N00204.AR.004156
NAS PENSACOLA
5090.3a

SUPPLEMENTAL SITE ASSESSMENT SAMPLING AT SITE 1140NW BRONSON FIELD NAS PENSACOLA FL
9/11/2001
TETRA TECH

0 3800761

TETRA TECH NUS, INC.
1401 Oven Park Drive • Suite 102 • Tallahassee, FL 32312
(850) 385-9899 • FAX (850) 385-9860 • www.tetratech.com

TtNUS/TAL-01-076/0380-7.2.3

September 11, 2001

Project Number 0380

Mr. Joe Fugitt, P.G.
Remedial Project Manager
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Reference: **Clean Contract No. N62467-94-D0888**
Contract Task Order No. 0106

Subject: **Letter Report: Supplemental Site Assessment Sampling**
Site 1140NW, Outlying Landing Field Bronson, Pensacola, Florida

Dear Mr. Fugitt:

This letter report presents the results of additional groundwater and soil sampling completed by Tetra Tech NUS, Inc. (TtNUS) in response to the Florida Department of Environmental Protection (FDEP) response letter dated August 31, 2000 for the subject site. The response letter was issued by the FDEP based on their technical review of the Initial Semi-annual Groundwater Monitoring for Natural Attenuation (NA) Letter Report dated August 11, 2000. The letter canceled the May 8, 2000 NA Monitoring Plan Approval Order and concurred with the proposed plan to collect approximately six soil boring samples from within the smear zone for polycyclic aromatic hydrocarbons (PAH) analysis. The FDEP also concurred with the proposed plan to sample monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-8, MW-9, MW-11, DMW-12, and MW-13 for PAH analysis. A copy of the FDEP response letter and the NA Monitoring Plan Approval Order are included as Attachment A.

The following text presents the results of these activities and provides a recommendation for the preparation of a Remedial Action Plan (RAP) to address the issue of continuing site contamination.

Soil Sampling

On May 17, 2001, TtNUS personnel collected seven subsurface soil samples (SB-1 through SB-6) between 6 and 7.5 feet (ft) below land surface (bls) using Geoprobe™ technology. This sampling depth reflects the approximate location of the groundwater smear zone for this site. A duplicate sample was collected at location SB-6 (sample 1140SB6D-6 to 7') and submitted to the laboratory for quality control analysis. The soil boring locations are depicted on Figure 1, Attachment B.

The soil samples were analyzed for PAHs by United States Environmental Protection Agency (US EPA) SW-846 Method 8310. Soil sampling activities were conducted in accordance with TtNUS's FDEP-approved Comprehensive Quality Assurance Plan (CQAP) Number 980038. Soil boring log sheets are provided in Attachment C.

Soil Quality Results

Twelve PAHs were detected in the soil samples from Site 1140NW. None of the PAHs was detected at concentrations exceeding the direct exposure or leachability limits from Chapter 62-777, F.A.C. The analytical results for the soil samples are summarized in Table 1, Attachment D. A copy of the validated laboratory reports is provided in Attachment E.

Groundwater Sampling

On June 5 and 6, 2001, TtNUS personnel collected groundwater samples from monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-8, MW-9, MW-11, DMW-12, and MW-13. All monitoring wells were purged prior to collecting groundwater samples. Purging and sampling were performed with a peristaltic pump using the low-flow quiescent method. Following the collection of the groundwater samples, the sample bottles were packed on ice and shipped via overnight transport for analysis. The groundwater samples were analyzed for PAHs by US EPA SW-846 Method 8310. Groundwater sampling field forms are provided in Attachment C. Groundwater sampling activities were conducted in accordance with TtNUS's FDEP-approved CQAP No. 980038. A duplicate sample was collected from MW-3 (sample 1140M0D01) and submitted to the laboratory for quality control analysis.

Prior to groundwater sampling, TtNUS personnel recorded water level measurements on all locatable monitoring wells. The depth-to-water measurements, top of casing elevations, and groundwater elevations for June 5, 2001 are summarized in Table 2, Attachment D. Historical data are available in Table 3, Attachment D. The depth to groundwater on June 5, 2001 ranged from approximately 7.8 ft to 8.3 ft bls. Groundwater elevations ranged from 21.86 ft mean sea level (MSL) to 22.20 ft MSL. The groundwater flow direction was primarily in a westerly direction; similar to the direction previously reported in the Contamination Assessment Report (CAR), the CAR addendum, and the Initial Semