE 24, 1944 AND FIELD OBSERVATIONS. WELL LOCATIONS ARE APPROXIMATE.

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY DATE  
DM 11/29/01

CHECKED BY DATE

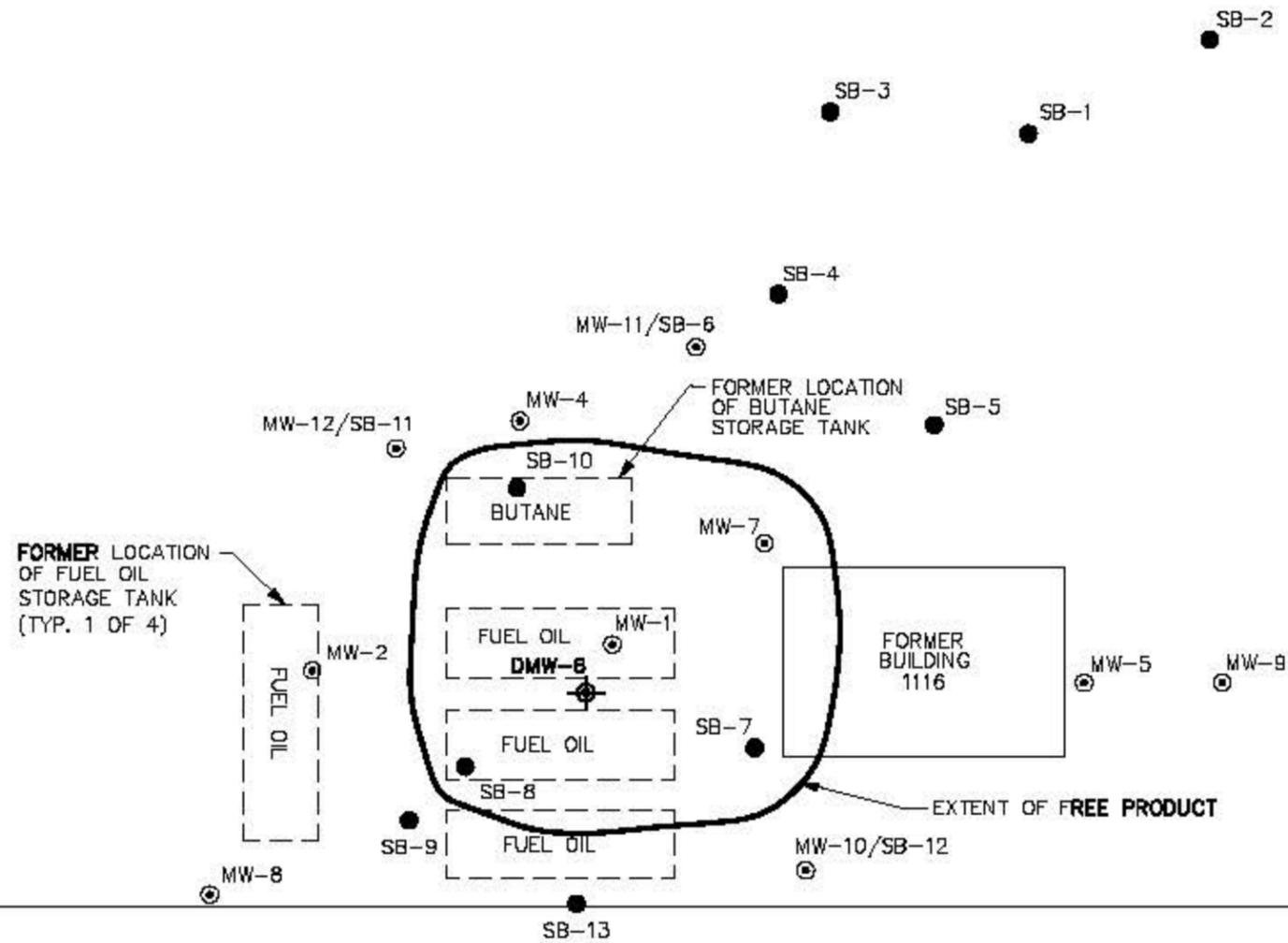
COST/SCHED-AREA

SCALE  
AS NOTED



MONITORING WELL LOCATION MAP  
SITE 1116  
SITE ASSESSMENT REPORT ADDENDUM  
OUTLYING FIELD BRONSON  
PENSACOLA, FLORIDA

CONTRACT NO. 0401	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 1	REV. 0

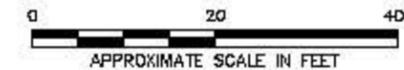


ROAD

MW-3

**LEGEND:**

- ⊙ MW-9 MONITORING WELL LOCATION AND DESIGNATION
- ⊕ DMW-6 DEEP MONITORING WELL LOCATION AND DESIGNATION
- SB-9 SOIL BORING LOCATION AND DESIGNATION



SOURCE: LOCATIONS OF ROADS AND FORMER LOCATIONS OF BUILDINGS AND TANKS ARE TAKEN FROM N.A.S. DRAWING NO. 23032 DATED JUNE 24, 1944 AND FIELD OBSERVATIONS. WELL LOCATIONS ARE APPROXIMATE.

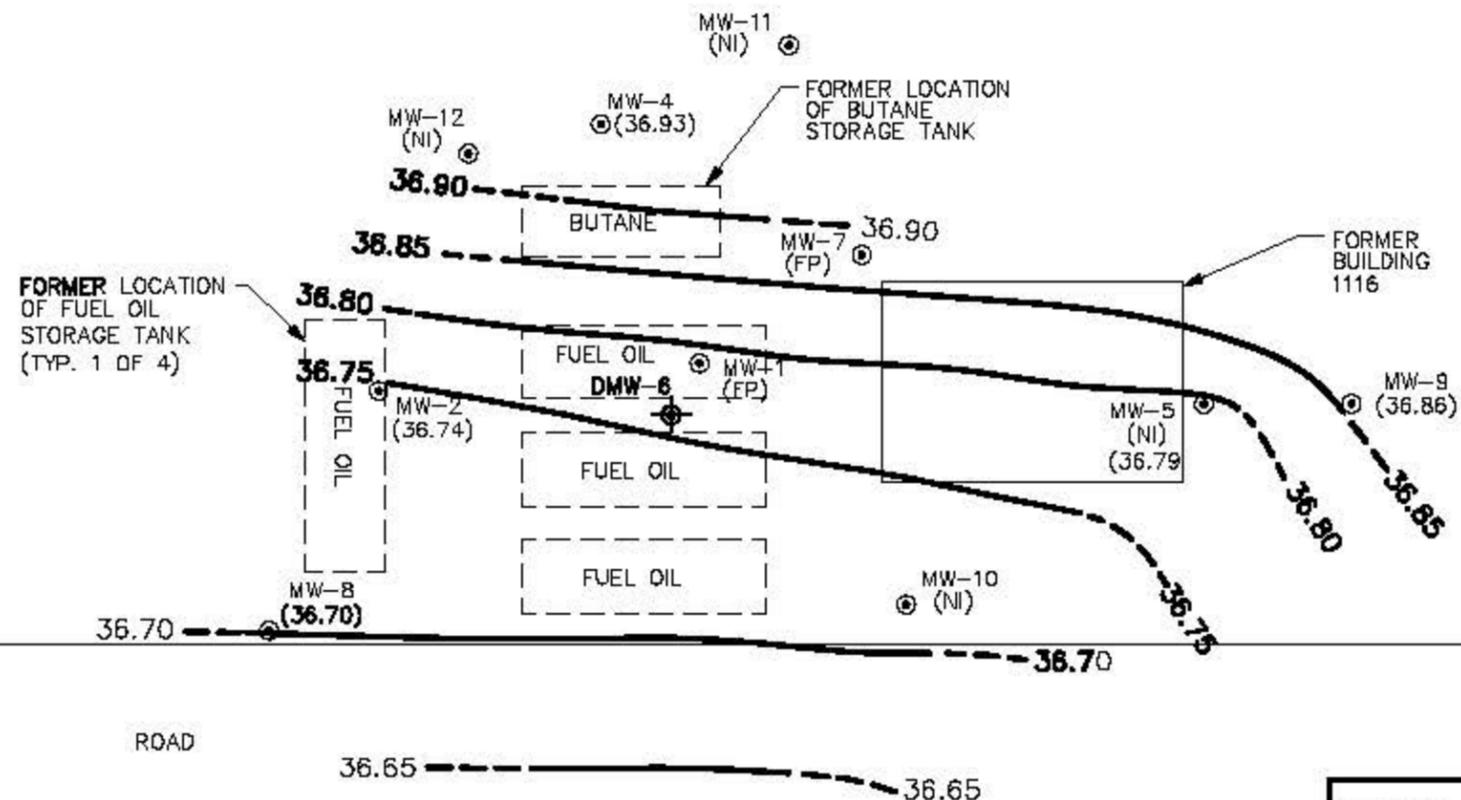
NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY: DM  
 DATE: 11/28/01  
 CHECKED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 COST/SCHED-AREA: \_\_\_\_\_  
 SCALE: AS NOTED



EXTENT OF FREE PRODUCT  
 SITE 1116  
 SITE ASSESSMENT REPORT ADDENDUM  
 OUTLYING FIELD BRONSON  
 PENSACOLA, FLORIDA

CONTRACT NO. 0401	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 2	REV. 0



**LEGEND:**

- ⊙ MW-9 MONITORING WELL LOCATION AND DESIGNATION
- ⊕ DMW-6 DEEP MONITORING WELL LOCATION AND DESIGNATION
- (NI) NOT INSTALLED AT TIME OF SURVEY
- (FP) WELL CONTAINED FREE PRODUCT
- 36.75 GROUNDWATER ELEVATION ISOCONTOUR (DASHED WHERE INFERRED)

APPROXIMATE SCALE IN FEET

**SOURCE:** LOCATIONS OF ROADS AND FORMER LOCATIONS OF BUILDINGS AND TANKS ARE TAKEN FROM N.A.S. DRAWING NO. 23032 DATED JUNE 24, 1944 AND FIELD OBSERVATIONS. WELL LOCATIONS ARE APPROXIMATE.

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES	DRAWN BY	DATE		CONTRACT NO. 0401		
							DM	11/29/01		GROUNDWATER ELEVATIONS - 8/21/01	APPROVED BY	DATE
										8/21/01	APPROVED BY	DATE
										SITE ASSESSMENT REPORT ADDENDUM		
									OUTLYING FIELD BRONSON			
									PENSACOLA, FLORIDA	DRAWING NO. FIGURE 3	REV. 0	

## TABLES

**TABLE 1**

**SUMMARY OF OVA FIELD SCREENING RESULTS  
 BUILDING 1116 SITE ASSESSMENT REPORT ADDENDUM  
 OLF BRONSON - NAS PENSACOLA  
 PENSACOLA, FLORIDA**

Boring Number	Date Collected	Depth To Water	Sample Interval (fbls)	Total Reading (ppm)	Carbon Filtered (ppm)	Net Reading (ppm)	Comments
SB-1	8/21/2001	12	4-5	0.0	---	0.0	
			9-10	0.0	---	0.0	
			13-14	0.0	---	0.0	
SB-2	8/21/2001	13	1-2	0.0	---	0.0	
			5-6	0.0	---	0.0	
			8-9	0.0	---	0.0	
			11-12	0.0	---	0.0	
			14-15	0.0	---	0.0	
SB-3	8/21/2001	14	0-1	0.0	---	0.0	
			4-5	0.0	---	0.0	
			7-8	0.0	---	0.0	
			11-12	0.0	---	0.0	
			13-14	0.0	---	0.0	
			16-17	0.0	---	0.0	
			18-19	0.0	---	0.0	
SB-4	8/21/2001	13	0-1	0.0	---	0.0	
			3-4	0.0	---	0.0	
			5-6	0.0	---	0.0	
			7-8	0.0	---	0.0	
			10-11	0.0	---	0.0	
			13-14	0.0	---	0.0	
SB-5	8/21/2001	13	0-1	0.0	---	0.0	
			4-5	0.0	---	0.0	
			8-9	0.0	---	0.0	
			11-12	0.0	---	0.0	
			13-14	0.0	---	0.0	
SB-6	8/21/2001	13	1-2	0.0	---	0.0	
			4-5	0.0	---	0.0	
			8-9	0.0	---	0.0	
			11-12	0.0	---	0.0	
			13-14	0.0	---	0.0	
SB-7	8/21/2001	12	0-1	0.0	---	0.0	
			3-4	0.0	---	0.0	
			6-7	0.0	---	0.0	
			8-9	0.0	---	0.0	
			11-12	0.0	---	0.0	
			13-14	1000	600	400	petroleum stained

**TABLE 1**

**SUMMARY OF OVA FIELD SCREENING RESULTS  
 BUILDING 1116 SITE ASSESSMENT REPORT ADDENDUM  
 OLF BRONSON - NAS PENSACOLA  
 PENSACOLA, FLORIDA**

Boring Number	Date Collected	Depth To Water	Sample Interval (fbls)	Total Reading (ppm)	Carbon Filtered (ppm)	Net Reading (ppm)	Comments
SB-8	8/22/2001	12.5	0-1	0.0	---	0.0	
			4-5	0.0	---	0.0	
			8-9	0.0	---	0.0	
			11-12	0.0	---	0.0	
			13-14	450	120	330	petroleum stained
SB-9	8/22/2001	12.5	0-1	0.0	---	0.0	
			4-5	0.0	---	0.0	
			8-9	0.0	---	0.0	
			11-12	0.0	---	0.0	
			13-14	0.0	---	0.0	
SB-10	8/22/2001	12	0-1	0.0	---	0.0	
			4-5	0.0	---	0.0	
			8-9	0.0	---	0.0	
			10-11	0.0	---	0.0	
			13-14	380	220	160	petroleum stained
SB-11	8/22/2001	12	0-1	0.0	---	0.0	
			4-5	0.0	---	0.0	
			8-9	0.0	---	0.0	
			11-12	0.0	---	0.0	
			13-14	0.0	---	0.0	
SB-12	8/22/2001	12.5	0-1	0.0	---	0.0	
			4-5	0.0	---	0.0	
			6-7	0.0	---	0.0	
			8-9	0.0	---	0.0	
			11-12	0.0	---	0.0	
			13-14	0.0	---	0.0	
SB-13	8/22/2001	12	0-1	0.0	---	0.0	
			4-5	0.0	---	0.0	
			8-9	0.0	---	0.0	
			11-12	0.0	---	0.0	
			13-14	0.0	---	0.0	

**NOTES:**

fbls = feet below land surface

ppm = parts per million

NA = not applicable, groundwater not encountered

--- = Reading not taken, no total response observed

**TABLE 2**

**SUMMARY OF WATER LEVEL AND FREE PRODUCT MEASUREMENTS, AUGUST 2001  
BUILDING 1116 SITE ASSESSMENT REPORT ADDENDUM  
OLF BRONSON - NAS PENSACOLA  
PENSACOLA, FLORIDA**

<b>Well Number</b>	<b>Top of Casing Elevation <sup>(1)</sup></b>	<b>Depth to Product</b>	<b>Depth to Water</b>	<b>Free Product Thickness</b>	<b>Potentiometric Surface Elevation<sup>(2)</sup></b>
MW-1	50.01	12.30	13.83	1.53	37.56
MW-2	49.67	ND	12.93	ND	36.74
MW-3	48.77	ND	12.15	ND	36.62
MW-4	49.80	ND	12.87	ND	36.93
MW-5	49.52	ND	12.73	ND	36.79
DMW-6	49.92	ND	13.13	ND	36.79
MW-7	50.00	12.55	14.20	1.65	37.29
MW-8	49.30	ND	12.60	ND	36.70
MW-9	52.89	ND	16.03	ND	36.86
MW-10	51.92	ND	14.83	ND	37.09
MW-11	53.01	ND	15.85	ND	37.16
MW-12	52.13	ND	15.00	ND	37.13

NOTES:  
<sup>(1)</sup> Elevation datum is arbitrary elevation of 50 ft. assigned to the southeast corner of Building 116 concrete slab.  
<sup>(2)</sup> Potentiometric Surface Elevation = Top of Casing Elevation - (Depth to Water - (Free Product Thickness \* free product specific gravity))  
 Specific gravity of Bunker C fuel oil = 0.90.  
 ND - not detected

TABLE 3

**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS  
BUILDING 1116 SITE ASSESSMENT REPORT ADDENDUM  
OLF BRONSON - NAS PENSACOLA  
PENSACOLA, FLORIDA**

Sample ID	Date Collected	Polynuclear Aromatic Hydrocarbons (µg/L)																	TRPH (mg/L)		
		Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3)pyrene	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Phenanthrene		Pyrene	
GCTL		20	210	2,100	0.2	0.2	0.2	210	0.5	4.8	0.2	280	280	0.2	20	20	20	120	210	5	
NASP-1116-MW2	#####	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 1
NASP-1116-DUP1A	#####	< 0.118	< 0.118	< 0.118	< 0.118	< 0.118	< 0.118	< 0.118	< 0.118	< 0.118	< 0.118	< 0.118	< 0.118	< 0.118	< 0.118	< 0.118	< 0.118	< 0.118	< 0.118	< 0.118	< 0.189
NASP-1116-MW3	#####	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 1
NASP-1116-MW4	#####	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	---
NASP-1116-MW4A	#####	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	31.8
NASP-1116-MW5	#####	< 0.133	< 0.133	< 0.133	< 0.133	< 0.133	< 0.133	< 0.133	< 0.133	< 0.133	< 0.133	< 0.133	< 0.133	< 0.133	< 0.133	< 0.133	< 0.133	< 0.133	< 0.133	< 0.133	0.178 J
NASP-1116-DW6	#####	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	---
NASP-1116-DW6A	#####	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	< 0.213
NASP-1116-MW8	#####	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 1
NASP-1116-MW9	#####	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 1
NASP-1116-MW10	#####	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	0.189 J
NASP-1116-MW11	#####	< 0.105	< 0.105	< 0.105	< 0.105	< 0.105	< 0.105	< 0.105	< 0.105	< 0.105	< 0.105	< 0.105	< 0.105	< 0.105	< 0.105	< 0.105	< 0.105	< 0.105	< 0.105	< 0.105	---
NASP-1116-MW11A	#####	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	< 0.189
NASP-1116-MW12	#####	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	< 0.111	0.465 J

## NOTES:

µg/L micrograms per liter.

mg/L milligrams per liter.

GCTL Groundwater Cleanup Target Level as defined by Chapter 62-770, F.A.C.

--- Sample not analyzed for this parameter.

Shaded values are positive detections.

Bold values are at concentrations exceeding GCTL.

J Estimated quantity below the practical quantitation limit and above the method detection limit

ATTACHMENT A  
FDEP Technical Review Letter



# Department of Environmental Protection

Jeb Bush  
Governor

Twin Towers Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

David B. Struhs  
Secretary

April 20, 2001

Mr. Byas Glover  
Code 18410  
Southern Division  
Naval Facilities Engineering Command  
2155 Eagle Drive  
P.O. Box 190010  
North Charleston, South Carolina 29419-9010

RE: Site Assessment Report Addendum, U.S. Navy Outlying  
Landing Field (OLF) Bronson, Site 1116, Pensacola,  
Florida

Dear Mr. Glover:

I have completed the technical review of the above referenced document dated March 14, 2001 (received March 14, 2001). I have the following comments that should be addressed in an addendum report in order to complete the assessment requirements specified in Chapter 62-770, Florida Administrative Code (F.A.C.).

Page 2 of the report indicates that a new monitoring well MW-5 was installed and sampled. Table 1 and attachments D and E indicate no analytical results for a groundwater sample from this monitoring well. This data should be submitted in an addendum report.

Figure 2, Free Product Delineation Map indicates that free product has not been completely assessed at the site. I recommend that additional borings and monitoring wells be conducted in order to complete the delineation of free product.

Figure 3, Groundwater Potentiometric Surface Map for February 15, 2001 does not have data from MW-4, MW-5 and MW-9. Groundwater elevation data should be collected from all monitoring wells on the site. The groundwater elevation data presented is for a period more than 7 months after the groundwater analytical data (July 9, 2000). Groundwater

*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*

*Printed on recycled paper.*

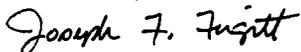
Mr. Byas Glover  
Page Two  
April 20, 2001

elevation data should be collected and presented at the time groundwater sampling was conducted.

I agree that a remedial action plan (RAP) should be completed for the site and that free product removal should be initiated. Before the preparation of the RAP, I recommend that the free product assessment be completed; groundwater elevation be measured in all onsite monitoring wells; groundwater samples be collected in all onsite monitoring wells not exhibiting free product; and that an addendum report be submitted for the site.

If I can be of any further assistance with this matter, please contact me at (850) 921-9989.

Sincerely,



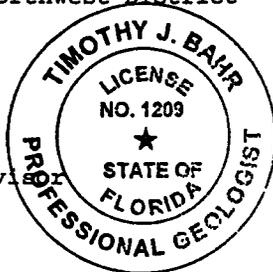
Joseph F. Fugitt, P.G.  
Remedial Project Manager

cc: Greg Campbell, NAS Pensacola  
Gerry Walker, Tetra Tech NUS, Tallahassee  
Charlie Goddard, FDEP Northwest District

Reviewed by:



Timothy J. Bahr, P.G.  
Professional Geologist Supervisor  
Bureau of Waste Cleanup



4/20/01  
Date

JJC  ESN 

ATTACHMENT B  
Field Data











# BORING LOG

PROJECT NAME: NASP Site 116 Bronson  
 PROJECT NUMBER: NO 401 CTO 0112  
 DRILLING COMPANY: ATI  
 DRILLING RIG: 66 DT Geoprobe (Track)

BORING No.: SB-5  
 DATE: 08-21-01  
 GEOLOGIST: Gary J. Davis  
 DRILLER: Noah Hunter

Sample No. and Type or RQD	Depth (FL) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/FL) or Screened Interval	MATERIAL DESCRIPTION			U S C S *	Remarks	PID/FID Reading (ppm)			
					Soil Density/ Consistency or Rock Hardness	Color	Material Classification			Sample	Sampler BZ	Borehole**	Driller BZ**
		NA	NA				Yellowish brown silty sand fine-med.	SL	Hand Auger to 4'	0	0	0	0
	5							SL		0	0	0	0
				40" / 60"			Evolutional color change to white "beach" sand fine-med.	SL		0	0	0	0
	10			36" / 60"				SL		0	0	0	0
	15						Terminated boring at 14' BGS	SL	Net	0	0	0	0

\* When rock coring, enter rock brokenness.

\*\* Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.

Remarks: \_\_\_\_\_

Drilling Area  
 Background (ppm): 0



# BORING LOG

PROJECT NAME: NASP Site 1116 Bronson BORING No.: SB-6  
 PROJECT NUMBER: NO401 CTO0112 DATE: 08-21-01  
 DRILLING COMPANY: ATE GEOLOGIST: Gary J. Davis  
 DRILLING RIG: 66 DT Geo probe (Track) DRILLER: Noah Hunter

Sample No. and Type or ROD	Depth (FL) or Run No.	Blows / 6" or ROD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/FL) or Screened Interval	MATERIAL DESCRIPTION			U S C S *	Remarks	PID/FID Reading (ppm)			
					Soil Density/ Consistency or Rock Hardness	Color	Material Classification			Sample	Sampler BZ	Borehole**	Driller BZ**
		NA	NA				yellowish Brown silty sand	SC	Hard Auger to 4'	0	0	0	0
					loose to very loose					0	0	0	0
	5												
			36"										
			60"										
	10						Gradational	SC		0	0	0	0
			36"				Color change to white "beach" sand			0	0	0	0
			60"							0	0	0	0
	15						Terminated boring at 14' BGS	SC		0	0	0	0

\* When rock coring, enter rock brokenness.

\*\* Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.

Remarks: \_\_\_\_\_

Drilling Area Background (ppm):

Converted to Well: Yes  No  Well I.D. #: MW-11



# BORING LOG

PROJECT NAME: NASP Site 1116 Bronson BORING No.: SB-7  
 PROJECT NUMBER: NO401 CTO 012 DATE: 08-21-01  
 DRILLING COMPANY: ATF GEOLOGIST: Gary J. Davis  
 DRILLING RIG: GGDT Geoprobe (Track) DRILLER: Nash Hunter

Sample No. and Type or RGD	Depth (Ft.) or Run No.	Blows / 6" or RGD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION			U S C S *	Remarks	PID/FID Reading (ppm)			
					Soil Density/ Consistency or Rock Hardness	Color	Material Classification			Sample	Sampler BZ	Borehole**	Driller BZ**
			NA				Yellowish brown silty sand fine-med	SL	Hand Auger to 4'	0	0	0	0
	5				loose to very loose					0	0	0	0
			40"				Reddish Brown silty clayey sand 70% clay	SL	wet to sat. dry to damp	0	0	0	0
	10		60"							0	0	0	0
			36"				Dark Gray to black stained with free product			1000			
	15		60"				Terminated boring at 14' BGS						

Charcoal Filter 600  
 Samples collected = 400

\* When rock coring, enter rock brokenness.

\*\* Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.

Remarks: \_\_\_\_\_

Drilling Area  
 Background (ppm): 0



# BORING LOG

PROJECT NAME: NASD Site 1116 Bronson BORING No.: SB-8  
 PROJECT NUMBER: NOAD1 CTD012 DATE: 08-22-01  
 DRILLING COMPANY: ATF GEOLOGIST: Gary F. Davis  
 DRILLING RIG: 66DT Geoprobe (Track) DRILLER: Jason Wiley

Sample No. and Type or RGD	Depth (FL) or Run No.	Blows / 6" or RGD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/FL) or Screened Interval	MATERIAL DESCRIPTION			U C S *	Remarks	PID/ID Reading (ppm)			
					Soil Density/ Consistency or Rock Hardness	Color	Material Classification			Sample	Sampler BZ	Borehole**	Driller BZ**
			NA/NA				Yellowish Brown Silty Sand fine med grained	SL	Hand Auger to 4'	0	0	0	0
	5				loose to very loose			SL		0	0	0	0
	10		AS/60"				Gradational color change to "white" Sand fine med grained	SL		0	0	0	0
	15		AS/60"				Dark Gray to Black Silty	SC	wet saturated with Free Product, Saturated	0	0	0	0

w/ filter 120  
 330 corrected

\* When rock coring, enter rock brokenness.  
 \*\* Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.  
 Remarks: \_\_\_\_\_  
 Drilling Area Background (ppm): 0  
 Converted to Well: Yes \_\_\_\_\_ No \_\_\_\_\_ Well I.D. #: \_\_\_\_\_



# BORING LOG

PROJECT NAME: NASP Site 1116 Bronson  
 PROJECT NUMBER: NO401 CTO0112  
 DRILLING COMPANY: ATI  
 DRILLING RIG: 66DT Acaprobe

BORING No.: SB-9  
 DATE: 08-22-01  
 GEOLOGIST: Gary J. Davis  
 DRILLER: Jason Wiley & Josh Denard

Sample No. and Type or RGD	Depth (FL) or Run No.	Blows / 6" or RGD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/FL) or Screened Interval	MATERIAL DESCRIPTION			U S C S	Remarks	PID/FID Reading (ppm)			
					Soil Density/ Consistency or Rock Hardness	Color	Material Classification			Sample	Sampler BZ	Borehole**	Driller BZ**
			NA				yellowish brown silty sand	SL	Hand puz. to 4'	0	0	0	0
			NA		loose to very loose		fine med grad		Dry to damp				
	5							SL		0	0	0	0
			40" 60"				gradational color change to white "beach" sand fine-med.	SL	wet	0	0	0	0
	10		40" 60"					SL	saturated	0	0	0	0
	15						Terminated Boring at 4' BGS						

\* When rock coring, enter rock brokenness.

\*\* Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.

Remarks: \_\_\_\_\_

Drilling Area  
 Background (ppm): 0





**BORING LOG**

PROJECT NAME: NASP Site 1116 Bronson  
 PROJECT NUMBER: N0401 CTO112  
 DRILLING COMPANY: RTI  
 DRILLING RIG: 66 DT Geoprobe (Track)

BORING No.: SB-12  
 DATE: 08-22-01  
 GEOLOGIST: Gary J. Davis  
 DRILLER: Jason Wiley

Sample No. and Type or ROD	Depth (FL) or Run No.	Blows / 6" or RGD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/FL) or Screened Interval	MATERIAL DESCRIPTION		U S C S *	Remarks	PID/FID Reading (ppm)			
					Soil Density/ Consistency or Rock Hardness	Color			Material Classification	Sample	Sampler BZ	Borehole**
						Yellowish Brown Silty sand fine-med.	SL	Hand Auger to 2'	00	NA	0	
									00	0		
	5		36"				SL		00	0		
			60"						00	0		
	10		48"			Color changed to white "beach" sand alternating w/ silty clayey sand in ~6" thick layers	SL	Yellowish brown	00	0		
			60"						00	0		
	15					Terminated Bore at 14' 0365		~ 20% clay in with deep sand at bottom	00	0		

\* When rock coring, enter rock brokenness.

\*\* Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.

Remarks:

Drilling Area  
Background (ppm): 0Converted to Well: Yes  No Well I.D. #: MW-10





SURVEY DATA SHEET

PROJECT: NASP Site 1116 Bronson  
 PROJECT #: CTD 0112 No401  
 DATE: 8-24-01  
 NAME: Gary Davis  
 WEATHER: Sunny + Hot

SURVEY DATA: BS (Backsite), HI (Height of instrument),  
 FS (Foresite), BM (Benchmark), TP = Turning Point  
 HI = BM+BS, MW-1 = HI-FS

Set 0° to Mag. North

STATION	BS (+)			HI	FS (-)			ELV.	COMMENTS
	T	M	B		T	M	B		
BM MW7	5.43	5.27	5.115						63°
NW Bk Corner				4.43	4.26	4.08			68.5
SB-7				5.34	5.18	5.02			110
SW Bk Corner				4.43	4.25	4.07			109
MW-10				3.57	3.35	3.13			125.5
MW-5				6.13	5.75	5.38			91
MW-9				2.43	3.38	1.92			87
SB-1				5.54	5.10	4.67			45
SB-2				6.00	5.25	4.90			48.5
SB-4				5.545	5.23	4.92			38
SB-3				5.685	5.31	4.94			31
SB-5				5.59	5.31	5.02			62
MW-11				3.47	2.26	2.05			32
MW-1				5.305	5.265	5.22			100
DMW-6				5.385	5.355	5.325			16.7
MW-3				6.70	6.505	6.30			167.5
SB-13				6.17	6.01	5.85			16.2
MW-8				6.13	5.97	5.81			218
MW-2				5.75	5.60	5.45			259.5
SB-9				5.625	5.605	5.39			206
SB-8				5.435	5.365	5.29			196

SB-10

5.425 5.375 5.245

3.0

Create a TP:

- Take a FS on TP (turning point)
- The FS is subtracted from the HI = elevation of TP
- Move instrument to new location
- A BS is taken on the TP
- BS is added to TP to determine new HI elevation

MW-12

3.28 3.145 3.01

330.5

MW-4

5.61 5.47 5.325

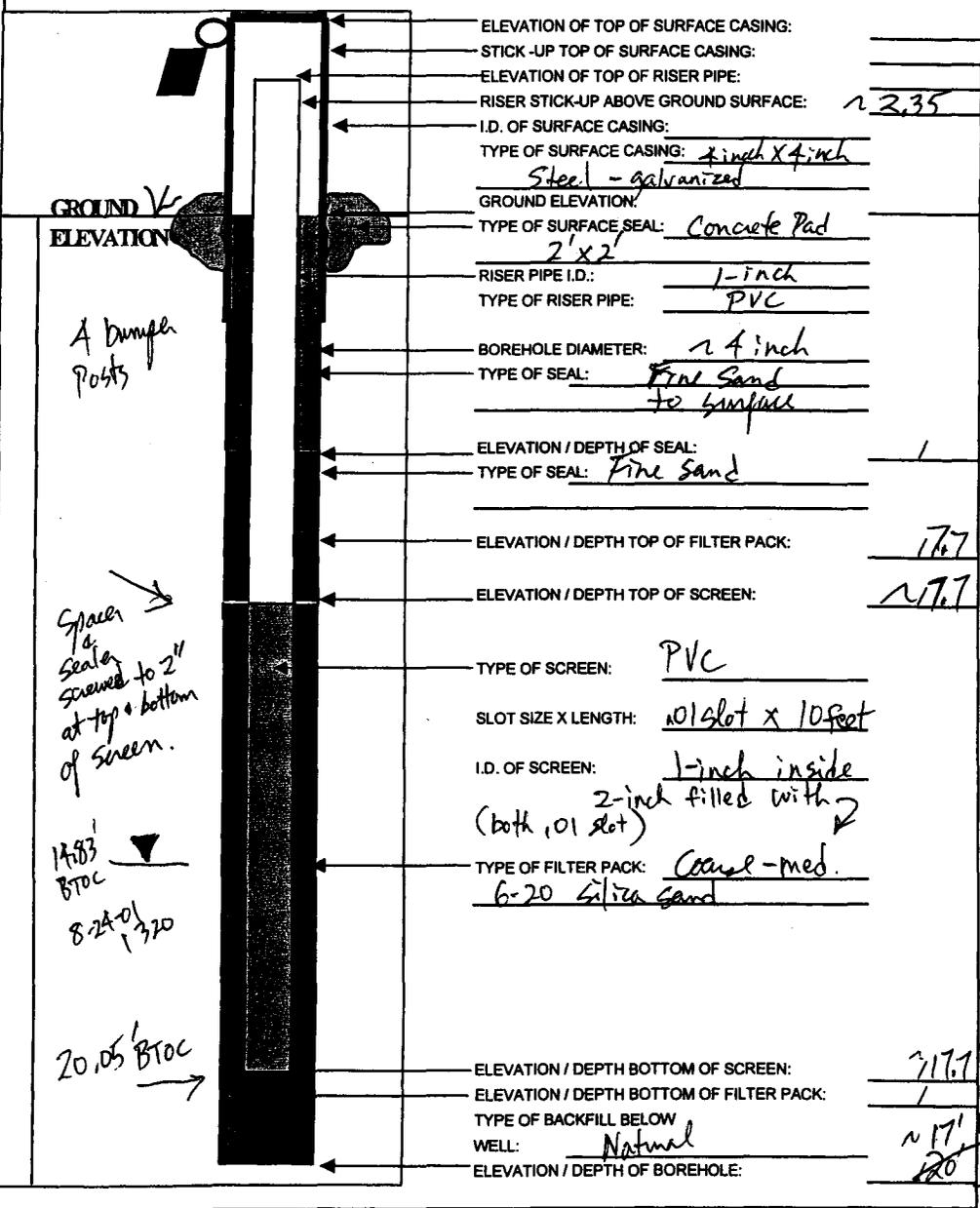
3.5



Tetra Tech NUS, Inc. OVERBURDEN MONITORING WELL SHEET

Well BORING NO.: MW-10  
Pre pack Microwell

PROJECT: <u>NASP Site 1116 Pump</u>	DRILLING Co.: <u>ATI</u>	BORING No.: <u>SB-12</u>
PROJECT No.: <u>N0401 CTO 0112</u>	DRILLER: <u>Jason Wiley</u>	DATE COMPLETED: <u>8-22-01</u>
SITE: <u>Site 1116</u>	DRILLING METHOD: <u>Geoprobe</u>	NORTHING: _____
GEOLOGIST: <u>Gary J. Davis</u>	DEV. METHOD: <u>Pump &amp; Surge</u>	EASTING: _____



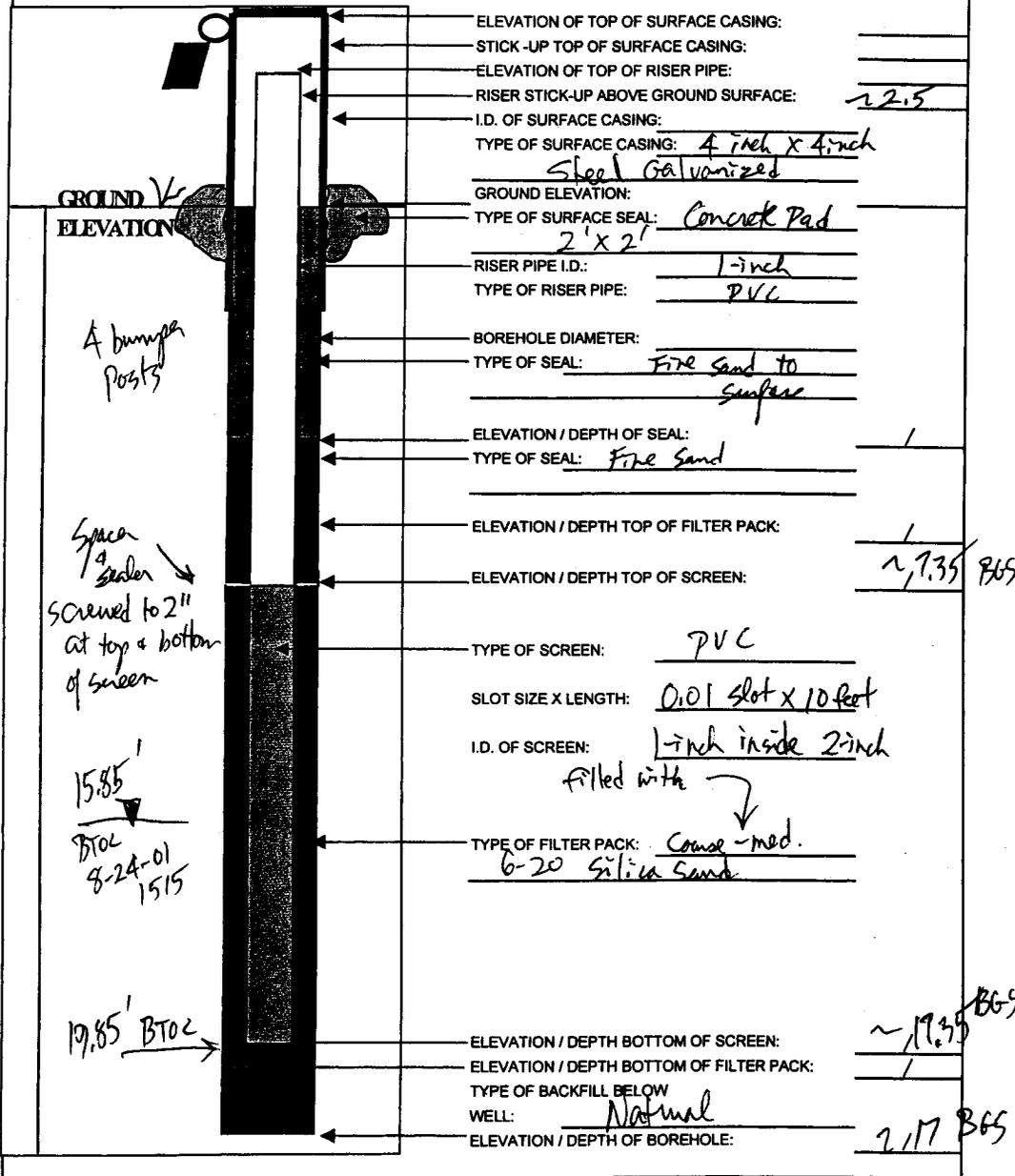
- ELEVATION OF TOP OF SURFACE CASING: \_\_\_\_\_
- STICK-UP TOP OF SURFACE CASING: \_\_\_\_\_
- ELEVATION OF TOP OF RISER PIPE: \_\_\_\_\_
- RISER STICK-UP ABOVE GROUND SURFACE: ~ 2.35
- I.D. OF SURFACE CASING: \_\_\_\_\_
- TYPE OF SURFACE CASING: 2 inch X 4 inch Steel - galvanized
- GROUND ELEVATION: \_\_\_\_\_
- TYPE OF SURFACE SEAL: Concrete Pad
- \_\_\_\_\_ 2' x 2'
- RISER PIPE I.D.: 1-inch
- TYPE OF RISER PIPE: PVC
- BOREHOLE DIAMETER: ~ 4 inch
- TYPE OF SEAL: Fine Sand to surface
- \_\_\_\_\_
- ELEVATION / DEPTH OF SEAL: \_\_\_\_\_
- TYPE OF SEAL: Fine Sand
- \_\_\_\_\_
- ELEVATION / DEPTH TOP OF FILTER PACK: 17.7
- ELEVATION / DEPTH TOP OF SCREEN: ~ 17.7
- \_\_\_\_\_
- TYPE OF SCREEN: PVC
- SLOT SIZE X LENGTH: 01 slot x 10 feet
- I.D. OF SCREEN: 1-inch inside (both, 01 slot) 2-inch filled with
- \_\_\_\_\_
- TYPE OF FILTER PACK: Coarse-med. 6-20 Silica Sand
- \_\_\_\_\_
- ELEVATION / DEPTH BOTTOM OF SCREEN: ~ 17.7 BGS
- ELEVATION / DEPTH BOTTOM OF FILTER PACK: \_\_\_\_\_
- TYPE OF BACKFILL BELOW WELL: Natural
- ELEVATION / DEPTH OF BOREHOLE: 20' BGS



Tetra Tech NUS, Inc. OVERBURDEN MONITORING WELL SHEET

well BORING NO.: MW-11  
Pre Pack Microwell

PROJECT: NASP Site 1116 Brown DRILLING Co.: ATI BORING No.: SB-6  
 PROJECT No.: ND 401 CTO 0112 DRILLER: Jason Wiley DATE COMPLETED: 8-22-01  
 SITE: Site 1116 DRILLING METHOD: Geoprobe NORTHING: \_\_\_\_\_  
 GEOLOGIST: Gary J. Davis DEV. METHOD: Pumped Slug EASTING: \_\_\_\_\_



GROUND ELEVATION

A bumper Posts

Spacer & screen  
Screened to 2" at top & bottom of screen

15.85'  
BTOC  
8-24-01  
1515

17.85' BTOC

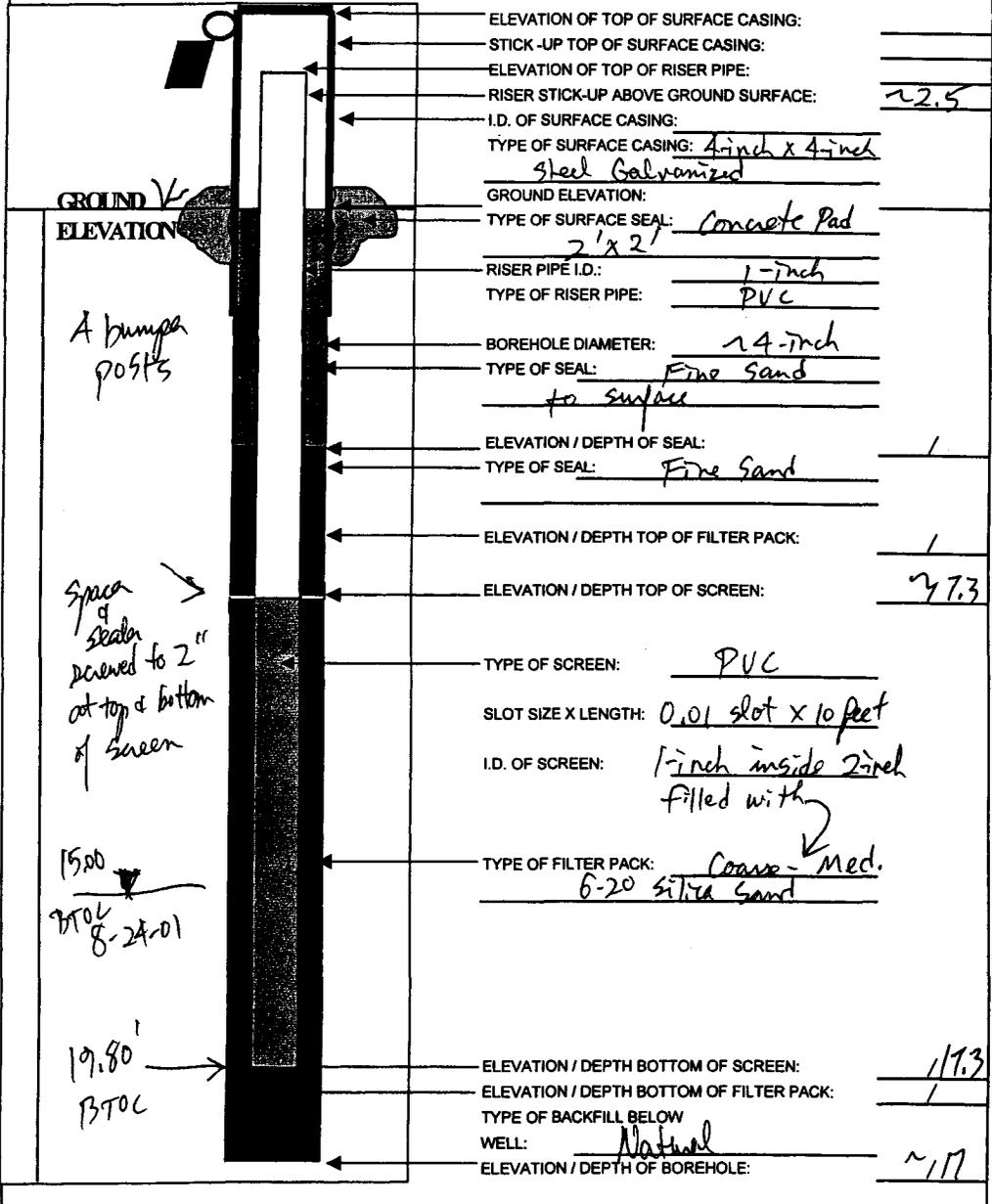
ELEVATION OF TOP OF SURFACE CASING: \_\_\_\_\_  
 STICK-UP TOP OF SURFACE CASING: \_\_\_\_\_  
 ELEVATION OF TOP OF RISER PIPE: \_\_\_\_\_  
 RISER STICK-UP ABOVE GROUND SURFACE: ~2.5  
 I.D. OF SURFACE CASING: \_\_\_\_\_  
 TYPE OF SURFACE CASING: 4 inch x 4 inch Steel Galvanized  
 GROUND ELEVATION: \_\_\_\_\_  
 TYPE OF SURFACE SEAL: Concrete Pad 2' x 2'  
 RISER PIPE I.D.: 1 inch  
 TYPE OF RISER PIPE: PVC  
 BOREHOLE DIAMETER: \_\_\_\_\_  
 TYPE OF SEAL: Fine sand to surface  
 ELEVATION / DEPTH OF SEAL: 1  
 TYPE OF SEAL: Fine Sand  
 ELEVATION / DEPTH TOP OF FILTER PACK: 1  
 ELEVATION / DEPTH TOP OF SCREEN: ~17.35 BGS  
 TYPE OF SCREEN: PVC  
 SLOT SIZE X LENGTH: 0.01 slot x 10 feet  
 I.D. OF SCREEN: 1 inch inside 2 inch filled with  
 TYPE OF FILTER PACK: Coarse-med. 6-20 Silica Sand  
 ELEVATION / DEPTH BOTTOM OF SCREEN: ~17.35 BGS  
 ELEVATION / DEPTH BOTTOM OF FILTER PACK: 1  
 TYPE OF BACKFILL BELOW WELL: Natural  
 ELEVATION / DEPTH OF BOREHOLE: 2.17 BGS



Tetra Tech NUS, Inc. OVERBURDEN MONITORING WELL SHEET

Well BORING NO.: MW-12 Prefack Microwell

PROJECT: NASP Site 116 Bronze	DRILLING Co.: ATI	BORING No.: SB-11
PROJECT No.: ND401 C700112	DRILLER: Jason Wiley	DATE COMPLETED:
SITE: Site 116	DRILLING METHOD: Geoprobe	NORTHING:
GEOLOGIST: Gary J. Davis	DEV. METHOD: Pump & Gauge	EASTING:



PK5

PK6

PK6







Project Site Name: NASP  
 Project No.: Site 1116 Bronson

Sample ID No.: NASP-1116-MW-2  
 Sample Location: MW-2

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

Sampled By: GD  
 C.O.C. No.: \_\_\_\_\_  
 Type of Sample:  
 Low Concentration  
 High Concentration

**SAMPLING DATA:**

Date:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
8/22/01	Clear	6.30	0.094	26.9	0	5.09	0.00	

**PURGE DATA:**

Date:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other	Notes
8/22/01	1005	6.34	0.098	27.4	45	4.62	0.00	12.90	100
Method:	Peristaltic								
Monitor Reading (ppm):	1020	6.07	0.107	27.3	19	4.49	0.00	12.90	100
Well Casing Diameter & Material Type:	1.035 PVC	6.12	0.095	27.2	12	5.00	0.00	12.90	100
Total Well Depth (TD):	18.50	6.23	0.094	26.8	5	5.02	0.00	12.90	100
Static Water Level (WL):	12.78	6.30	0.094	26.9	0	5.09	0.00	12.90	100
One Casing Volume (gal):	3.55	Begin Sample							
Start Purge (hrs):	1005								
End Purge (hrs):	1120								
Total Purge Time (min):	75								
Total Vol. Purged (gal):	7.5								

**SAMPLE COLLECTION INFORMATION:**

Analysis	Preservative	Container Requirements	Collected
PAH	ICE	1/1 - 1 L Amber	2
TRPH	ICE	1/1 - 1 L Amber	2

**OBSERVATIONS / NOTES:**

TD 18.50    1120 Parameters Stable, Begin Sample Set tubing @ 13'  
 WL 12.78  
 $5.72 \times 0.1632 = 0.934 \text{ G} (3.55\text{L}) \times 3 = 2.80 \text{ G} (10.65\text{L})$   
 No odor

Circle if Applicable: \_\_\_\_\_      Signature(s): R. D. Munson

MS/MSD \_\_\_\_\_      Duplicate ID No.: NASP-1116-Dup 1



Project Site Name: NASP  
Project No.: Site 1116 Bronson

Sample ID No.: NASP-1116-mw3  
Sample Location: mw3

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

Sampled By: GRM  
C.O.C. No.: \_\_\_\_\_  
Type of Sample:  
 Low Concentration  
 High Concentration

SAMPLING DATA:

Date:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
8/22/01	Clear	5.60	6079	23.3	0	4.14	0.00	—

PURGE DATA:

Date:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
8/21/01	1625	—	—	—	—	—	—	12.15
Method: Peristaltic	1635	5.26	0.090	26.2	24	4.48	0.00	12.27
Monitor Reading (ppm):	1645	5.25	0.087	26.1	16	3.87	0.00	12.27
Well Casing Diameter & Material	1700	5.15	0.082	25.2	5	3.97	0.00	12.27
Type: 2" PVC	1715	5.19	0.080	24.9	0	3.93	0.00	12.27
Total Well Depth (TD): 18.40	1730	5.40	0.077	24.7	0	4.17	0.00	12.27
Static Water Level (WL): 12.15	1745	5.59	0.076	24.5	0	4.15	0.00	12.27
One Casing Volume (gal/L):	1755	5.64	0.075	24.5	0	4.18	0.00	12.27
Start Purge (hrs): 16:25	Begin Sample							
End Purge (hrs): 17:55								
Total Purge Time (min): 90								
Total Vol. Purged (gal/L) 9.0								

M/L/m...  
100m  
100  
100  
100  
100  
100  
100

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAH	ICE	1 - 1L Amber	1
TRPH	ICE	1 - 1L Amber	1

OBSERVATIONS / NOTES:

TD 18.40  
WL 12.15  
Set tubing @ 16.0'  
 $6.25 \text{ W.C.} \times 1.632 = 1.02 \text{ vol} \times 3 = 3.06 = 300 \text{ ls}$   
1755 Parameters stable, will sample tomorrow morning.  
NO odor

Circle if Applicable: MS/MSD  Duplicate ID No.: \_\_\_\_\_ Signature(s): GRM



Project Site Name: NASP  
Project No.: 1116 Bronson

Sample ID No.: NASP-1116-mw4

Sample Location: mw4

Sampled By: Edison

C.O.C. No.: \_\_\_\_\_

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

- Type of Sample:
  - Low Concentration
  - High Concentration

**SAMPLING DATA:**

Date:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
08/23/01								
Time: 1320								
Method: Peristaltic	Milky	5.97	0.140	26.2	24	2.13	0.00	

**PURGE DATA:**

Date:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
08/23/01								
Method: Peristaltic	1120	5.95	0.010	26.4	39	2.91	0.00	12.99
Monitor Reading (ppm):	1135	5.66	0.169	25.8	26	2.30	0.00	13.04
Well Casing Diameter & Material	1150	5.94	0.167	25.9	25	2.05	0.00	13.06
Type: 2" PVC	1205	5.93	0.164	25.7	24	1.93	0.00	13.08
Total Well Depth (TD): 17.80	1220	5.91	0.159	25.7	22	1.80	0.00	13.06
Static Water Level (WL): 12.73	1235	5.94	0.156	25.7	22	1.82	0.00	13.04
One Casing Volume (gal): 3.14	1250	5.97	0.160	26.0	*23	1.57	0.00	12.98
Start Purge (hrs): 1120	1305	5.96	0.151	26.1	24	2.04	0.00	12.96
End Purge (hrs): 1320	1320	5.97	0.140	26.2	24	2.13	0.00	12.94
Total Purge Time (min): 120	L Begin Sample							
Total Vol. Purged (gal): 12.0								

Flow ml/min  
100  
106  
100  
100  
100  
100  
100  
100  
100

**SAMPLE COLLECTION INFORMATION:**

Analysis	Preservative	Container Requirements	Collected
PARA	DCE	1 - 1L Amber	1
TRPH	DCE	1 - 1L Amber	1

**OBSERVATIONS / NOTES:**

TD 17.80  
 WL 12.73  
 WC 5.07 x 0.1632 = 0.83g VOL (3.14L) x 3 = 9.43L  
 \* turbidity will not come down!  
 no odor  
 Set tubing @ 13.5'  
 1235 lower tubing to 14.5'

Circle if Applicable:

Signature(s):

MS/MSD

Duplicate ID No.:

\_\_\_\_\_

Edison



Project Site Name: NASP  
Project No.: Site 1116 Brown

Sample ID No.: NASP-1116-mw5

Sample Location: mw 5

Sampled By: [Signature]

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:

Date:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
<u>08/24/01</u>	<u>Clear</u>	<u>5.43</u>	<u>0.269</u>	<u>26.4</u>	<u>0</u>	<u>1.53</u>	<u>0.01</u>	
Time: <u>1520</u>								
Method: <u>Peristaltic</u>								

PURGE DATA:

Date:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
<u>08/24/01</u>	<u>1325</u>	<u>5.38</u>	<u>0.109</u>	<u>28.0</u>	<u>22</u>	<u>2.92</u>	<u>0.00</u>	<u>12.52</u>
Method: <u>Peristaltic</u>	<u>1340</u>	<u>5.01</u>	<u>0.113</u>	<u>27.9</u>	<u>14</u>	<u>1.97</u>	<u>0.00</u>	<u>12.50</u>
Monitor Reading (ppm):	<u>1355</u>	<u>5.11</u>	<u>0.148</u>	<u>27.4</u>	<u>4</u>	<u>1.49</u>	<u>0.00</u>	<u>12.49</u>
Well Casing Diameter & Material	<u>1410</u>	<u>5.19</u>	<u>0.163</u>	<u>27.4</u>	<u>1</u>	<u>1.46</u>	<u>0.00</u>	<u>12.47</u>
Type: <u>2" PVC</u>	<u>1425</u>	<u>5.33</u>	<u>0.198</u>	<u>27.1</u>	<u>0</u>	<u>1.35</u>	<u>0.00</u>	<u>12.47</u>
Total Well Depth (TD): <u>17.85</u>	<u>1440</u>	<u>5.41</u>	<u>0.241</u>	<u>27.0</u>	<u>0</u>	<u>1.48</u>	<u>0.00</u>	<u>12.47</u>
Static Water Level (WL): <u>12.36</u>	<u>1455</u>	<u>5.41</u>	<u>0.306</u>	<u>26.7</u>	<u>0</u>	<u>1.55</u>	<u>0.00</u>	<u>12.47</u>
One Casing Volume (gal): <u>3.40</u>	<u>1510</u>	<u>5.43</u>	<u>0.351</u>	<u>26.4</u>	<u>0</u>	<u>1.47</u>	<u>0.01</u>	<u>12.48</u>
Start Purge (hrs): <u>1325</u>	<u>1515</u>	<u>5.43</u>	<u>0.362</u>	<u>26.4</u>	<u>0</u>	<u>1.33</u>	<u>0.01</u>	<u>12.48</u>
End Purge (hrs): <u>1520</u>	<u>1520</u>	<u>5.43</u>	<u>0.369</u>	<u>26.4</u>	<u>0</u>	<u>1.53</u>	<u>0.01</u>	<u>12.48</u>
Total Purge Time (min): <u>115</u>								
Total Vol. Purged (gal): <u>11.50</u>								

Flow ml/min  
100  
100  
100  
100  
100  
100  
100  
100  
100  
100

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
<u>PAH</u>	<u>ICE</u>	<u>1 - 1L Amber</u>	<u>1</u>
<u>TRPH</u>	<u>ICE</u>	<u>1 - 1L Amber</u>	<u>1</u>

OBSERVATIONS / NOTES:

TD 17.85  
 WL 12.36  
 WC:  $5.49 \times 0.1632 = 0.90 \text{ gal (3.40L)} \times 3 = 10.21 \text{ L (3 vols)}$   
 No odor!

Circle if Applicable:  
 MS/MSD Duplicate ID No.: \_\_\_\_\_

Signature(s): [Signature]



Project Site Name: NASP  
Project No.: 1116 Brunson

Sample ID No.: NASP-1116-Dmw6  
Sample Location: Dmw-6  
Sampled By: [Signature]  
C.O.C. No.: \_\_\_\_\_

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

- Type of Sample:
  - Low Concentration
  - High Concentration

SAMPLING DATA:

Date:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (‰)	Other
<u>08/23/01</u>	<u>Clear</u>	<u>4.77</u>	<u>0.071</u>	<u>24.2</u>	<u>0</u>	<u>5.22</u>	<u>0.00</u>	_____
Time: <u>1035</u>								
Method: <u>Peristaltic</u>								

PURGE DATA:

Date:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
<u>8/23/01</u>	<u>TIME</u>							<u>W.L.</u>
Method: <u>Peristaltic</u>	<u>0835</u>	<u>4.52</u>	<u>0.096</u>	<u>23.8</u>	<u>10</u>	<u>4.57</u>	<u>0.00</u>	<u>12.95</u>
Monitor Reading (ppm):	<u>0850</u>	<u>4.66</u>	<u>0.076</u>	<u>23.8</u>	<u>11</u>	<u>5.68</u>	<u>0.00</u>	<u>12.95</u>
Well Casing Diameter & Material	<u>0905</u>	<u>4.68</u>	<u>0.075</u>	<u>23.7</u>	<u>6</u>	<u>4.86</u>	<u>0.00</u>	<u>12.95</u>
Type: <u>2" PVC</u>	<u>0920</u>	<u>4.73</u>	<u>0.071</u>	<u>23.9</u>	<u>6</u>	<u>4.69</u>	<u>0.00</u>	<u>12.95</u>
Total Well Depth (TD): <u>33.65</u>	<u>0935</u>	<u>4.74</u>	<u>0.071</u>	<u>23.9</u>	<u>0</u>	<u>5.29</u>	<u>0.00</u>	<u>12.95</u>
Static Water Level (WL): <u>12.95</u>	<u>1005</u>	<u>4.74</u>	<u>0.071</u>	<u>24.1</u>	<u>0</u>	<u>5.13</u>	<u>0.00</u>	<u>12.95</u>
One Casing Volume (gal): <u>12.84</u>	<u>1015</u>	<u>4.75</u>	<u>0.071</u>	<u>24.2</u>	<u>0</u>	<u>5.02</u>	<u>0.00</u>	<u>12.95</u>
Start Purge (hrs): <u>0835</u>	<u>1025</u>	<u>4.76</u>	<u>0.070</u>	<u>24.4</u>	<u>0</u>	<u>5.12</u>	<u>0.00</u>	<u>12.95</u>
End Purge (hrs): <u>1035</u>	<u>1035</u>	<u>4.77</u>	<u>0.071</u>	<u>24.2</u>	<u>0</u>	<u>5.22</u>	<u>0.00</u>	<u>12.95</u>
Total Purge Time (min): <u>120</u>	<u>Begin Sample</u>							
Total Vol. Purged (gal): <u>15.00</u>								

125  
~~100~~  
125  
125  
125  
125  
125  
125  
125

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
<u>PAH</u>	<u>ICE</u>	<u>1 - 1L Amber</u>	<u>1</u>
<u>TRPH</u>	<u>ICE</u>	<u>1 - 1L Amber</u>	<u>1</u>

OBSERVATIONS / NOTES:

TD 33.65 1035 parameters stable, begin sampling Set Tubing (Ø 26.0")  
 WL 12.95  
 $W.C. = 20.70 \times 0.1632 = 3.386 (12.84L) \times 3 = 38.5L$   
 Well stable @ 0935, will purge at least 1 well vol.  
 NO ODR

Circle if Applicable:  
 MS/MSD Duplicate ID No.: \_\_\_\_\_

Signature(s): [Signature]



Project Site Name: NASP  
Project No.: Site 1116 Bronson

Sample ID No.: NASP-1116-mw8  
Sample Location: MW-8  
Sampled By: Ran  
C.O.C. No.: \_\_\_\_\_

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

- Type of Sample:
  - Low Concentration
  - High Concentration

SAMPLING DATA:

Date:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
08/22/01	Clear	6.14	0.135	26.2	0	2.18	0.00	—
Time: 1645								
Method: Peristaltic								

PURGE DATA:

Date:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
08/22/01	14:25	6.53	0.172	27.5	10	3.95	0.00	12.50
Method: Peristaltic	1440	5.88	0.177	26.7	0	2.85	0.00	12.46
Monitor Reading (ppm):	1455	6.16	0.175	26.5	0	3.21	0.00	12.46
Well Casing Diameter & Material	1510	6.19	0.174	26.5	0	3.01	0.00	12.46
Type: 2" PVE	1525	6.26	0.167	26.4	0	2.80	0.00	12.46
Total Well Depth (TD): 19.25	1540	6.29	0.163	26.6	0	2.61	0.00	12.46
Static Water Level (WL): 12.42	1555	6.27	0.155	26.7	0	2.69	0.00	12.46
One Casing Volume (gal): 4.22	1610	6.23	0.148	26.7	0	2.57	0.00	12.46
Start Purge (hrs): 14:25	1625	6.18	0.142	26.5	0	2.33	0.00	12.46
End Purge (hrs):	1635	6.15	0.137	26.3	0	2.23	0.00	12.46
Total Purge Time (min): 140	1645	6.14	0.135	26.2	0	2.18	0.00	12.46
Total Vol. Purged (gal): 14.87								

m/min  
100  
100  
100  
100  
100  
100  
100  
100  
100  
100  
100

SAMPLE COLLECTION INFORMATION:

Analyte	Preservative	Container Requirements	Collected
PAH	ICE	1 - 1L Amber	
TRPH	ICE	1 - 1L Amber	1

OBSERVATIONS / NOTES:

T.D. 19.25 1645 Parameters Stable Tubing set @ 13.5  
 WL 12.42 Begin Sample  
 $6.83 \text{ W.C.} \times 0.1632 = 1.11 \text{ G} (4.22 \text{ L}) \times 3 = 3.34 \text{ G} (12.65 \text{ L})$   
 NO odor

Circle if Applicable:

Signature(s):

MS/MSD Duplicate ID No.: \_\_\_\_\_  
 e \_\_\_\_\_

R. D. Hanson



Project Site Name: NASP  
 Project No.: 1116 Bronson

Sample ID No.: NASP-1116-MW9

Sample Location: MW9

Sampled By: [Signature]

C.O.C. No.: \_\_\_\_\_

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

Type of Sample:

- Low Concentration  
 High Concentration

## SAMPLING DATA:

Date:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
08/23/01	Clear	4.42	0.226	25.3	0	1.27	0.00	
Time: 1600								
Method: Peristaltic								

## PURGE DATA:

Date:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
08/23/01	1450	4.72	0.219	27.2	16	2.05	0.00	15.81
Method: Peristaltic	1505	4.25	0.229	26.5	0	1.81	0.00	15.81
Monitor Reading (ppm):	1520	4.19	0.231	25.7	0	1.54	0.00	15.81
Well Casing Diameter & Material	1535	4.21	0.230	25.4	0	1.21	0.00	15.81
Type: 2" PVC	1550	4.33	0.228	25.3	0	1.31	0.00	15.81
Total Well Depth (TD): 22.00	1600	4.42	0.226	25.3	0	1.27	0.00	15.81
Static Water Level (WL): 15.77								
One Casing Volume (gal): 3.86	Begin Sample							
Start Purge (hrs): 1450								
End Purge (hrs): 1600								
Total Purge Time (min): 70								
Total Vol. Purged (gal): 8.75								

Flow  
ml/min  
12.5  
12.5  
12.5  
12.5  
12.5

## SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAH	ICE	1 - 1 Amber	1
TRPH	ICE	1 - 1 Amber	1

## OBSERVATIONS / NOTES:

TD 22.00' 1600 Parameters stable, begin Sample  
 WL 15.77  
 $WC 6.23' \times 0.1632 = 1.02g (3.86L) \times 3 = 11.60L$  3 vols Tubing set @ 180  
 will not go below 125 ml/min without stopping pump. NO odor

Circle if Applicable:

Signature(s):

MS/MSD

Duplicate ID No.:

[Signature]

Project Site Name: NASP Site 1116 Bronson  
Project No.: CTO 0112 NO401Sample ID No.: NASP-1116-MW-10Sample Location: MW-10Sampled By: Gary J. Davis

C.O.C. No.:

Type of Sample:

 Domestic Well Data Monitoring Well Data Other Well Type: \_\_\_\_\_ QA Sample Type: \_\_\_\_\_ Low Concentration High Concentration

## SAMPLING DATA:

Date:	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time:	Visual	Standard	ms/cm	°C	NTU	mg/l	SA	
08-24-01 12:40	clean	4.04	0.071	26.2	0	4.09	8.00	

## PURGE DATA:

Date:	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD
8-24-01	2 gal	3.98	0.75	25.5	2.4	4.05	0.00	
Method: Peristaltic	3 gal	4.01	1.072	24.7	2.9	4.45	11	
Monitor Reading (ppm): NA	3.5	4.01	0.071	25.9	0	4.51	11	
Well Casing Diameter & Material	4.0	4.03	0.071	26.1	0	4.51	11	
Type: 1-inch Dian-PVC	4.5	4.04	0.072	26.2	0	4.09		
Total Well Depth (TD): 20.05								
Static Water Level (WL): 14.83								
One Casing Volume (gal): 0.24 gal								
Start Purge (hrs): 1320								
End Purge (hrs): 1430								
Total Purge Time (min): 72								
Total Vol. Purged (gal/L): 2.4 gal								

## SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PRHS	ICR	1 - 1L Amber	<input checked="" type="checkbox"/>
TRPH	ICR	1 - 1L Amber	<input checked="" type="checkbox"/>

## OBSERVATIONS / NOTES:

Stick up. 2.35' Development & Purge  
 20.05 - 14.83 = 5.22 x 0.24 = 2.140

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

TBD: To Be Determined



Project Site Name: NASPProject No.: Site 1116 BronsonSample ID No.: NASP-1116-mw12Sample Location: MW 12Sampled By: John

C.O.C. No.: \_\_\_\_\_

Type of Sample:

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

- Low Concentration  
 High Concentration

## SAMPLING DATA:

Date:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
08/24/01								
Time: 1825								
Method: Peristaltic	Milky	5.94	0.063	25.8	15	4.28	0.00	

## PURGE DATA:

Date:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
08/24/01								WL
Method: Peristaltic	1625	5.88	0.077	27.4	382	3.54	0.00	15.07
Monitor Reading (ppm):	1645	5.34	0.069	26.7	129	3.20	0.00	15.07
Well Casing Diameter & Material	1700	5.89	0.066	26.2	49	4.34	0.00	15.06
Type: 1" PVC	1715	5.91	0.065	26.1	30	4.15	0.00	15.06
Total Well Depth (TD): 19.80	1755	5.93	0.063	26.0	16	4.41	0.00	15.06
Static Water Level (WL): 15.00	1825	5.94	0.063	25.8	15	4.28	0.00	15.06
One Casing Volume (gal): 0.75	Begin Sample							
Start Purge (hrs): 1625								
End Purge (hrs): 1825								
Total Purge Time (min): 120								
Total Vol. Purged (gal): 12.0								

Flow  
ml/min  
100  
100  
100  
100  
100  
100

## SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAH	ICE	1 - 1L Amber	
TRPH	ICE	1 - 1L Amber	

## OBSERVATIONS / NOTES:

TD 19.80'  
 WL 15.00'  
 $WC \frac{4.80}{1} \times 0.041 = 0.20 \text{ gal} (0.75 \text{ L} \times 3 = 2.25 \text{ L})$

No odor

Circle if Applicable:

Signature(s):

MS/MSD

Duplicate ID No.:

ATTACHMENT C  
Laboratory Analytical Reports  
Data Validation Reports



**Tetra Tech NUS, Inc.**

**Internal Correspondence**

**TO:** Mr. Gerald Walker **DATE:** November 2, 2001

**FROM:** Suzanne I. Smith **CC:** File

**SUBJECT:** Data Validation – PAH and TPH  
CTO112 – NAS Pensacola  
SDG 108183

**SAMPLES:** 6/Aqueous

NASP-1116-DMW6	NASP-1116-MW2	NASP-1116-MW3
NASP-1116-MW4	NASP-1116-MW8	NASP-1116-MW9

#### **OVERVIEW**

The sample set for CTO112, SDG 108183; Naval Air Station Pensacola, Pensacola, Florida consists of six (6) aqueous environmental samples. The environmental samples were to be analyzed for Polycyclic Aromatic Hydrocarbons (PAHs) and Total Petroleum Hydrocarbons (TPHs). Due to bottlereare breakage, however, samples NASP-1116-DMW6 and NASP-1116-MW4 were not analyzed for TPH. A duplicate sample, NASP-1116-DUP1 was collected, but the bottlereare for both PAHs and TPH broke in shipment and could not be analyzed. Replacement samples were collected on September 25 and 26, 2001.

The samples were collected by Tetra Tech NUS on August 22 and 23, 2001 and analyzed by GPL Laboratories. GPL subcontracted Accura Analytical Laboratories to perform the FL-PRO analysis for this SDG. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW-846 8270C (PAHs) and FDEP FL-PRO analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

- • Data Completeness
- • Holding Times
- • Initial/Continuing Calibrations
- • Laboratory method/field quality control blank results
- • Laboratory Control/Matrix Spikes
- • Detection Limits

The symbol (\*) indicates that all quality control criteria were met for this parameter. Supporting documentation is presented in Appendix C. Qualified analytical results are presented in Appendix A. The original laboratory data is contained in Appendix B.

Polycyclic Aromatic Hydrocarbon Fraction

% Recovery for dibenzo(a,h)anthracene in the Blank Spike and Blank Spike Duplicate and for indeno(1,2,3-cd)pyrene in the BSD is outside of the acceptable range high, but since neither compounds was detected in the associated samples, no action was taken.

Continuing calibration %Ds for indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene failed high, but since these compounds were not detected in any of the samples in this SDG, no action was taken.

All other quality control criteria for this fraction were met.

Total Petroleum Hydrocarbon Fraction

All quality control criteria for this fraction were met.

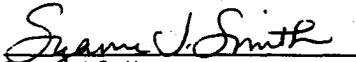
Executive Summary

**Laboratory performance:** Continuing calibration %Ds for indeno(1,2,3-cd) pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i) perylene failed high, but since these compounds were not detected in any of the samples in this SDG, no action was taken.

**Other factors affecting data quality:** None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October, 1999), and the NFESC guidelines "Navy Installation Restoration Chemical Data Quality Manual" (September, 1999). The text of the report has been formulated to address only those problems affecting data quality.

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

  
Suzarile I. Smith

Project Chemist  
Tetra Tech NUS, Inc.

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Joseph A. Samchuck

Data Validation Quality Assurance Officer  
Tetra Tech NUS, Inc.

**Attachments:**

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

**Qualifier Codes:**

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
- D = MS/MSD Noncompliance
- E = LCS/LCSD Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = GFAA PDS - GFAA MSA's  $r < 0.995$
- K = ICP Interference - include ICSAB % R's
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation
- N = Internal Standard Noncompliance
- O = Poor Instrument Performance (i.e., base-line drifting)
- P = Uncertainty near detection limit ( $< 2 \times$  IDL for inorganics and  $<$ CRQL for organics)
- Q = Other problems (can encompass a number of issues)
- R = Surrogate Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = Pest/PCB D% 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 = % Solid content is less than 30%

**DATA QUALIFIER DEFINITIONS:**

- U - Value is a nondetected result as reported by the laboratory and should not be considered present.
- J - Positive result is estimated as a result of a value below the CRQL or a technical noncompliance.
- UJ - Nondetected result is considered to be estimated as a result of technical noncompliances.

**APPENDIX A**  
**Qualified Analytical Results**

CTO112-NAS PENSACOLA

WATER DATA

ACCURA

SDG: 108183

SAMPLE NUMBER:

NASP-1116-MW2

NASP-1116-MW3

NASP-1116-MW8

NASP-1116-MW9

SAMPLE DATE:

08/22/01

08/22/01

08/22/01

08/23/01

LABORATORY ID:

108183-002-01-1

108183-001-01-1

108183-003-01-1

108183-007-01-1

QC\_TYPE:

NORMAL

NORMAL

NORMAL

NORMAL

% SOLIDS:

0.0 %

0.0 %

0.0 %

0.0 %

UNITS:

MG/L

MG/L

MG/L

MG/L

FIELD DUPLICATE OF:

	RESULT	QUAL	CODE									
TOTAL PETROLEUM HYDROCARBONS	1	U		1	U		1	U		1	U	

(8-cyo)

11-2-01  
JAH

**CTO112-NAS PENSACOLA**

**WATER DATA**

**GPL**

**SDG: 108183**

SAMPLE NUMBER:

NASP-1116-DMW6

NASP-1116-MW2

NASP-1116-MW3

NASP-1116-MW4

SAMPLE DATE:

08/23/01

08/22/01

08/22/01

08/23/01

LABORATORY ID:

108183-005-01-1

108183-002-01-1

108183-001-01-1

108183-006-01-1

QC\_TYPE:

NORMAL

NORMAL

NORMAL

NORMAL

% SOLIDS:

0.0 %

0.0 %

0.0 %

0.0 %

UNITS:

UG/L

UG/L

UG/L

UG/L

FIELD DUPLICATE OF:

	RESULT	QUAL	CODE									
<b>POLYNUCLEAR AROMATIC HYDROCARBONS</b>												
1-METHYLNAPHTHALENE	0.111	U										
2-METHYLNAPHTHALENE	0.111	U										
ACENAPHTHENE	0.111	U										
ACENAPHTHYLENE	0.111	U										
ANTHRACENE	0.111	U										
BENZO(A)ANTHRACENE	0.111	U										
BENZO(A)PYRENE	0.111	U										
BENZO(B)FLUORANTHENE	0.111	U										
BENZO(G,H,I)PERYLENE	0.111	U										
BENZO(K)FLUORANTHENE	0.111	U										
CHRYSENE	0.111	U										
DIBENZO(A,H)ANTHRACENE	0.111	U										
FLUORANTHENE	0.111	U										
FLUORENE	0.111	U										
INDENO(1,2,3-CD)PYRENE	0.111	U										
NAPHTHALENE	0.111	U										
PHENANTHRENE	0.111	U										
PYRENE	0.111	U										

CTO112-NAS PENSACOLA

WATER DATA

GPL

SDG: 108183

SAMPLE NUMBER:

NASP-1116-MW8

NASP-1116-MW9

SAMPLE DATE:

08/22/01

08/23/01

LABORATORY ID:

108183-003-01-1

108183-007-01-1

QC\_TYPE:

NORMAL

NORMAL

% SOLIDS:

0.0 %

0.0 %

UNITS:

UG/L

UG/L

100.0 %

100.0 %

FIELD DUPLICATE OF:

	RESULT	QUAL	CODE									
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	0.111	U		0.111	U							
2-METHYLNAPHTHALENE	0.111	U		0.111	U							
ACENAPHTHENE	0.111	U		0.111	U							
ACENAPHTHYLENE	0.111	U		0.111	U							
ANTHRACENE	0.111	U		0.111	U							
BENZO(A)ANTHRACENE	0.111	U		0.111	U							
BENZO(A)PYRENE	0.111	U		0.111	U							
BENZO(B)FLUORANTHENE	0.111	U		0.111	U							
BENZO(G,H,I)PERYLENE	0.111	U		0.111	U							
BENZO(K)FLUORANTHENE	0.111	U		0.111	U							
CHRYSENE	0.111	U		0.111	U							
DIBENZO(A,H)ANTHRACENE	0.111	U		0.111	U							
FLUORANTHENE	0.111	U		0.111	U							
FLUORENE	0.111	U		0.111	U							
INDENO(1,2,3-CD)PYRENE	0.111	U		0.111	U							
NAPHTHALENE	0.111	U		0.111	U							
PHENANTHRENE	0.111	U		0.111	U							
PYRENE	0.111	U		0.111	U							

**APPENDIX B**

**Results as Reported by the Laboratory**

**Summary of Analytical Results**

Client ID NASP-1116-DMW6  
 GPL ID: 108183-005-01-1/1  
 Matrix: Water  
 Date Collected: 08/23/01  
 Date Received: 08/24/01

Prep Method: SW3520C-LL  
 Prep Date: 08/29/01  
 Prep Time: 12:00  
 Prep Batch 13730

Analytical Method: SW8270-LL  
 Date Analyzed: 09/05/01  
 Time Analyzed 04:46  
 Analysis Batch 11697

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
1-Methylnaphthalene	BQL	0.111	ug/L	U	1
2-Methylnaphthalene	BQL	0.111	ug/L	U	1
Acenaphthene	BQL	0.111	ug/L	U	1
Acenaphthylene	BQL	0.111	ug/L	U	1
Anthracene	BQL	0.111	ug/L	U	1
Benzo(a)anthracene	BQL	0.111	ug/L	U	1
Benzo(a)pyrene	BQL	0.111	ug/L	U	1
Benzo(b)fluoranthene	BQL	0.111	ug/L	U	1
Benzo(g,h,i)perylene	BQL	0.111	ug/L	U	1
Benzo(k)fluoranthene	BQL	0.111	ug/L	U	1
Chrysene	BQL	0.111	ug/L	U	1
Dibenz(a,h)Anthracene	BQL	0.111	ug/L	U	1
Fluoranthene	BQL	0.111	ug/L	U	1
Fluorene	BQL	0.111	ug/L	U	1
Indeno(1,2,3-c,d)Pyrene	BQL	0.111	ug/L	U	1
Naphthalene	BQL	0.111	ug/L	U	1
Phenanthrene	BQL	0.111	ug/L	U	1
Pyrene	BQL	0.111	ug/L	U	1

**Summary of Analytical Results**

Client ID **NASP-1116-MW2**  
 GPL ID: **108183-002-01-1/1**  
 Matrix: **Water**  
 Date Collected: **08/22/01**  
 Date Received: **08/24/01**

Prep Method: **SW3520C-LL**  
 Prep Date: **08/29/01**  
 Prep Time: **12:00**  
 Prep Batch **13730**

Analytical Method: **SW8270-LL**  
 Date Analyzed: **09/05/01**  
 Time Analyzed **02:50**  
 Analysis Batch **11697**

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
1-Methylnaphthalene	BQL	0.111	ug/L	U	1
2-Methylnaphthalene	BQL	0.111	ug/L	U	1
Acenaphthene	BQL	0.111	ug/L	U	1
Acenaphthylene	BQL	0.111	ug/L	U	1
Anthracene	BQL	0.111	ug/L	U	1
Benzo(a)anthracene	BQL	0.111	ug/L	U	1
Benzo(a)pyrene	BQL	0.111	ug/L	U	1
Benzo(b)fluoranthene	BQL	0.111	ug/L	U	1
Benzo(g,h,i)perylene	BQL	0.111	ug/L	U	1
Benzo(k)fluoranthene	BQL	0.111	ug/L	U	1
Chrysene	BQL	0.111	ug/L	U	1
Dibenz(a,h)Anthracene	BQL	0.111	ug/L	U	1
Fluoranthene	BQL	0.111	ug/L	U	1
Fluorene	BQL	0.111	ug/L	U	1
Indeno(1,2,3-c,d)Pyrene	BQL	0.111	ug/L	U	1
Naphthalene	BQL	0.111	ug/L	U	1
Phenanthrene	BQL	0.111	ug/L	U	1
Pyrene	BQL	0.111	ug/L	U	1

**Summary of Analytical Results**

Client ID NASP-1116-MW3  
 GPL ID: 108183-001-01-1/1  
 Matrix: Water  
 Date Collected: 08/22/01  
 Date Received: 08/24/01

Prep Method: SW3520C-LL  
 Prep Date: 08/29/01  
 Prep Time: 12:00  
 Prep Batch 13730

Analytical Method: SW8270-LL  
 Date Analyzed: 09/05/01  
 Time Analyzed 01:52  
 Analysis Batch 11697

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
1-Methylnaphthalene	BQL	0.111	ug/L	U	1
2-Methylnaphthalene	BQL	0.111	ug/L	U	1
Acenaphthene	BQL	0.111	ug/L	U	1
Acenaphthylene	BQL	0.111	ug/L	U	1
Anthracene	BQL	0.111	ug/L	U	1
Benzo(a)anthracene	BQL	0.111	ug/L	U	1
Benzo(a)pyrene	BQL	0.111	ug/L	U	1
Benzo(b)fluoranthene	BQL	0.111	ug/L	U	1
Benzo(g,h,i)perylene	BQL	0.111	ug/L	U	1
Benzo(k)fluoranthene	BQL	0.111	ug/L	U	1
Chrysene	BQL	0.111	ug/L	U	1
Dibenz(a,h)Anthracene	BQL	0.111	ug/L	U	1
Fluoranthene	BQL	0.111	ug/L	U	1
Fluorene	BQL	0.111	ug/L	U	1
Indeno(1,2,3-c,d)Pyrene	BQL	0.111	ug/L	U	1
Naphthalene	BQL	0.111	ug/L	U	1
Phenanthrene	BQL	0.111	ug/L	U	1
Pyrene	BQL	0.111	ug/L	U	1

**Summary of Analytical Results**

Client ID **NASP-1116-MW4**  
 GPL ID: **108183-006-01-1/1**  
 Matrix: **Water**  
 Date Collected: **08/23/01**  
 Date Received: **08/24/01**

Prep Method: **SW3520C-LL**  
 Prep Date: **08/29/01**  
 Prep Time: **12:00**  
 Prep Batch **13730**

Analytical Method: **SW8270-LL**  
 Date Analyzed: **09/05/01**  
 Time Analyzed **10:54**  
 Analysis Batch **11697**

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
1-Methylnaphthalene	BQL	0.111	ug/L	U	1
2-Methylnaphthalene	BQL	0.111	ug/L	U	1
Acenaphthene	BQL	0.111	ug/L	U	1
Acenaphthylene	BQL	0.111	ug/L	U	1
Anthracene	BQL	0.111	ug/L	U	1
Benzo(a)anthracene	BQL	0.111	ug/L	U	1
Benzo(a)pyrene	BQL	0.111	ug/L	U	1
Benzo(b)fluoranthene	BQL	0.111	ug/L	U	1
Benzo(g,h,i)perylene	BQL	0.111	ug/L	U	1
Benzo(k)fluoranthene	BQL	0.111	ug/L	U	1
Chrysene	BQL	0.111	ug/L	U	1
Dibenz(a,h)Anthracene	BQL	0.111	ug/L	U	1
Fluoranthene	BQL	0.111	ug/L	U	1
Fluorene	BQL	0.111	ug/L	U	1
Indeno(1,2,3-c,d)Pyrene	BQL	0.111	ug/L	U	1
Naphthalene	BQL	0.111	ug/L	U	1
Phenanthrene	BQL	0.111	ug/L	U	1
Pyrene	BQL	0.111	ug/L	U	1

**Summary of Analytical Results**

Client ID **NASP-1116-MW8**  
 GPL ID: **108183-003-01-1/1**  
 Matrix: **Water**  
 Date Collected: **08/22/01**  
 Date Received: **08/24/01**

Prep Method: **SW3520C-LL**  
 Prep Date: **08/29/01**  
 Prep Time: **12:00**  
 Prep Batch **13730**

Analytical Method: **SW8270-LL**  
 Date Analyzed: **09/05/01**  
 Time Analyzed **03:48**  
 Analysis Batch **11697**

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
1-Methylnaphthalene	BQL	0.111	ug/L	U	1
2-Methylnaphthalene	BQL	0.111	ug/L	U	1
Acenaphthene	BQL	0.111	ug/L	U	1
Acenaphthylene	BQL	0.111	ug/L	U	1
Anthracene	BQL	0.111	ug/L	U	1
Benzo(a)anthracene	BQL	0.111	ug/L	U	1
Benzo(a)pyrene	BQL	0.111	ug/L	U	1
Benzo(b)fluoranthene	BQL	0.111	ug/L	U	1
Benzo(g,h,i)perylene	BQL	0.111	ug/L	U	1
Benzo(k)fluoranthene	BQL	0.111	ug/L	U	1
Chrysene	BQL	0.111	ug/L	U	1
Dibenz(a,h)Anthracene	BQL	0.111	ug/L	U	1
Fluoranthene	BQL	0.111	ug/L	U	1
Fluorene	BQL	0.111	ug/L	U	1
Indeno(1,2,3-c,d)Pyrene	BQL	0.111	ug/L	U	1
Naphthalene	BQL	0.111	ug/L	U	1
Phenanthrene	BQL	0.111	ug/L	U	1
Pyrene	BQL	0.111	ug/L	U	1

**Summary of Analytical Results**

Client ID NASP-1116-MW9  
 GPL ID: 108183-007-01-1/1  
 Matrix: Water  
 Date Collected: 08/23/01  
 Date Received: 08/24/01

Prep Method: SW3520C-LL  
 Prep Date: 08/29/01  
 Prep Time: 12:00  
 Prep Batch 13730

Analytical Method: SW8270-LL  
 Date Analyzed: 09/05/01  
 Time Analyzed 11:50  
 Analysis Batch 11697

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
1-Methylnaphthalene	BQL	0.111	ug/L	U	1
2-Methylnaphthalene	BQL	0.111	ug/L	U	1
Acenaphthene	BQL	0.111	ug/L	U	1
Acenaphthylene	BQL	0.111	ug/L	U	1
Anthracene	BQL	0.111	ug/L	U	1
Benzo(a)anthracene	BQL	0.111	ug/L	U	1
Benzo(a)pyrene	BQL	0.111	ug/L	U	1
Benzo(b)fluoranthene	BQL	0.111	ug/L	U	1
Benzo(g,h,i)perylene	BQL	0.111	ug/L	U	1
Benzo(k)fluoranthene	BQL	0.111	ug/L	U	1
Chrysene	BQL	0.111	ug/L	U	1
Dibenz(a,h)Anthracene	BQL	0.111	ug/L	U	1
Fluoranthene	BQL	0.111	ug/L	U	1
Fluorene	BQL	0.111	ug/L	U	1
Indeno(1,2,3-c,d)Pyrene	BQL	0.111	ug/L	U	1
Naphthalene	BQL	0.111	ug/L	U	1
Phenanthrene	BQL	0.111	ug/L	U	1
Pyrene	BQL	0.111	ug/L	U	1

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477

FL Certification # E87429

NC Certification # 483

SC Certification # 98015

USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AC19298

Accura Project #: 28699

Client: GPL Laboratories, LLLP

Date Sampled: 8/22/01

Client Contact: AMY EDWARDS

Date Received: 8/28/01

Client Project Number:

Date Reported: 9/11/01

Client Project Name: TETRATECH-PENSACOLA

Sample Matrix: WATER

Client Sample ID: NASP-1116-MW2

**ANALYSIS: Petroleum Range Organics (PRO)**

Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/01

Date Analyzed: 9/1/01

Result Units: mg/L

**Analyte Name**

**Analytical Results**

**Qualifier**

**Reported Detection Limits**

Petroleum Range Organics (PRO)

<RL

1.0

**ANALYSIS: X PRO Sample Surrogates (Water)**

Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/01

Date Analyzed: 9/1/01

Result Units: %

**Analyte Name**

**Analytical Results**

**Qualifier**

**Reported Detection Limits**

C(39) (Range 42-193)

1

Z

o-Terphenyl (Range 82-142)

56

Z

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FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved  
LABORATORY REPORT

Accura Sample ID #: AC19297

Accura Project #: 28699

Client: GPL Laboratories, LLLP

Date Sampled: 8/22/01

Client Contact: AMY EDWARDS

Date Received: 8/28/01

Client Project Number:

Date Reported: 9/11/01

Client Project Name: TETRATECH-PENSACOLA

Sample Matrix: WATER

Client Sample ID: NASP-1116-MW3

**ANALYSIS: Petroleum Range Organics (PRO)**

Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/01

Date Analyzed: 9/1/01

Result Units: mg/L

Analyte Name  
Petroleum Range Organics (PRO)

Analytical Results  
<RL

Qualifier  
Reported Detection Limits  
1.0

**ANALYSIS: X PRO Sample Surrogates (Water)**

Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/01

Date Analyzed: 9/1/01

Result Units: %

Analyte Name  
C(39) (Range 42-193)  
o-Terphenyl (Range 82-142)

Analytical Results  
11  
66

Qualifier  
Reported Detection Limits  
Z  
Z

ACCURA ANALYTICAL LABORATORY, INC.

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 FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved  
 LABORATORY REPORT

Accura Sample ID #: AC19299

Accura Project #: 28699

Client: GPL Laboratories, LLLP

Date Sampled: 8/22/01

Client Contact: AMY EDWARDS

Date Received: 8/28/01

Client Project Number:

Date Reported: 9/11/01

Client Project Name: TETRATECH-PENSACOLA

Sample Matrix: WATER

Client Sample ID: NASP-1116-MW8

**ANALYSIS: Petroleum Range Organics (PRO)**

Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/01 Date Analyzed: 9/1/01

Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL		1.0

**ANALYSIS: X PRO Sample Surrogates (Water)**

Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/01 Date Analyzed: 9/1/01

Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
C(39) (Range 42-193)	4	Z	
o-Terphenyl (Range 82-142)	73	Z	

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FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved  
LABORATORY REPORT

Accura Sample ID #: AC19303

Accura Project #: 28699

Client: GPL Laboratories, LLLP

Date Sampled: 8/23/01

Client Contact: AMY EDWARDS

Date Received: 8/28/01

Client Project Number:

Date Reported: 9/11/01

Client Project Name: TETRATECH-PENSACOLA

Sample Matrix: WATER

Client Sample ID: NASP-1116-MW9

**ANALYSIS: Petroleum Range Organics (PRO)**

Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/01

Date Analyzed: 9/1/01

Result Units: mg/L

**Analyte Name**

**Analytical Results**

**Qualifier**

**Reported Detection Limits**

Petroleum Range Organics (PRO)

<RL

1.0

**ANALYSIS: X PRO Sample Surrogates (Water)**

Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/01

Date Analyzed: 9/1/01

Result Units: %

**Analyte Name**

**Analytical Results**

**Qualifier**

**Reported Detection Limits**

C(39) (Range 42-193)

3

Z

o-Terphenyl (Range 62-142)

68

Z

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477  
 FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved  
 LABORATORY REPORT

Accura Sample ID #: AC19300 Accura Project #: 28699  
 Client: GPL Laboratories, LLLP Date Sampled: 8/22/01  
 Client Contact: AMY EDWARDS Date Received: 8/28/01  
 Client Project Number: Date Reported: 9/11/01  
 Client Project Name: TETRATECH-PENSACOLA Sample Matrix: WATER  
 Client Sample ID: NASP-1116-DUP1

**ANALYSIS: Petroleum Range Organics (PRO)**

Date Ext/Dig/Prep: 8/28/01 Date Analyzed: 9/1/01

Method Ref: FL-PRO

Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL		1.0

**ANALYSIS: X PRO Sample Surrogates (Water)**

Date Ext/Dig/Prep: 8/28/01 Date Analyzed: 9/1/01

Method Ref: FL-PRO

Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
C(39) (Range 42-193)	7	Z	
o-Terphenyl (Range 82-142)	54	Z	

**APPENDIX C**  
**Support Documentation**

## HOLDING TIME

09/20/01

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	NASP-1116-DMW6	108183-005-01-1	NORMAL	108183	PAH	08/23/01	08/28/01	09/05/01	6 /	7 /	13
UG/L	NASP-1116-MW2	108183-002-01-1	NORMAL	108183	PAH	08/22/01	08/28/01	09/05/01	7 /	7 /	14
UG/L	NASP-1116-MW3	108183-001-01-1	NORMAL	108183	PAH	08/22/01	08/28/01	09/05/01	7 /	7 /	14
UG/L	NASP-1116-MW4	108183-006-01-1	NORMAL	108183	PAH	08/23/01	08/28/01	09/05/01	6 /	7 /	13
UG/L	NASP-1116-MW8	108183-003-01-1	NORMAL	108183	PAH	08/22/01	08/28/01	09/05/01	7 /	7 /	14
UG/L	NASP-1116-MW9	108183-007-01-1	NORMAL	108183	PAH	08/23/01	08/28/01	09/05/01	6 /	7 /	13
MG/L	NASP-1116-DMW8	108183-005-01-1	NORMAL	108183	TPH	08/23/01	08/28/01	09/01/01	5 /	4 /	9
MG/L	NASP-1116-MW2	108183-002-01-1	NORMAL	108183	TPH	08/22/01	08/28/01	09/01/01	6 /	4 /	10
MG/L	NASP-1116-MW3	108183-001-01-1	NORMAL	108183	TPH	08/22/01	08/28/01	09/01/01	6 /	4 /	10
MG/L	NASP-1116-MW4	108183-006-01-1	NORMAL	108183	TPH	08/23/01	08/28/01	09/01/01	5 /	4 /	9
MG/L	NASP-1116-MW8	108183-003-01-1	NORMAL	108183	TPH	08/22/01	08/28/01	09/01/01	6 /	4 /	10
MG/L	NASP-1116-MW9	108183-007-01-1	NORMAL	108183	TPH	08/23/01	08/28/01	09/01/01	5 /	4 /	9

Project: <u>NASP 1116 Bronson</u>					Turnaround Time		<u>STD</u>	<u>STD</u>										
Client: <u>U.S. NAVY</u>					# of Containers		<u>1</u>	<u>1</u>										
Send Results To: <u>Gerry Walker</u>					Container Type		<u>Amber</u>	<u>IL Glass</u>										
Address: <u>Tetra Tech NYS</u>					Preservative Used		<u>ICE</u>	<u>ICE</u>										
<u>1401 Owen Park Dr. Ste 102</u>					Type of Analysis		Lab Cooler No.											
<u>Phone: Tallahassee, FL 32312 850-385-9877</u>																		

Sample ID#	Date Sampled	Time Sampled	Sample Matrix	Sampler's Initials	PAH	TRPH															CLIENT COMMENTS
NASP-1116-MW2	8/22/01	0910	GW	RDM	X	X															
NASP-1116-MW2	8/22/01	1120	GW	RDM	X	X															
NASP-1116-MW8	8/22/01	1645	GW	RDM	X	X															
NASP-1116-DUP1	8/24/01	0800	GW	RDM	X	X															
NASP-1116-DUP6	8/23/01	1035	GW	RDM	X	X															
NASP-1116-MW4	8/23/01	1320	GW	RDM	X	X															
NASP-1116-MW9	8/23/01	1600	GW	RDM	X	X															
TR.P.O.I.A.N.C.	8/24/01	NA	TB	RDM																	

Relinquished By: <u>RDM</u>	Date/Time: <u>8/27/01 1830</u>	Received By:	Relinquished By:	Received for Laboratory By: <u>C. [Signature]</u>	Date/Time: <u>8/24/01 12:00</u>
Relinquished By:	Date/Time:	Received By:	Date/Time:	Shipper:	Airbill No.:
Relinquished By:	Date/Time:	Received By:	Lab Comments:	Temp.:	<u>14.1 / 77.2</u> <u>3.2 / 3.0</u>

110011



Figure 1  
SAMPLE RECEIPT CHECKLIST

W.O. No: 108173 Carrier Name: Exp. 6  
 Client Name: TRIA TECH. REFS. Prepared (Logged In) By: Y 1/3/24  
 Date Received: 8/24/24 Initials Date  
 Project: NASC 116 B202502  
 Time Received: 12:00 Site: \_\_\_\_\_  
 Received By: Byonds VOA Holding Blank I.D. No: \_\_\_\_\_

Airbill/Manifest Present?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	Trip Blanks: No. of Sets <u>10/0</u>	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
No. <u>815958412819</u>			Field Blanks: No. of Sets _____		
Shipping Container in Good Condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Equip. Blank: No. of Sets _____	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Custody Seals Present on Shipping Container?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Field Duplicate: No. of Sets <u>1</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Condition: Broken _____			MSMSD: No. of Sets _____		
Intact-not dated or signed _____			VOA Vials Have Zero Headspace?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Intact-dated and signed <input checked="" type="checkbox"/>			Preservatives Added to Sample?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Usage of Tamper Evident Type	<input checked="" type="checkbox"/>	<input type="checkbox"/>	pH Check Required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Chain-of-Custody Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Performed By? _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Chain-of-Custody Agrees with Sample Labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ice Present in Shipping Container?	<input checked="" type="checkbox"/>	<u>Yes</u>
Chain-of-Custody Signed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Container #	Temp.	Container #
Packing Present in Shipping Container?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>1</u>	<u>3.0</u>	
Type of Packing <u>Big 2000 1250</u>			<u>2</u>	<u>3.0</u>	
Custody seals on Sample Bottles?	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Condition: Good _____ Broken _____					
Total Number of Sample Bottles <u>14</u>					
Total Number of Samples <u>1</u>					
Samples Intact?	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Sufficient Sample Volume for Indicated Test?	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
			Project Manager Contacted?		
			Name: <u>Edwards</u>		
			Date Contacted: <u>9/1/24</u>		

Any NO response must be detailed in the comments section below. If items are not applicable to particular samples or contracts, they should be marked N/A

COMMENTS: 1- Temp Blank used for trip in vials #2. 1- Trip Blank used for  
in vial #2. 1- vial broken and unrecognizable in a test plate a temp  
slide 1-14 vials for Pm for NASC-116-2021 both 1/20 2024

Checklist Completed By: Y  
 Date: 8/24/24

**CASE NARRATIVE**

**CLIENT:** TETRA TECH NUS INC.  
**PROJECT/SITE:** PENSACOLA  
**WORK ORDER(S):** 108183  
**REVIEW DATE:** 08/29/01

The Case Narrative, Chain of Custody, Sample Receipt Checklist, and the cover page of the Analytical Report are integral parts of GPL Laboratories' report package. If you did not receive all of these documents please contact GPL immediately.

**Sample Receipt**

Eight water samples were received on 08/24/01. The samples were delivered by Fed Ex. The samples were received intact. Sample receipt conditions and temperatures are documented on the Sample Receipt Checklist.

**Sample Analysis**

Samples were prepared and analyzed by GPL using the analytical methodologies indicated on the Analytical Report of Analysis.

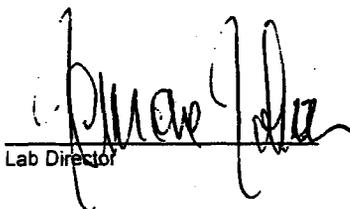
**Semivolatile Analysis**

1. Six water samples were extracted by method 3520C. These samples were analyzed for low concentration semivolatile PAH compounds by using a modified method 8270C.
2. Due to insufficient volume provided, no MS/MSD could be performed on the sample. Therefore, a laboratory control sample and duplicate were extracted and analyzed with this batch. There were three matrix spike recoveries slightly outside of QC limits.
3. Due to a software limitation, the initial and continuing calibrations (Form VI's and Form VII's) for this work order are included in their raw format. A seven-point calibration was performed but the software is only able to show six points on the printout.
4. Two separate calibration curves were run for these analyses. One curve was used to quantitate 1-Methylnaphthalene, while the other curve was used for the remainder of the analytes.

**FL-PRO**

1. Samples were subcontracted for the FL-PRO analysis. The full data package for this analysis will be sent upon receipt by GPL from the subcontracting laboratory.

  
Project Manager

  
Lab Director

GPL LABORATORIES, LLP  
ANALYTICAL RESULTS

Project Name : Pensacola

Date Printe September 17, 2001

GPL ID	Client ID
108183-001-01-1/1	NASP-1116-MW3
108183-002-01-1/1	NASP-1116-MW2
108183-003-01-1/1	NASP-1116-MW8
108183-005-01-1/1	NASP-1116-DMW6
108183-006-01-1/1	NASP-1116-MW4
108183-007-01-1/1	NASP-1116-MW9

# GPL LABORATORIES, LLLP

## Qualifier Definitions

**U** = Indicates that the compound was analyzed for but not detected at or above the reporting limit

### Organics:

**B** = Indicates that the analyte was found in the associated blank as well as in the sample

**D** = Indicates that the analyte was reported from a diluted analysis

**E** = Indicates that the concentration detected exceeded the calibration range of the instrument

**J** = Value is less than the reporting limits but greater than the MDL

**P** = Indicates that there is greater than 25% difference for detected pesticide/Aroclor results between the two GC columns

### Metals:

**B** = Indicates that the reported value was less than the reporting limit but greater than or equal to the IDL/MDL

**E** = Indicates that reported value is estimated because of the possible presence of interference (i.e., the serial dilution not within control limits)

**H** = Indicates that the element was found in the associated blank as well as in the sample and the value is greater than or equal to the reporting limit

**N** = Spiked sample recovery not within control limits

• = Duplicate analysis not within control limits

## WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: GPL LABORATORIES Contract: TETRATECH PE  
 Lab Code: GPL Case No.: N/A SAS No.: N/A SDG No.: N/A  
 Matrix Spike - EPA Sample No.: BLK13730

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Naphthalene	10	0.0	7.6	76	20- 116
2-Methylnaphthalene	10	0.0	7.5	75	25- 118
Acenaphthylene	10	0.0	9.5	95	22- 113
Acenaphthene	10	0.0	9.8	98	20- 116
Fluorene	10	0.0	9.3	93	20- 111
Phenanthrene	10	0.0	11	110	22- 119
Anthracene	10	0.0	10	100	23- 116
Fluoranthene	10	0.0	10	100	23- 115
Pyrene	10	0.0	11	110	20- 135
Benzo[a]anthracene	10	0.0	11	110	24- 119
Chrysene	10	0.0	11	110	24- 118
Benzo[b]fluoranthene	10	0.0	10	100	20- 150
Benzo[k]fluoranthene	10	0.0	10	100	20- 121
Benzo[a]pyrene	10	0.0	10	100	22- 117
Indeno[1,2,3-cd]pyrene	10	0.0	11	110	20- 112
Dibenz[a,h]anthracene	10	0.0	12	120*	20- 113
Benzo[g,h,i]perylene	10	0.0	11	110	20- 130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
Naphthalene	10	8.8	88	15	40	20- 116
2-Methylnaphthalene	10	8.4	84	11	40	25- 118
Acenaphthylene	10	10	100	5	40	22- 113
Acenaphthene	10	10	100	2	40	20- 116
Fluorene	10	9.7	97	4	40	20- 111
Phenanthrene	10	11	110	0	40	22- 119
Anthracene	10	10	100	0	40	23- 116
Fluoranthene	10	10	100	0	40	23- 115

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

RPD: 0 out of 17 outside limits

Spike Recovery: 2 out of 34 outside limits

COMMENTS: \_\_\_\_\_

## WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: GPL LABORATORIES Contract: TETRATECH\_PE  
 Lab Code: GPL Case No.: N/A SAS No.: N/A SDG No.: N/A  
 Matrix Spike - EPA Sample No.: BLK13730

Pyrene	10	11	110	0	40	20- 135
Benzo[a]anthracene	10	11	110	0	40	24- 119
Chrysene	10	10	100	10	40	24- 118
Benzo[b]fluoranthene	10	9.8	98	2	40	20- 150
Benzo[k]fluoranthene	10	11	110	10	40	20- 121
Benzo[a]pyrene	10	9.9	99	1	40	22- 117
Indeno[1,2,3-cd]pyrene	10	12	120 *	9	40	20- 112
Dibenz[a,h]anthracene	10	12	120 *	0	40	20- 113
Benzo[g,h,i]perylene	10	12	120	9	40	20- 130

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 2 out of 0 outside limits

COMMENTS: \_\_\_\_\_

Evaluate Continuing Calibration Report

Data File : J:\GCMSDATA\C\SEP0401\C30712.D  
 Acq On : 4 Sep 2001 17:25  
 Sample : SSTD005  
 Misc : SSTD005 HP#C CJD  
 MS Integration Params: rteint.p

Vial: 2  
 Operator: CJD  
 Inst : GC/MS Ins  
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\LO8270.M (RTE Integrator)  
 Title : CLP BNA Calibration  
 Last Update : Tue Sep 04 18:18:58 2001  
 Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev (min)
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	184#	0.00
2 S	2-Fluorophenol	1.243	1.472	-18.4	197#	0.00
3 T	bis(2-Chloroethyl) ether	2.146	2.290	-6.7	191#	0.00
4 S	Phenol-d5	1.540	1.696	-10.1	190#	0.00
5 MC	Phenol	1.575	1.792	-13.8	192#	0.00
6 M	2-Chlorophenol	1.274	1.377	-8.1	187#	0.00
7 T	1,3-Dichlorobenzene	1.386	1.488	-7.4	185#	0.00
8 M	1,4-Dichlorobenzene	1.373	1.489	-8.4	188#	0.00
9 T	1,2-Dichlorobenzene	1.260	1.404	-11.4	193#	0.00
10 T	2,2-oxybis(1-chloropropane)	1.811	2.450	-35.3#	237#	0.00
11 T	2-Methylphenol	1.075	1.175	-9.3	191#	0.00
12 T	Hexachloroethane	0.545	0.603	-10.6	195#	0.00
13 MP	N-Nitroso-di-n-propylamine	0.573	1.047	-7.6	189#	0.00
14 T	4-Methylphenol	1.093	1.220	-11.6	188#	0.00
15 I	Naphthalene-d8	1.000	1.000	0.0	207#	0.00
16 S	Nitrobenzene-d5	0.392	0.393	-0.3	185#	0.00
17 T	Nitrobenzene	0.359	0.372	-3.6	191#	0.00
18 T	Isophorone	0.690	0.671	2.8	184#	0.00
19 TC	2-Nitrophenol	0.179	0.239	-33.5#	236#	0.00
20 T	2,4-Dimethylphenol	0.365	0.353	3.3	179#	0.00
21 T	bis(2-Chloroethoxy)methane	0.400	0.433	-8.2	207#	0.00
22 TC	2,4-Dichlorophenol	0.252	0.272	-7.9	200#	0.00
23 M	1,2,4-Trichlorobenzene	0.299	0.316	-5.7	200#	0.00
24 T	Naphthalene	0.938	0.993	-5.9	205#	0.00
25 T	4-Chloroaniline	0.359	0.351	2.2	184#	0.00
26 TC	Hexachlorobutadiene	0.219	0.210	4.1	184#	0.00
27 MC	4-Chloro-3-methylphenol	0.321	0.324	-0.9	188#	0.00
28 T	2-Methylnaphthalene	0.582	0.607	-4.3	198#	0.00
29 I	Acenaphthene-d10	1.000	1.000	0.0	190#	0.00
30 TP	Hexachlorocyclopentadiene	0.204	0.279	-36.8#	219#	0.00
31 TC	2,4,6-Trichlorophenol	0.345	0.387	-12.2	193#	0.00
32 T	2,4,5-Trichlorophenol	0.366	0.405	-10.7	190#	0.00
33 S	2-Fluorobiphenyl	1.206	1.296	-7.5	192#	0.00
34 T	2-Chloronaphthalene	0.989	1.087	-9.9	194#	0.00
35 T	2-Nitroaniline	0.346	0.375	-8.4	177#	0.00
36 T	Acenaphthylene	1.585	1.730	-9.1	192#	0.00
37 T	Dimethylphthalate	1.251	1.291	-3.2	184#	0.00
38 T	2,6-Dinitrotoluene	0.234	0.295	-26.1#	205#	0.00
39 MC	Acenaphthene	1.065	1.142	-7.2	191#	0.00

Evaluate Continuing Calibration Report

Data File : J:\GCMSDATA\C\SEP0401\C30712.D  
 Acq On : 4 Sep 2001 17:25  
 Sample : SSTD005  
 Misc : SSTD005 HP#C CJD  
 MS Integration Params: rteint.p

Vial: 2  
 Operator: CJD  
 Inst : GC/MS Ins  
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\LO8270.M (RTE Integrator)  
 Title : CLP BNA Calibration  
 Last Update : Tue Sep 04 18:18:58 2001  
 Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 25% Max. Rel. Area : 150%

Compound	AvgRF	CCRF	%Dev	Area#	Dev(min)
40 T 3-Nitroaniline	0.173	0.155	10.4	152#	0.00
41 TP 2,4-Dinitrophenol	0.104	0.125	-20.2	254#	0.00
42 T Dibenzofuran	1.358	1.512	-11.3	197#	0.00
43 M 2,4-Dinitrotoluene	0.294	0.369	-25.5#	198#	0.00
44 MP 4-Nitrophenol	0.190	0.140	26.3#	123	0.00
45 T Fluorene	1.123	1.229	-9.4	195#	0.00
46 T 4-Chlorophenyl-phenylether	0.584	0.611	-4.6	186#	0.00
47 T Diethylphthalate	1.327	1.348	-1.6	179#	0.00
48 T 4-Nitroaniline	0.173	0.212	-22.5	204#	0.00
49 I Phenanthrene-d10	1.000	1.000	0.0	178#	0.00
50 T 4,6-Dinitro-2-methylphenol	0.095	0.129	-35.8#	248#	0.00
51 TC n-Nitrosodiphenylamine	0.449	0.522	-16.3	190#	0.00
52 S 2,4,6-Tribromophenol	0.153	0.162	-5.9	166#	0.00
53 T 4-Bromophenyl-phenylether	0.206	0.225	-9.2	180#	0.00
54 T Hexachlorobenzene	0.308	0.331	-7.5	175#	0.00
55 MC Pentachlorophenol	0.160	0.167	-4.4	170#	0.00
56 T Phenanthrene	0.941	1.028	-9.2	181#	0.00
57 T Anthracene	0.879	0.957	-8.9	177#	0.00
58 T Carbazole	0.716	0.888	-24.0	184#	0.00
59 T Di-n-butylphthalate	1.344	1.391	-3.5	164#	0.00
60 TC Fluoranthene	1.069	1.114	-4.2	166#	0.00
61 I Chrysene-d12	1.000	1.000	0.0	159#	0.00
62 M Pyrene	1.069	1.215	-13.7	167#	0.00
63 S Terphenyl-d14	0.821	0.885	-7.8	154#	0.00
64 T Butylbenzylphthalate	0.620	0.615	0.8	144	0.00
65 T 3,3-Dichlorobenzidine	0.291	0.354	-21.6	172#	0.00
66 T Benzo[a]anthracene	1.018	1.066	-4.7	155#	0.00
67 T Chrysene	0.980	1.077	-9.9	162#	0.00
68 T bis(2-Ethylhexyl)phthalate	0.843	0.882	-4.6	148	0.00
69 I Perylene-d12	1.000	1.000	0.0	164#	0.00
70 TC Di-n-octylphthalate	1.373	1.450	-5.6	160#	0.00
71 T Benzo[b]fluoranthene	1.166	1.126	3.4	153#	0.00
72 T Benzo[k]fluoranthene	1.060	1.095	-3.3	164#	0.00
73 TC Benzo[a]pyrene	0.959	0.982	-2.4	164#	0.00
74 T Indeno[1,2,3-cd]pyrene	0.924	1.350	-46.1#	210#	0.00
75 T Dibenz[a,h]anthracene	0.730	1.128	-54.5#	216#	0.00
76 T Benzo[g,h,i]perylene	0.774	1.156	-49.4#	218#	0.00



## ACCURA ANALYTICAL LABORATORY

6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800

*Case Narrative*

---

***AAL Project #: 28699***

***Client Project: Tetra Tech - Pensacola***

The following items were noted concerning this project:

1. The samples were preserved upon receipt at the laboratory for the FLA-PRO analysis.
2. Samples NASP-1116-DMW6 and NASP-1116-MW4 could not be performed for the FLA-PRO analysis due to the samples were received broken at the laboratory.
3. Upon receipt, the container for the following sample was found to be damaged:

FLA-PRO  
NASP-1116-DUP1

The results for this sample should be considered estimated.

4. The following surrogates were outside the method specified limits for all samples submitted and quality control analyzed for this project, as indicated by the "Z" qualifier:

FLA-PRO  
C(39)  
o-Terphenyl -

The recoveries were within in-house limits established at the laboratory; therefore the data was accepted.

---

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**A2LA Accredited-ID: 120261 • Certificate #-1365.1 • Exp 7/31/02 Effective 8/14/00 • Scope:**

**Testing Technologies**

**Potable & Non-potable Water-Solid/Hazardous Waste**

002002



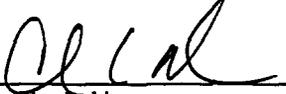
**ACCURA ANALYTICAL LABORATORY**

6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800

*Case Narrative*

5. The laboratory control sample and laboratory control sample duplicate was not spiked for the FLA-PRO analysis, and there was no sample available in order to re-extract; therefore all results for the FLA-PRO analysis should be considered estimated.

Approved for Quality Assurance Release By:

  
Camden Robinson  
Quality Assurance Officer

4/12/01  
Date

# ACCURA ANALYTICAL LABORATORY, INC. (AAL)

## Laboratory / Client Telephone Communication

Client Name: GPL Laboratories Date of Call: 8/28/01  
Client Contact: Amy Edwards Lab Contact: MT  
Call initiated by:  Laboratory  Client

CLIENT PROJECT NAME: Tetratex-Pensacola AAL PROJECT # 28699

Communication relates to the following samples:  
AC19300, AC19301, AC19302

Issues discussed:  
Samples AC19301 and AC19302 were received broken. The cap for AC19300 was broken.

Resolution of problem:  
Unable to run AC19301 & AC19302. Report AC19300 as estimated. Note on case narrative.

Maked [Signature] 9/12/01 Phone #: 770-449-8800 ext. 239  
Accura Analytical Laboratory signature Date FAX #: 770-449-5477  
Client signature Date FAX #:

INSTRUCTIONS TO CLIENT: Please review the information provided, then sign and return by FAX.

Check here if more information is provided on back or additional pages:



Accura Analytical Laboratory, Inc.  
 Environmental Analytical Services  
 6017 Financial Drive  
 Norcross, GA 30071

Quality Communications, Inc.  
 Document No.: 4-QS-005.J  
 Revision/Date: N.J. 00/Effective: 02/01/01  
 Page No.: 1 of 1

Departmental Corrective Action     Quality Notice     Temporary Method Deviation Notice

Tracking Number: SVC102823 <sup>28679</sup> <sub>2/10/01</sub>

Reported By: Sumathi mudikum    Date Reported: 09/05/01

Department: SvCA    Project(s): 28679, 28678, 28667, PM: BJH, MT

Discrepancy: 28679

28679 - 19155, no more sample

28679 - 19297 - 300, 19303, 19304 - no more samples

28667 - 19233 - 240, sample Available

28678 - 19187 - 192, sample available

LCS, LCS D didn't have the PI-PRO-spike,

If sample available project we have to re-extract,

If project does not have samples we are going to report.

Resolution Assigned to (circle one): Bonnie Hogus    Michael Trinidad    Christelle Newsome    Kelly Clemons  
 Malla Pollana    Diana Burdette    John Peterson    David Fuller    Duane J

Resolution:

Noted

Resolution recorded by: JMB    Date: 09.05.01

Copied to (circle one): Bonnie Hogus    Michael Trinidad    David Fuller    Kelly Clemons

QA Comments

report as estimated

QA Review by: C.L.R    Date: 9/12/01

Original to QA, copy in the QCF Book, copy in the project folder, copy to PM, QA will send completed copy back to department to be inserted into book.

# SVO GC DATA CHECKLIST FL-PRO

PROJECT #: 28699	METHOD: FL-PRO
MATRIX: water	
<b>INITIAL ANALYST ASSESSMENT</b>	

- |  |   |   |    |
|--|---|---|----|
| Are all standards within expiration dates for both stock and serial standards?               | ⓪ | N | NA |
| Are continuing calibrations compliant with method requirements?                              | ⓪ | N | NA |
| Is blank result less than 1/2 RDL for analytes of interest?                                  | ⓪ | N | NA |
| Are all spike recoveries acceptable for the LCS (/LCSD)?                                     | Y | ⓪ | NA |
| Are all surrogate standard recoveries acceptable (blank, LCS, samples)?                      | ⓪ | N | NA |
| If blank, LCS or surrogate results are unacceptable, was re-extraction performed to confirm? | Y | ⓪ | NA |
| Are all requested analytes below the upper calibration limit?                                | ⓪ | N | NA |
| Were sample analyses performed within holding times?   | ⓪ | N | NA |
| Were analyses performed such that carryover was not a problem?                               | ⓪ | N | NA |
| Are multicomponent patterns resolvable?  | ⓪ | N | NA |
| Are quantitations based on the latest acceptable initial calibration?                        | ⓪ | N | NA |
| Are all mistakes single lined, initialed, and dated?   | ⓪ | N | NA |
| Are all applicable runlog and extraction sheets signed, dated, and included?                 | ⓪ | N | NA |
| Are all analytes to be reported indicated as such on the raw data?                           | ⓪ | N | NA |
| Was analysis completed as instructed on the Log-in Record?                                   | ⓪ | N | NA |
| Has all data been entered into LIMS?   | ⓪ | N | NA |

Analyst: RPS	
Date: 09/06/01	Time: 15:15

## PEER REVIEW

- |   |              |              |    |
|---|--------------|--------------|----|
| Are continuing calibrations compliant with method requirements?         | <del>Y</del> | N            | NA |
| Are all blank and QC results acceptable?                                | Y            | <del>Y</del> | NA |
| Are all surrogate standard recoveries acceptable (blank, LCS, samples)? | Y            | N            | NA |
| Are all analyte calculations correct and reported in the proper units?  | Y            | N            | NA |
| Were sample analyses performed within holding times?                    | Y            | N            | NA |
| Are quantitations based on the latest acceptable initial calibration?   | Y            | N            | NA |
| Is the runlog completely filled out (including review signature/date)?  | Y            | N            | NA |
| Was analysis completed as instructed on the Log-in Record?              | Y            | N            | NA |
| Have all LIMS entries been checked for accuracy?                        | Y            | N            | NA |

Reviewer: RL	
Date: 9/11/01	Time: 14:00

Sequence Date: \_\_\_\_\_

Analyst Initials: \_\_\_\_\_

Run Method: \_\_\_\_\_

Quant Method: \_\_\_\_\_

Water OTP Limits

Soil OTP Limits

Sample	Blank/LCS

Compound: \_\_\_\_\_

Date: \_\_\_\_\_

Continued - from previous page  
per 08/28/01

Position	AAL Sample I.D. #	Extraction Date	Matrix	Distn Factor	OTP / $\mu$ g Recovery	-DRO Spike Recovery	AAL Std. I.D. #	Status	Comments
23	19260W	08/28/01	Water	1x				✓	
21	19297W				66/11				
22	19298W				56/11				
25	19299W				73/4				
27	19330W				54/7				
28	19303W				68/3				
29	Solv Blank	NA	mech						
30	4250PHS PROCV		Std		100/95	0.15V196	0.15V196		
						RPS 09/06/01			

Initials/Date: RPS/09/06/01

Sequence Date: 05/31/01

Analyst Initials: RPS

Run Method: 05/31/01 PROCOR

Quant Method: ↓

Water OTP Limits

Soil OTP Limits

Sample	Blank/LCS
52-102/192	82-142/193
62-109/119	62-109/119

Compound: FI-PRO

Date: 05/31/01

DRO <sup>RPS</sup> 09/06/01

Vial Position	AAL Sample I.D.#	Extraction Date	Matrix	Dilution Factor	OTP/C <sub>9</sub> Recovery	-DRO Spike Recovery	AAL Std. I.D.#	Status	Comments
1	06FW0825011	08/28/01	water	1x	72/2			✓	
2	06FW0825012				74/4				doc didn't have spike
3	06FW0825013				79/3				didn't have spike
4	19185 W				17/24				RPS 09/06/01
5	Solv Blank	NA	mech						
6	4250 PHS PROCOR		Std		106/101	86	015V196		
7	19187 W	08/28/01	water						
8	19188 W								
9	19189 W								
10	19190 W								
11	19192 W								
12	Solv Blank	NA	mech						
13	4250 PHS PROCOR		Std				015V196		
14	19233 W	08/28/01	water						
15	19234 W								
16	19235 W								
17	19236 W								
18	19237 W								
19	19238 W								
20	Solv Blank	NA	mech						
21	4250 PHS PROCOR		Std		101/95	84	015V196		
22	19239 W	08/28/01	water						

Initials/Date: RPS 09/06/01

# ACCURA ANALYTICAL LABORATORIES

## EXTRACTION LOG

FL Pro  
ANALYSIS: DRO / PAH

MATRIX: WATER

EXT. METHOD: 3510 (3520)

DATE/TIME: 1/26/01 07:30

ANALYST: DMB

INSTRUMENT: GC-FID / GC-MSD

AAL ID.	SAMPLE VOLUME	pH	SURR 1.0mL	SPIKE 1.0mL	FINAL VOLUME	COMMENTS
QEL002001-1	1L	2.2	DMB		1.0mL	BK
QEL002001-2				DMB		LCS
QEL002001-3				DMB		LCS
19185						
19187						
19188						
19189						
19190						
19192						
19233						
19234						
19235						
19236						
19237						
19238						
19239						
19240						
19241						
19242						
19243						
19244						
19245						
19246						
19247						
19248						
19249						
19250						
19251						

START TIME: 1:50pm

STOP TIME: 3:30pm

SOLVENT ID #: Exo1285

SURROGATE ID.: FLOE151

CONC.: 300ppm

INITIAL: DMB

SURROGATE ID.: DOLE149

CONC.: 50ppm

INITIAL: DMB

SPIKE ID.: FLOE158

CONC.: 250ppm

INITIAL: DMB

SPIKE ID.: -

CONC.: -

INITIAL: -

EXTRACT STORAGE: REFRIG.# 5, BOX #: B 567

RapidVap TEMP.: 45°C

D-148

PAGE 000

1/26/01  
DMB  
JML



Sequence Date: 09/07/01Analyst Initials: RLRun Method: PRO021Quant Method: PRO0907

Water OTP Limits

Sample	Blank/LCS
62-112/101	62-112/102-03
62-109/10-12	62-109/10-12

Soil OTP Limits

Compound: FL-PRODate: 09/07/01

RL9/11/01

Vial # Position	AAL Sample I.D. #	Extraction Date	Matrix	Dilution Factor	OTP/ Recovery	PRO Spike PRO Recovery	AAL Std. I.D. #	Status	Comments
2	Solu. Blank	NA	Solu	1X	NA	NA		✓	
3	850PHS PROIC	9/10/01	Std				015V194		
4	2350PHS PROIC						195		
5	4250PHS PROIC						196		
6	5950PHS PROIC						197		
7	7692PHS PROIC						198		
8	4250PHS PROIC	9/5/01			96/104	98	015V199		
9	DFW0905011	9/5/01	Water		63/5.3	NA			
10	DFW0905012				62/17	149			
11	DFW0905013				62/17	118			
12	19187				67/30	195/101			
13	19188				55/18				
14	19189				64/10				
15	19190				102/11				
16	19191				68/23				
17	19192				93/93				
18	Solu. Blank	NA	Solu		<DL				
19	4250PHS PROIC	9/5/01	Std		104/102	104	015V196		
20	19233	9/5/01	Water		61/23	NA			
21	19234				47/102				
22	19235				49/2.5				
23	19237				57/17				

Initials / Date: RL 9/10/01

Runlog\_DRO-A.xls

Sequence Date: \_\_\_\_\_

Analyst Initials: \_\_\_\_\_

Run Method: \_\_\_\_\_

Quant Method: \_\_\_\_\_

Sample	Blank/LCS

Water OTP Limits

Soil OTP Limits

See previous page

Compound: \_\_\_\_\_

Date: \_\_\_\_\_

Vial Position	AAL Sample I.D. #	Extraction Date	Matrix	Dilution Factor	OTF/3A Recovery	DRO Spike Recovery	AAL Std. I.D. #	Status	Comments	
24	19238	9/5/01	Water	1X	70/17	NA		✓		
25	19239	↓	↓	↓	57/21	↓		✓		
26	19240	NA	↓	↓	50/26	↓		✓		
27	Solu. Blank	NA	Soil	↓	NA	↓				
28	4250PHS PROC.	✓	Sed	↓	124/124	122	015V19/6	✓		
<div style="border: 1px solid black; width: 100%; height: 100%; transform: rotate(45deg); opacity: 0.5;"></div>										
						RL				
						9/10/01				

Initials/Date: RL-9/10/01



Tetra Tech NUS, Inc.

Internal Correspondence

TO: Mr. Gerald Walker

DATE: October 3, 2001

FROM: Suzanne I. Smith

CC: File

SUBJECT: Data Validation – PAH and TPH  
CTO112 – NAS Pensacola  
SDG 108185

SAMPLES: 5/Aqueous

NASP-1116-EQBLANK    NASP-1116-MW10    NASP-1116-MW11  
NASP-1116-MW12    NASP1116-MW5

#### OVERVIEW

The sample set for CTO112, SDG 108185; Naval Air Station Pensacola, Pensacola, Florida consists of four (4) aqueous environmental samples and one (1) equipment blank. The environmental samples and equipment blank were to be analyzed for Polycyclic Aromatic Hydrocarbons (PAHs) and Total Petroleum Hydrocarbons (TPHs). Due to bottlenecks breakage, however, sample NASP-1116-MW11 was not analyzed for TPH. A replacement sample was collected on September 26, 2001.

The samples were collected by Tetra Tech NUS on August 24, 2001 and analyzed by GPL Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW-846 8270C (PAHs) and FDEP FL-PRO analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

- \* • Data Completeness
- \* • Holding Times
- Initial/Continuing Calibrations
- Laboratory method/field quality control blank results
- Laboratory Control/Matrix Spikes
- \* • Detection Limits

The symbol (\*) indicates that all quality control criteria were met for this parameter. Supporting documentation is presented in Appendix C. Qualified analytical results are presented in Appendix A. The original laboratory data is contained in Appendix B.

Polycyclic Aromatic Hydrocarbon Fraction

Blank Analysis

<u>Analyte</u>	<u>Maximum Concentration (ug/L)</u>	<u>Action Limit (ug/L)</u>
1-Methylnaphthalene	0.125	0.625
2-Methylnaphthalene	0.225	1.125
Naphthalene	3.16	15.8

An action level of 5x the maximum concentration has been used to evaluate the sample for contamination in applicable blanks. Dilution factors and sample aliquots were taken into consideration during the evaluation. Positive results less than the action level are reported as nondetects "U".

No action was taken due to equipment blank contamination as all sample detections were either above the action limit or were nondetects.

% Recovery for dibenzo(a,h)anthracene in the MS and MSD and for indeno(1,2,3-cd)pyrene in the MSD is outside of the acceptable range high, but since neither compounds was detected in the associated samples, no action was taken.

Continuing calibration %Ds for indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene failed high, but since these compounds were not detected in any of the samples in this SDG, no action was taken.

All other quality control criteria for this fraction were met.

Total Petroleum Hydrocarbon Fraction

Percent recoveries for TPH in the LCS and LCSD were low. Therefore, all results are flagged as estimated "UJ" or "J" due to LCS/LCSD noncompliance.

All other quality control criteria for this fraction were met.

Executive Summary

**Laboratory performance:** 1-Methylnaphthalene, 2-methylnaphthalene, and naphthalene were detected in the equipment blank. % Recovery for dibenzo(a,h)anthracene in the MS and MSD and for indeno(1,2,3-cd)pyrene in the MSD is outside of the acceptable range high. Continuing calibration %Ds for indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene failed high. Percent recoveries for TPH in the LCS and LCSD were low. Therefore, all results are flagged as estimated "J" due to LCS/LCSD noncompliance.

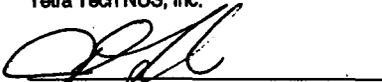
**Other factors affecting data quality:** None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October, 1999), and the NFESC guidelines "Navy Installation Restoration Chemical Data Quality Manual" (September, 1999). The text of the report has been formulated to address only those problems affecting data quality.

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

  
Suzanne I. Smith

Project Chemist  
Tetra Tech NUS, Inc.

  
Joseph A. Samchuck

Data Validation Quality Assurance Officer  
Tetra Tech NUS, Inc.

**Attachments:**

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

**Qualifier Codes:**

- A** = Lab Blank Contamination
- B** = Field Blank Contamination
- C** = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
- D** = MS/MSD Noncompliance
- E** = LCS/LCSD Noncompliance
- F** = Lab Duplicate Imprecision
- G** = Field Duplicate Imprecision
- H** = Holding Time Exceedance
- I** = ICP Serial Dilution Noncompliance
- J** = GFAA PDS - GFAA MSA's  $r < 0.995$
- K** = ICP Interference - include ICSAB % R's
- L** = Instrument Calibration Range Exceedance
- M** = Sample Preservation
- N** = Internal Standard Noncompliance
- O** = Poor Instrument Performance (i.e., base-line drifting)
- P** = Uncertainty near detection limit ( $< 2 \times$  IDL for inorganics and  $<$ CRQL for organics)
- Q** = Other problems (can encompass a number of issues)
- R** = Surrogates Recovery Noncompliance
- S** = Pesticide/PCB Resolution
- T** = % Breakdown Noncompliance for DDT and Endrin
- U** = Pest/PCB D% 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** = % Solid content is less than 30%

**DATA QUALIFIER DEFINITIONS:**

- U - Value is a nondetected result as reported by the laboratory and should not be considered present.
- J - Positive result is estimated as a result of a value below the CRQL or a technical noncompliance.
- UJ - Nondetected result is considered to be estimated as a result of technical noncompliances.

**APPENDIX A**  
**Qualified Analytical Results**

**CTO112-NAS PENSACOLA**

**WATER DATA**

**GPL**

**SDG: 108185**

SAMPLE NUMBER:

NASP-1116-EQBLANK

NASP-1116-MW10

NASP-1116-MW11

NASP-1116-MW12

SAMPLE DATE:

08/24/01

08/24/01

08/24/01

08/24/01

LABORATORY ID:

108185-005-01-1

108185-001-01-1

108185-003-01-1

108185-004-01-1

QC TYPE:

NORMAL

NORMAL

NORMAL

NORMAL

% SOLIDS:

0.0 %

0.0 %

0.0 %

0.0 %

UNITS:

UG/L

UG/L

UG/L

UG/L

FIELD DUPLICATE OF:

	RESULT	QUAL	CODE									
<b>POLYNUCLEAR AROMATIC HYDROCARBONS</b>												
1-METHYLNAPHTHALENE	0.125	J	P	0.111	U		0.105	U		0.111	U	
2-METHYLNAPHTHALENE	0.225			0.111	U		0.105	U		0.111	U	
ACENAPHTHENE	0.125	U		0.111	U		0.105	U		0.111	U	
ACENAPHTHYLENE	0.125	U		0.111	U		0.105	U		0.111	U	
ANTHRACENE	0.125	U		0.111	U		0.105	U		0.111	U	
BENZO(A)ANTHRACENE	0.125	U		0.111	U		0.105	U		0.111	U	
BENZO(A)PYRENE	0.125	U		0.111	U		0.105	U		0.111	U	
BENZO(B)FLUORANTHENE	0.125	U		0.111	U		0.105	U		0.111	U	
BENZO(G,H,I)PERYLENE	0.125	U		0.111	U		0.105	U		0.111	U	
BENZO(K)FLUORANTHENE	0.125	U		0.111	U		0.105	U		0.111	U	
CHRYSENE	0.125	U		0.111	U		0.105	U		0.111	U	
DIBENZO(A,H)ANTHRACENE	0.125	U		0.111	U		0.105	U		0.111	U	
FLUORANTHENE	0.125	U		0.111	U		0.105	U		0.111	U	
FLUORENE	0.125	U		0.111	U		0.105	U		0.111	U	
INDENO(1,2,3-CD)PYRENE	0.125	U		0.111	U		0.105	U		0.111	U	
NAPHTHALENE	3.16			0.111	U		0.105	U		0.111	U	
PHENANTHRENE	0.125	U		0.111	U		0.105	U		0.111	U	
PYRENE	0.125	U		0.111	U		0.105	U		0.111	U	

CTO112-NAS PENSACOLA

WATER DATA

GPL

SDG: 108185

SAMPLE NUMBER: NASP-1116-MW5  
 SAMPLE DATE: 08/24/01  
 LABORATORY ID: 108185-002-01-1  
 QC\_TYPE: NORMAL  
 % SOLIDS: 0.0 %  
 UNITS: UGL  
 FIELD DUPLICATE OF:

//	//	//
100.0 %	100.0 %	100.0 %

	RESULT	QUAL	CODE									
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	0.133	U										
2-METHYLNAPHTHALENE	0.133	U										
ACENAPHTHENE	0.133	U										
ACENAPHTHYLENE	0.133	U										
ANTHRACENE	0.133	U										
BENZO(A)ANTHRACENE	0.133	U										
BENZO(A)PYRENE	0.133	U										
BENZO(B)FLUORANTHENE	0.133	U										
BENZO(G,H,I)PERYLENE	0.133	U										
BENZO(K)FLUORANTHENE	0.133	U										
CHRYSENE	0.133	U										
DIBENZO(A,H)ANTHRACENE	0.133	U										
FLUORANTHENE	0.133	U										
FLUORENE	0.133	U										
INDENO(1,2,3-CD)PYRENE	0.133	U										
NAPHTHALENE	0.133	U										
PHENANTHRENE	0.133	U										
PYRENE	0.133	U										

CTO112-NAS PENSACOLA

WATER DATA

GPL

SDG: 108185

SAMPLE NUMBER:

NASP-1116-EQBLANK

NASP-1116-MW10

NASP-1116-MW12

NASP-1116-MW5

SAMPLE DATE:

08/24/01

08/24/01

08/24/01

08/24/01

LABORATORY ID:

108185-005-02-1

108185-001-02-1

108185-004-02-1

108185-002-02-1

QC\_TYPE:

NORMAL

NORMAL

NORMAL

NORMAL

% SOLIDS:

0.0 %

0.0 %

0.0 %

0.0 %

UNITS:

MG/L

MG/L

MG/L

MG/L

FIELD DUPLICATE OF:

	RESULT	QUAL	CODE									
TOTAL PETROLEUM HYDROCARBONS	0.2	UJ	E	0.189	UJ	E	0.465	J	E	0.178	J	EP

*CS-40*



**Tetra Tech NUS, Inc.**

**Internal Correspondence**

**TO:** Mr. Gerald Walker **DATE:** November 5, 2001  
**FROM:** Suzanne I. Smith **CC:** File  
**SUBJECT:** Data Validation – TPH  
CTO112 – NAS Pensacola  
SDG 109147  
**SAMPLES:** 2/Aqueous  
NASP-1116-MW04A NASP1116-MW11A

#### **OVERVIEW**

The sample set for CTO112, SDG 109147; Naval Air Station Pensacola, Pensacola, Florida consists of two (2) aqueous environmental samples. The environmental samples were analyzed for Total Petroleum Hydrocarbons (TPH). These are some of the replacement samples mentioned in the data validation reports for SDGs 108183 and 108185.

The samples were collected by Tetra Tech NUS on September 26, 2001 and analyzed by GPL Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to FDEP FL-PRO analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

- \* • Data Completeness
- \* • Holding Times
- \* • Initial/Continuing Calibrations
- \* • Laboratory method/field quality control blank results
- \* • Laboratory Control/Matrix Spikes
- \* • Detection Limits

The symbol (\*) indicates that all quality control criteria were met for this parameter. Supporting documentation is presented in Appendix C. Qualified analytical results are presented in Appendix A. The original laboratory data is contained in Appendix B.

Total Petroleum Hydrocarbon Fraction

All quality control criteria for this fraction were met.

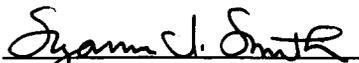
Executive Summary

Laboratory performance: None.

Other factors affecting data quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October, 1999), and the NFESC guidelines "Navy Installation Restoration Chemical Data Quality Manual" (September, 1999). The text of the report has been formulated to address only those problems affecting data quality.

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



Suzanne I. Smith

Project Chemist  
Tetra Tech NUS, Inc.



Data Validation Quality Assurance Officer  
Tetra Tech NUS, Inc.

Attachments:

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

**Qualifier Codes:**

- A** = Lab Blank Contamination
- B** = Field Blank Contamination
- C** = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
- D** = MS/MSD Noncompliance
- E** = LCS/LCSD Noncompliance
- F** = Lab Duplicate Imprecision
- G** = Field Duplicate Imprecision
- H** = Holding Time Exceedance
- I** = ICP Serial Dilution Noncompliance
- J** = GFAA PDS - GFAA MSA's  $r < 0.995$
- K** = ICP Interference - include ICSAB % R's
- L** = Instrument Calibration Range Exceedance
- M** = Sample Preservation
- N** = Internal Standard Noncompliance
- O** = Poor Instrument Performance (i.e., base-line drifting)
- P** = Uncertainty near detection limit ( $< 2 \times$  IDL for inorganics and  $<$ CRQL for organics)
- Q** = Other problems (can encompass a number of issues)
- R** = Surrogate Recovery Noncompliance
- S** = Pesticide/PCB Resolution
- T** = % Breakdown Noncompliance for DDT and Endrin
- U** = Pest/PCB D% 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** = % Solid content is less than 30%

**DATA QUALIFIER DEFINITIONS:**

- U** - Value is a nondetected result as reported by the laboratory and should not be considered present.
- J** - Positive result is estimated as a result of a value below the CRQL or a technical noncompliance.
- UJ** - Nondetected result is considered to be estimated as a result of technical noncompliances.

**APPENDIX A**  
**Qualified Analytical Results**

**CTO112-NAS PENSACOLA  
WATER DATA  
GPL LABORATORIES  
SDG: 109147**

SAMPLE NUMBER:	NASP-1116-MW04A	NASP-1116-MW11A		
SAMPLE DATE:	09/26/01	09/26/01	//	//
LABORATORY ID:	109147-001-01-1	109147-002-01-1		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	0.0 %	0.0 %	100.0 %	100.0 %
UNITS:	MG/L	MG/L		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE									
TOTAL PETROLEUM HYDROCARBONS	31.8			0.189	U							

(8-240)

**APPENDIX B**  
**Results as Reported by the Laboratory**

**Summary of Analytical Results**

**Client ID** NASP-1116-MW04A  
**GPL ID:** 109147-001-01-1/2  
**Matrix:** Water  
**Date Collected:** 09/26/01  
**Date Received:** 09/27/01

**Prep Method:** SW3510C  
**Prep Date:** 09/28/01  
**Prep Time:** 12:00  
**Prep Batch** 14256

**Analytical Method:** FL\_PRO  
**Date Analyzed:** 10/08/01  
**Time Analyzed** 18:10  
**Analysis Batch** 12332

<b>Parameter</b>	<b>Result</b>	<b>Rep Limit</b>	<b>Units</b>	<b>Qualifier</b>	<b>D.F.</b>
TPH	31.8	5.56	mg/L		100

**Summary of Analytical Results**

**Client ID NASP-1116-MW11A**

**GPL ID: 109147-002-01-1/2**

**Matrix: Water**

**Date Collected: 09/26/01**

**Date Received: 09/27/01**

**Prep Method: SW3510C**

**Prep Date: 09/28/01**

**Prep Time: 12:00**

**Prep Batch 14256**

**Analytical Method: FL\_PRO**

**Date Analyzed: 10/05/01**

**Time Analyzed 18:40**

**Analysis Batch 12332**

<b>Parameter</b>	<b>Result</b>	<b>Rep Limit</b>	<b>Units</b>	<b>Qualifier</b>	<b>D.F.</b>
<b>TPH</b>	<b>BQL</b>	<b>0.189</b>	<b>mg/L</b>	<b>U</b>	<b>1</b>

**APPENDIX C**  
**Support Documentation**

109147

HOLDING TIME

10/19/01

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	NASP-1116-MWD4A	109147-001-01-1	NORMAL	109147	TPH	09/28/01	09/28/01	10/08/01	2 ✓	10 ✓	12
MG/L	NASP-1116-MW11A	109147-002-01-1	NORMAL	109147	TPH	09/28/01	09/28/01	10/05/01	2 ✓	7 ✓	9

**CASE NARRATIVE**

**CLIENT:** TETRA TECH  
**PROJECT/SITE:** PENSACOLA  
**WORK ORDER(S):** 109147  
**REVIEW DATE:** 10/01/01

The Case Narrative, Chain of Custody, Sample Receipt Checklist, and the cover page of the Analytical Report are integral parts of GPL Laboratories' report package. If you did not receive all of these documents please contact GPL immediately.

**Sample Receipt**

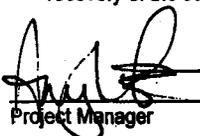
Two water samples were received on 09/27/01. The samples were delivered by Federal Express. The samples were received intact. Sample receipt conditions and temperatures are documented on the Sample Receipt Checklist.

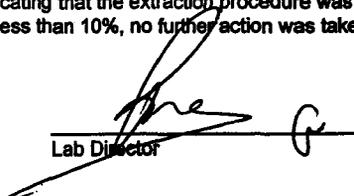
**Sample Analysis**

Samples were prepared and analyzed by GPL using the analytical methodologies indicated on the Analytical Report of Analysis.

**Total Petroleum Hydrocarbons**

1. Two water samples were extracted using 3510C methodologies and analyzed for Petroleum Range Organic compounds using method FL\_PRO.
2. Total Petroleum Hydrocarbon (TPH) concentration for these analyses is calculated by linear regression. Surrogate recoveries are calculated using the average response factor of the initial calibration.
3. The solvent blank analyzed with initial calibration SEP2501.M showed a response for TPH above the established MDL.
4. The analysis of BLK14256 showed a response for TPH at approximately 2 times the lower calibration limit. Since this response was below that of the solvent blank analyzed with the curve, the samples were not re-extracted.
5. Because laboratory QC limits have not yet been established, the reported QC limits for surrogate recoveries, LCS recoveries, and LCS / LCSD RPD limits are considered advisory.
6. All sample and QC extracts were spiked with two surrogate compounds. The recoveries of o-terphenyl were very good with the average recovery averaging in the high 80+%. The recoveries of the nantriacontane surrogate were lower, as expected, because this very long hydrocarbon elutes very late and it is a very difficult compound to recover. Upon secondary review and further investigation, it was determined that some of the surrogate compound could not be fully dissolved in the sample, thus causing lower recoveries for the second surrogate compound. Since the first surrogate was recovered perfectly, indicating that the extraction procedure was successful, and no recovery of the second surrogate was less than 10%, no further action was taken.

  
Project Manager

  
Lab Director

GPL LABORATORIES, LLP  
ANALYTICAL RESULTS

Project Name : Pensacola

Date Print October 15, 2001

GPL ID	Client ID
109147-001-01-1/2	NASP-1116-MW04A
109147-002-01-1/2	NASP-1116-MW11A

# GPL LABORATORIES, LLLP

## Qualifier Definitions

**U** = Indicates that the compound was analyzed for but not detected at or above the reporting limit

### Organics:

**B** = Indicates that the analyte was found in the associated blank as well as in the sample

**D** = Indicates that the analyte was reported from a diluted analysis

**E** = Indicates that the concentration detected exceeded the calibration range of the instrument

**J** = Value is less than the reporting limits but greater than the MDL

**P** = Indicates that there is greater than 25% difference for detected pesticide/Aroclor results between the two GC columns

### Metals:

**B** = Indicates that the reported value was less than the reporting limit but greater than or equal to the IDL/MDL

**E** = Indicates that reported value is estimated because of the possible presence of interference (i.e., the serial dilution not within control limits)

**H** = Indicates that the element was found in the associated blank as well as in the sample and the value is greater than or equal to the reporting limit

**N** = Spiked sample recovery not within control limits

• = Duplicate analysis not within control limits



Sample Preservation Check Documentation Form

Work Order: 109147

Parameter:	<del>Metals</del>	Phenol	TPH	Classical Parameters	Cyanide	Sulfide	Radiology	Other
Preservative:	HCL	H2SO4	O&G H2SO4	H2SO4	NaOH	NaOH	H2SO4	Preservations
pH Value	<2	<2	<2	<2	>12	>9	<2	
Client ID								
NASP-116-MIA	<2/<2							
NASP-116-MIA	<2/<2							

Sample Preservation Check Performed By: [Signature]

Date: 01/27/09

Figure 1  
SAMPLE RECEIPT CHECKLIST

W.O. No: 109147 Carrier Name: Food Ex  
 Client Name: John Lee NHS Inc Prepared (Logged In) By: S. Edwards  
 Date Received: 09/27/01 Project: N0401 Initials CTD Date 112  
 Time Received: 10:00 AM Site: \_\_\_\_\_  
 Received By: SE VOA Holding Blank I.D. No: \_\_\_\_\_

Airbill/Manifest Present?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	Trip Blanks: No. of Sets _____	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
No. <u>830670147616</u>		Field Blanks: No. of Sets _____	
Shipping Container in Good Condition?	<input checked="" type="checkbox"/> <input type="checkbox"/>	Equip. Blank: No. of Sets _____	<input type="checkbox"/> <input checked="" type="checkbox"/>
Custody Seals Present on Shipping Container?	<input checked="" type="checkbox"/> <input type="checkbox"/>	Field Duplicate: No. of Sets _____	<input type="checkbox"/> <input checked="" type="checkbox"/>
Condition: Broken _____		MSMSD: No of Sets _____	<input type="checkbox"/> <input checked="" type="checkbox"/>
Intact-not dated or signed _____		VOA Vials Have Zero Headspace?	<input type="checkbox"/> <input checked="" type="checkbox"/>
Intact-dated and signed <input checked="" type="checkbox"/>		Preservatives Added to Sample?	<input checked="" type="checkbox"/> <input type="checkbox"/>
Usage of Tamper Evident Type	<input checked="" type="checkbox"/> <input type="checkbox"/>	pH Check Required?	<input checked="" type="checkbox"/> <input type="checkbox"/>
Chain-of-Custody Present?	<input checked="" type="checkbox"/> <input type="checkbox"/>	Performed By? <u>SE</u>	<input checked="" type="checkbox"/> <input type="checkbox"/>
Chain-of-Custody Agrees with Sample Labels?	<input checked="" type="checkbox"/> <input type="checkbox"/>	Ice Present in Shipping Container?	<input checked="" type="checkbox"/> <input type="checkbox"/>
Chain-of-Custody Signed?	<input checked="" type="checkbox"/> <input type="checkbox"/>	Container # Temp. Container # Temp.	
Packing Present in Shipping Container?	<input checked="" type="checkbox"/> <input type="checkbox"/>	<u>#1</u> <u>2.0</u>	
Type of Packing <u>Bubblewrap</u>			
Custody seals on Sample Bottles?	<input type="checkbox"/> <input checked="" type="checkbox"/>		
Condition: Good _____ Broken _____			
Total Number of Sample Bottles <u>4</u>			
Total Number of Samples <u>2</u>			
Samples Intact?	<input checked="" type="checkbox"/> <input type="checkbox"/>	Project Manager Contacted?	
Sufficient Sample Volume for Indicated Test?	<input checked="" type="checkbox"/> <input type="checkbox"/>	Name: <u>S. Edwards</u>	
		Date Contacted: <u>09/27/01</u>	

Any NO response must be detailed in the comments section below. If items are not applicable to particular samples or contracts, they should be marked N/A

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Checklist Completed By: [Signature]

Date: 09/27/01

GC/FID ANALYSIS LOG

Instrument ID: HP5890 #M

Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_

Data Acquisition Method:	<del>FPH</del> PPO
Injector Temp:	<del>300°C</del> 250
Detector Temp:	300°C
Oven Initial Temp:	400°C
Initial Time:	4.00 min 1.00
Ramp Rate:	10°C/min
Final Temp:	300°C
Injection Volume:	2 ul

Detector A
Column: DB-5 30 meter
ID: 0.53 mm

ICAL Method: Lyx. 15/01

Analyst: lmm

Seq.	File ID	GPL ID	Dil	Matrix	Date	Comments
<u>241</u>	M 07241	DCM	1	<u>1500</u>	<u>Sept 25/01</u>	
	M 242	DCM		<u>-6</u>		
	M 243	PPO 500	1592	<u>STD</u>		
	M 244	PPO 350	1593			
	M 245	PPO 210	1594			
	M 246	PPO 150	1595			
	M 247	PPO 000	1596			
	M 248	PPO 605	1597			
	M 249	DCM		<u>WORK</u>		
	M 250	BLK 14181		<u>WORK</u>		
	M 251	BKS 14181				
	M 252	105190-04-04-1, 15				
	M 253	002	15			
	M 254	002	1000			
	M 255	B0109 06 TELY 15				
	M 256	PPO 250	1594			
	M 257	BLK 14117			<u>Sept 25/01</u>	
	M					
	M					
	M					
	M					
	M					
	M					
	M					
	M					

Comments: \_\_\_\_\_





TPH EXTRACTION LOG

SOIL ~~(WATER)~~ / WIPES / OIL

~~Sep. funnel 3510C~~ / Liquid - Liquid 3520B / Soxhlet 3540C / Sonication 3550C / Waste Dilution 3580A

Approval / Date: 09/27/01

Analysis Method: 8015 FLPRO

Ext. Chemist: VT Date: 09-27-01

Conc. Chemist: VT Date: 09-27-01

Spike Witness: RC

GPL W.O.#	Fraction	Sample Vol. gram / (mL)	Surr. Vol. mL	Spike Vol. mL	F.V. mL
109147	BLK 14256	1000	2.0/2.0	-	2.0
	BKS 14256	1000	↓	0.5	2.0
	BSD 14256	1000		↓	2.0
	001	900 / 1L		-	2.0
	002	900 / 1L		-	2.0
109141	001	800 / 1L		-	2.0
	002	900 / 1L		↓	2.0
VT 09-27-01					

Solvent: ~~OCM~~ / Pentane

Surrogate Soln#: 15371/15061

Matrix Spike Soln#: 15065

Lot #: CB 383

Surrogate Conc: 300, 500 PPM

Matrix Spike Conc: 500 PPM

Comments & Observations: 0.3 grams Silica gel added to each Sample and Shaken well then transferred.

Due to insufficient volume QC was not done instead 2 LCS.



**Tetra Tech NUS, Inc.**

**Internal Correspondence**

**TO:** Mr. Gerald Walker **DATE:** November 5, 2001  
**FROM:** Suzanne I. Smith **CC:** File  
**SUBJECT:** Data Validation – TPH and PAHs  
CTO112 – NAS Pensacola  
SDG 109141  
**SAMPLES:** 2/Aqueous  
NASP-1116-DMW6A NASP1116-DUP1A

#### **OVERVIEW**

The sample set for CTO112, SDG 109141; Naval Air Station Pensacola, Pensacola, Florida consists of two (2) aqueous environmental samples. The environmental samples were analyzed for Total Petroleum Hydrocarbons (TPH). Sample NASP-1116-DUP1A was also analyzed for Polycyclic Aromatic Hydrocarbons (PAHs). These samples are some of the replacement samples mentioned in the data validation reports for SDGs 108183 and 108185. The duplicate, NASP-1116-DUP1A, was collected to replace the duplicate that was broken during the original sampling. The duplicate pair is NASP-1116-MW2/NASP-1116-DUP1A. Sample NASP-1116-MW2 is reported in the data validation report for SDG 108183.

The samples were collected by Tetra Tech NUS on September 25, 2001 and analyzed by GPL Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to FDEP FL-PRO and SW-846 8270C (PAHs) analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

- \* • Data Completeness
- \* • Holding Times
- \* • Initial/Continuing Calibrations
- \* • Laboratory method/field quality control blank results
  - Laboratory Control/Matrix Spikes
- \* • Detection Limits

The symbol (\*) indicates that all quality control criteria were met for this parameter. Supporting documentation is presented in Appendix C. Qualified analytical results are presented in Appendix A. The original laboratory data is contained in Appendix B.

Total Petroleum Hydrocarbon Fraction

All quality control criteria for this fraction were met.

Polycyclic Aromatic Hydrocarbons

% Recovery for naphthalene, acenaphthylene, acenaphthene, and phenanthrene in the Blank Spike and the Blank Spike Duplicate and for fluorene, anthracene, fluoranthene, benzo(a)anthracene, chrysene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene in the BSD exceeded the upper acceptance limit. However, no action was taken because the compounds were not detected in the associated samples.

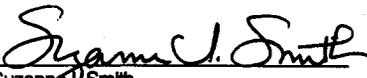
Executive Summary

**Laboratory performance:** Several BS/BSD compound recoveries failed high.

**Other factors affecting data quality:** None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October, 1999), and the NFESC guidelines "Navy Installation Restoration Chemical Data Quality Manual" (September, 1999). The text of the report has been formulated to address only those problems affecting data quality.

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

  
Suzanne J. Smith

Project Chemist  
Tetra Tech NUS, Inc.

  
Joseph A. Samchuck

Data Validation Quality Assurance Officer  
Tetra Tech NUS, Inc.

**Attachments:**

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

**Qualifier Codes:**

- A** = Lab Blank Contamination
- B** = Field Blank Contamination
- C** = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
- D** = MS/MSD Noncompliance
- E** = LCS/LCSD Noncompliance
- F** = Lab Duplicate Imprecision
- G** = Field Duplicate Imprecision
- H** = Holding Time Exceedance
- I** = ICP Serial Dilution Noncompliance
- J** = GFAA PDS - GFAA MSA's  $r < 0.995$
- K** = ICP Interference - include ICSAB % R's
- L** = Instrument Calibration Range Exceedance
- M** = Sample Preservation
- N** = Internal Standard Noncompliance
- O** = Poor Instrument Performance (i.e., base-line drifting)
- P** = Uncertainty near detection limit ( $< 2 \times$  IDL for inorganics and  $<$ CRQL for organics)
- Q** = Other problems (can encompass a number of issues)
- R** = Surrogates Recovery Noncompliance
- S** = Pesticide/PCB Resolution
- T** = % Breakdown Noncompliance for DDT and Endrin
- U** = Pest/PCB D% 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** = % Solid content is less than 30%

**DATA QUALIFIER DEFINITIONS:**

- U - Value is a nondetected result as reported by the laboratory and should not be considered present.
- J - Positive result is estimated as a result of a value below the CRQL or a technical noncompliance.
- UJ - Nondetected result is considered to be estimated as a result of technical noncompliances.

**APPENDIX A**  
**Qualified Analytical Results**

**CTO112-NAS PENSACOLA**

**WATER DATA  
GPL LABORATORIES**

**SDG: 109141**

SAMPLE NUMBER: NASP-1118-DUP1A  
 SAMPLE DATE: 09/25/01  
 LABORATORY ID: 109141-002-03-1  
 QC\_TYPE: NORMAL  
 % SOLIDS: 0.0 %  
 UNITS: UGL  
 FIELD DUPLICATE OF: NASP-1118-MW2

//

//

//

100.0 %

100.0 %

100.0 %

	RESULT	QUAL	CODE									
<b>POLYNUCLEAR AROMATIC HYDROCARBONS</b>												
1-METHYLNAPHTHALENE	0.118	U										
2-METHYLNAPHTHALENE	0.118	U										
ACENAPHTHENE	0.118	U										
ACENAPHTHYLENE	0.118	U										
ANTHRACENE	0.118	U										
BENZO(A)ANTHRACENE	0.118	U										
BENZO(A)PYRENE	0.118	U										
BENZO(B)FLUORANTHENE	0.118	U										
BENZO(G,H,I)PERYLENE	0.118	U										
BENZO(K)FLUORANTHENE	0.118	U										
CHRYSENE	0.118	U										
DIBENZO(A,H)ANTHRACENE	0.118	U										
FLUORANTHENE	0.118	U										
FLUORENE	0.118	U										
INDENO(1,2,3-CD)PYRENE	0.118	U										
NAPHTHALENE	0.118	U										
PHENANTHRENE	0.118	U										
PYRENE	0.118	U										

**CTO112-NAS PENSACOLA  
 WATER DATA  
 GPL LABORATORIES  
 SDG: 109141**

SAMPLE NUMBER:	NASP-1116-DMW6A	NASP-1116-DUP1A		
SAMPLE DATE:	09/25/01	09/25/01	//	//
LABORATORY ID:	109141-001-01-1	109141-002-01-1		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	0.0 %	0.0 %	100.0 %	100.0 %
UNITS:	MGL	MGL		
FIELD DUPLICATE OF:		NASP-1116-MW2		

	RESULT	QUAL	CODE									
TOTAL PETROLEUM HYDROCARBONS	0.213	U		0.189	U							

*(18-140)*

**APPENDIX B**

**Results as Reported by the Laboratory**

**Summary of Analytical Results**

**Client ID** NASP-1116-DMW6A  
**GPL ID:** 109141-001-01-1/2  
**Matrix:** Water  
**Date Collected:** 09/25/01  
**Date Received:** 09/26/01

**Prep Method:** SW3510C  
**Prep Date:** 09/28/01  
**Prep Time:** 12:00  
**Prep Batch** 14256

**Analytical Method:** FL\_PRO  
**Date Analyzed:** 10/05/01  
**Time Analyzed** 16:01  
**Analysis Batch** 50026

<b>Parameter</b>	<b>Result</b>	<b>Rep Limit</b>	<b>Units</b>	<b>Qualifier</b>	<b>D.F.</b>
TPH	BQL	0.213	mg/L	U	1

**Summary of Analytical Results**

**Client ID** NASP-1116-DUP1A  
**GPL ID:** 109141-002-01-1/2  
**Matrix:** Water  
**Date Collected:** 09/25/01  
**Date Received:** 09/26/01

**Prep Method:** SW3510C  
**Prep Date:** 09/28/01  
**Prep Time:** 12:00  
**Prep Batch** 14256

**Analytical Method:** FL\_PRO  
**Date Analyzed:** 10/05/01  
**Time Analyzed** 16:54  
**Analysis Batch** 50026

<b>Parameter</b>	<b>Result</b>	<b>Rep Limit</b>	<b>Units</b>	<b>Qualifier</b>	<b>D.F.</b>
TPH	BQL	0.189	mg/L	U	1

**Summary of Analytical Results**

Client ID NASP-1116-DUP1A  
 GPL ID: 109141-002-03-1/2  
 Matrix: Water  
 Date Collected: 09/25/01  
 Date Received: 09/26/01

Prep Method: SW3520C-LL  
 Prep Date: 09/27/01  
 Prep Time: 12:00  
 Prep Batch 14238

Analytical Method: SW8270-LL  
 Date Analyzed: 10/04/01  
 Time Analyzed 19:07  
 Analysis Batch 50081

Parameter	Result	Rep Limit	Units	Qualifier	D.F.
1-Methylnaphthalene	BQL	0.118	ug/L	U	1
2-Methylnaphthalene	BQL	0.118	ug/L	U	1
Acenaphthene	BQL	0.118	ug/L	U	1
Acenaphthylene	BQL	0.118	ug/L	U	1
Anthracene	BQL	0.118	ug/L	U	1
Benzo(a)anthracene	BQL	0.118	ug/L	U	1
Benzo(a)pyrene	BQL	0.118	ug/L	U	1
Benzo(b)fluoranthene	BQL	0.118	ug/L	U	1
Benzo(g,h,i)perylene	BQL	0.118	ug/L	U	1
Benzo(k)fluoranthene	BQL	0.118	ug/L	U	1
Chrysene	BQL	0.118	ug/L	U	1
Dibenz(a,h)Anthracene	BQL	0.118	ug/L	U	1
Fluoranthene	BQL	0.118	ug/L	U	1
Fluorene	BQL	0.118	ug/L	U	1
Indeno(1,2,3-c,d)Pyrene	BQL	0.118	ug/L	U	1
Naphthalene	BQL	0.118	ug/L	U	1
Phenanthrene	BQL	0.118	ug/L	U	1
Pyrene	BQL	0.118	ug/L	U	1

**APPENDIX C**  
**Support Documentation**

**CASE NARRATIVE**

**CLIENT:** TETRA TECH NUS INC.  
**PROJECT/SITE:** PENSACOLA  
**WORK ORDER(S):** 109141  
**REVIEW DATE:** 09/26/01

The Case Narrative, Chain of Custody, Sample Receipt Checklist, and the cover page of the Analytical Report are integral parts of GPL Laboratories' report package. If you did not receive all of these documents please contact GPL immediately.

**Sample Receipt**

Two water samples were received on 09/26/01. The samples were delivered by Fed Ex. The samples were received intact. Sample receipt conditions and temperatures are documented on the Sample Receipt Checklist.

**Sample Analysis**

Samples were prepared and analyzed by GPL using the analytical methodologies indicated on the Analytical Report of Analysis.

**Semivolatile Analysis**

1. One water sample was extracted by method 3520C. This sample was analyzed for low concentration semivolatile PAH compounds by using a modified method 8270C.
2. Due to insufficient volume provided, no MS/MSD could be performed on the sample. Therefore, a laboratory control sample and duplicate were extracted and analyzed with this batch. There were sixteen matrix spike recoveries slightly outside of QC limits.
3. Due to a software limitation, the initial and continuing calibrations (Form VI's and Form VII's) for this work order are included in their raw format. A seven-point calibration was performed but the software is only able to show six points on the printout.
4. Two separate calibration curves were run for these analyses. One curve was used to quantitate 1-Methylnaphthalene, while the other curve was used for the remainder of the analytes.

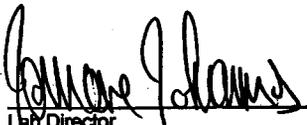
**Total Petroleum Hydrocarbons**

1. Two water samples were extracted using 3510C methodologies and analyzed for Petroleum Range Organic compounds using method FL\_PRO.
2. Total Petroleum Hydrocarbon (TPH) concentration for these analyses is calculated by linear regression. Surrogate recoveries are calculated using the average response factor of the initial calibration.
3. Because laboratory QC limits have not yet been established, the reported QC limits for surrogate recoveries, LCS recoveries, and LCS / LCSD RPD limits are advisory limits.

**CASE NARRATIVE**

4. All sample and QC extracts were spiked with two surrogate compounds. The recoveries of *o*-terphenyl were in the range of 106 to 166. The recoveries of the nanotriacontane surrogate, on the other hand, were lower because this very long hydrocarbon elutes very late and thus, it is a very difficult compound to recover. It was determined that given the physical and chemical nature of the second surrogate, nanotriacontane could not be dissolved completely in the sample during extraction and hence, lower recovery.

  
Project Manager

  
Lab Director

GPL LABORATORIES, LLP  
ANALYTICAL RESULTS

Project Name : Pensacola

Date Printe October 18, 2001

GPL ID	Client ID
109141-001-01-1/2	NASP-1116-DMW6A
109141-002-01-1/2	NASP-1116-DUPIA
109141-002-03-1/2	NASP-1116-DUPIA

# GPL LABORATORIES, LLLP

## Qualifier Definitions

**U** = Indicates that the compound was analyzed for but not detected at or above the reporting limit

### Organics:

**B** = Indicates that the analyte was found in the associated blank as well as in the sample

**D** = Indicates that the analyte was reported from a diluted analysis

**E** = Indicates that the concentration detected exceeded the calibration range of the instrument

**J** = Value is less than the reporting limits but greater than the MDL

**P** = Indicates that there is greater than 25% difference for detected pesticide/Aroclor results between the two GC columns

### Metals:

**B** = Indicates that the reported value was less than the reporting limit but greater than or equal to the IDL/MDL

**E** = Indicates that reported value is estimated because of the possible presence of interference (i.e., the serial dilution not within control limits)

**H** = Indicates that the element was found in the associated blank as well as in the sample and the value is greater than or equal to the reporting limit

**N** = Spiked sample recovery not within control limits

• = Duplicate analysis not within control limits



September 27, 2001  
GPL Laboratories  
Attn : Amy Edwards, Project Manager

Hi Amy,

Here's the message I promised you. For the chain of custody for sampling date 9/25/01 at NAS Pensacola under work release 112-1, please make the following changes to the sample ids for nomenclature consistency:  
Rename OLFB16MW06GW as NASP-1116-DMW6A  
Rename OLFB16MW02GW as NASP-1116-DUP1A

Please include this message in the final data package that is sent to Pittsburgh to clarify that the nomenclature change was requested.

Thanks!

Suzanne Smith

000010

Figure 1  
SAMPLE RECEIPT CHECKLIST

W.O. No: 10914  
 Client Name: TRINITY - PERS  
 Date Received: 9/26/12  
 Time Received: 10:30 AM  
 Received By: lys

Carrier Name: FBI  
 Prepared (Logged In) By: Y 1 9/26/12  
Initials Date  
 Project: N241 CT012  
 Site: \_\_\_\_\_  
 VOA Holding Blank I.D. No: \_\_\_\_\_

Airbill/Manifest Present?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	Trip Blanks: No. of Sets _____	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
No. <u>9327437266</u>			Field Blanks: No. of Sets _____		<input checked="" type="checkbox"/>
Shipping Container In Good Condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Equip. Blank: No. of Sets _____		<input checked="" type="checkbox"/>
Custody Seals Present on Shipping Container?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Field Duplicate: No. of Sets _____		<input checked="" type="checkbox"/>
Condition: Broken _____			MS/MSD: No of Sets _____		<input checked="" type="checkbox"/>
Intact-not dated or signed _____			VOA Vials Have Zero Headspace?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Intact-dated and signed <input checked="" type="checkbox"/>			Preservatives Added to Sample?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Usage of Tamper Evident Type	<input checked="" type="checkbox"/>	<input type="checkbox"/>	pH Check Required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Chain-of-Custody Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Performed By? _____		<input checked="" type="checkbox"/>
Chain-of-Custody Agrees with Sample Labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ice Present in Shipping Container?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Chain-of-Custody Signed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Container #	Temp.	Container #
Packing Present in Shipping Container?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>F1</u>	<u>3.0</u>	_____
Type of Packing <u>Revised Data</u>			_____	_____	_____
Custody seals on Sample Bottles?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____	_____	_____
Condition: Good _____ Broken _____			_____	_____	_____
Total Number of Sample Bottles <u>6</u>			_____	_____	_____
Total Number of Samples <u>2</u>			_____	_____	_____
Samples Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____
Sufficient Sample Volume for Indicated Test?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Project Manager Contacted?		
			Name: <u>PHILIPPE</u>		
			Date Contacted: <u>9/26/12</u>		

Any NO response must be detailed in the comments section below. If items are not applicable to particular samples or contracts, they should be marked N/A

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Checklist Completed By: Y  
 Date: 9/26/12

## WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: GPL LABORATORIES Contract: TETRATECH PELab Code: GPL Case No.: N/A SAS No.: N/A SDG No.: N/AMatrix Spike - EPA Sample No.: BLK14238

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Naphthalene	10	0.0	12	120*	20- 116
2-Methylnaphthalene	10	0.0	10	100	25- 118
Acenaphthylene	10	0.0	13	130*	22- 113
Acenaphthene	10	0.0	12	120*	20- 116
Fluorene	10	0.0	11	110	20- 111
Phenanthrene	10	0.0	12	120*	22- 119
Anthracene	10	0.0	11	110	23- 116
Fluoranthene	10	0.0	11	110	23- 115
Pyrene	10	0.0	11	110	20- 135
Benzo[a]anthracene	10	0.0	11	110	24- 119
Chrysene	10	0.0	11	110	24- 118
Benzo[b]fluoranthene	10	0.0	10	100	20- 150
Benzo[k]fluoranthene	10	0.0	11	110	20- 121
Benzo[a]pyrene	10	0.0	11	110	22- 117
Indeno[1,2,3-cd]pyrene	10	0.0	11	110	20- 112
Dibenz[a,h]anthracene	10	0.0	11	110	20- 113
Benzo[g,h,i]perylene	10	0.0	11	110	20- 130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
Naphthalene	10	13	130*	8	40	20- 116
2-Methylnaphthalene	10	11	110	10	40	25- 118
Acenaphthylene	10	14	140*	7	40	22- 113
Acenaphthene	10	13	130*	8	40	20- 116
Fluorene	10	12	120*	9	40	20- 111
Phenanthrene	10	13	130*	8	40	22- 119
Anthracene	10	12	120*	9	40	23- 116
Fluoranthene	10	12	120*	9	40	23- 115

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

RPD: 0 out of 17 outside limits

Spike Recovery: 14 out of 34 outside limits

COMMENTS: \_\_\_\_\_

## WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: GPL LABORATORIES Contract: TETRATECH\_PE  
 Lab Code: GPL Case No.: N/A SAS No.: N/A SDG No.: N/A  
 Matrix Spike - EPA Sample No.: BLK14238

Pyrene	10	12	120	9	40	20- 135
Benzo[a]anthracene	10	12	120 *	9	40	24- 119
Chrysene	10	12	120 *	9	40	24- 118
Benzo[b]fluoranthene	10	11	110	10	40	20- 150
Benzo[k]fluoranthene	10	12	120	9	40	20- 121
Benzo[a]pyrene	10	12	120 *	9	40	22- 117
Indeno[1,2,3-cd]pyrene	10	12	120 *	9	40	20- 112
Dibenz[a,h]anthracene	10	12	120 *	9	40	20- 113
Benzo[g,h,i]perylene	10	12	120	9	40	20- 130

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 5 out of 0 outside limits

COMMENTS: \_\_\_\_\_

SEMIVOLATILE EXTRACTION LOG SOIL ~~(WATER)~~ WIPES / OIL

Sep. Funnel 3540C / Continuous 3520C / Soxhlet 3540C / Sonication 3550B / Waste Dilution 3580A

Approval / Date: (Y) 10/1/01

GPC: Y (N)

Analysis Method: 8270 LL(W)

BN Ext. Chemist: VT Date: 09-28-01 BN Conc. Chemist: VT Date: 10-01-01

AP Ext. Chemist: VT Date: 09-27-01 AP Conc. Chemist: VT Date: 10-01-01

Spike Witness Initials: AC

GPL W.O. #	Fraction	Init pH	Sample Vol. gram / mL	Surr. Vol. mL	Spike Vol. mL	BN pH Adjust	AP pH Adjust	F. V. mL
109141	BLK 14238	7	1000	10	-	≥ 12	≈ 2	1.0
↓	BKS	7	1000	↓	110	↓	↓	↓
↓	BSD	7	1000	↓	↓	↓	↓	↓
↓	002 <sup>10-1-01</sup>	7	850/12	↓	-	↓	↓	↓
<div style="position: absolute; transform: rotate(-45deg); opacity: 0.5;">                         JA 10-01-01                     </div>								

Solvent: DCM Acetone  
 Lot #: C.B383

Surrogate Soln #: 15533 Matrix Spike Soln #: 15570  
 Surrogate/Conc.: 2.4 PPM Matrix Spike Conc.: 10.0 PPM

Comments & Observations: Due to insufficient volume QC was not done instead 2 LCS.

GCMS ANALYSIS LOG - SEMIVOLATILES

Reviewed By: \_\_\_\_\_ Date: \_\_\_\_\_

Instrument ID:	HP#C
Analysis/Fraction	BNA
Analyst(s):	gp

Method File:	L0822.m
Sequence FILE:	OCT3601
Tune File:	MT01
Column:	DB-5MS

ICAL Date: \_\_\_\_\_

File ID	GPL ID	Date	Time	DIL	Matrx	INJ Vol	GPC Y/N	Comments
C31052	DFPP050	10/3/01	—	—	Nelle	1 $\mu$ l	—	—
C31053	SSTD050		—					—
C31054	DFPP050		—					OK
C31055	SSTD050		—					NOT RUN
C31056	SSTD160		—					NOT RUN
C31057	SSTD010		—					NOT RUN
C31058	SSTD005		1428					OK
C31059	SSTD020		1514					OK
C31060	SSTD001		1554					OK
C31061	SSTD00.5		1637					OK } L09280
C31062	SSTD001		1720					OK } QUIC
C31063	SSTD02.5		1804					OK } OK
C31064	SSTD010		1849					OK
C31065	SSTD040	10/3/01	1952	—	Nelle	1 $\mu$ l	—	OK
gp 10/3/01								

Remarks	Standards	Lot#	Volume	Conc.	Date Prepared
	DFPP050	15616	1 $\mu$ l	50 $\mu$ g/ $\mu$ l	9/6/01
	SSTD005	14932	2 $\mu$ l	5	7/2/01
	SSTD001	14870		0.1	7/9/01
	SSTD00.5	14971		0.5	
	SSTD001	14819		0.1	
	SSTD02.5	14819		2.5	
	SSTD010	14816		10	
	SSTD020	14817		20	
	SSTD040	14818	2 $\mu$ l	40 $\mu$ g/ $\mu$ l	7/9/01

GCMS ANALYSIS LOG - SEMIVOLATILES

Reviewed By: \_\_\_\_\_ Date: \_\_\_\_\_

Instrument ID:	HP#C
Analysis/Fraction	BNA
Analyst(s):	CJD

Method File:	L08270-N/LOADD.M
Sequence FILE:	02T0401
Tune File:	M107
Column:	DB-5MS

ICAL Date: L08270-10/30/01

File ID	GPL ID	Date	Time	DIL	Matrix	INJ Vol	GPC Y/N	Comments
C31066	DFPP050	10/4/01	1100	-	MeChz	1ul	-	OK
C31067	SSTD005 ADD		1116			2ul		OK
C31068	SSTD020		1152					OK
C31069	SSTD001		1229					OK
C31070	SSTD005		1305					OK
C31071	SSTD001		1338					OK
C31072	SSTD025		1415					OK
C31073	SSTD010 ADD		1451			2ul		OK
C31074	DFPP050		1523			1ul		OK
C31075	SSTD005 L08270		1539			2ul		OK
C31076	SSTD005 L08270		1622		MeChz			OK
C31077	BLK 14238		1659		H <sub>2</sub> O			OK
C31078	BKS 14238		1741					OK
C31079	BSD 14238		1824					OK
C31080	109141-002-03-1/2		1907					OK
C31081	109141-002-03-1/2		1949					
C31082	BSD 14238	10/4/01	2032	-	H <sub>2</sub> O	2ul	-	Not Needed
G2 10/4/01								

Remarks	Standards	Lot#	Volume	Conc.	Date Prepared
	DFPP050	15106	1ul	50 µg/ul	9/25/00
	SSTD005 ADD	14241	2ul	5	5/11/01
	SSTD001	14237		0.1	
	SSTD005	14238		0.5	
	SSTD001	14239		1	
	SSTD025	14240		25	
	SSTD010	14242		10	
	SSTD020 ADD	14244		20	5/11/01
	SSTD005 L08270	14932	2ul	5	7/10/01
	1STD	14931	2ul	200 µg/ul	7/10/01

001082



TPH EXTRACTION LOG

SOIL WATER / WIPES / OIL

Sep. funnel 3510C / Liquid - Liquid 3520B / Soxhlet 3540C / Sonication 3550C / Waste Dilution 3580A

Approval / Date: 09/27/01

Analysis Method: 8015 FLPRO

Ext. Chemist: VT Date: 09-27-01

Conc. Chemist: VT Date: 09-27-01

Spike Witness: RC

GPL W.O.#	Fraction	Sample Vol. gram / (mL)	Surr. Vol. mL	Spike Vol. mL	F.V. mL	
109147	BLK 14256	1000	2.0/2.0	-	2.0	
	BKS 14256	1000	↓	0.5	2.0	
	BSD 14256	1000		↓	2.0	
	001	900 / 1L		-	2.0	
	002	900 / 1L		-	2.0	
109141	001	800 / 1L		-	2.0	
	002	900 / 1L		-	2.0	

VT 09-27-01

Solvent: DCM / Pentane

Surrogate Soln#: 15371/15061

Matrix Spike Soln#: 15065

Lot #: CB 883

Surrogate Conc: 3001, 500 PPM

Matrix Spike Conc: 500 PPM

Comments & Observations: 0.3 grams Silica gel added to each Sample and Shaken well then transferred.

Due to insufficient volume QC was not done instead 2 LCS.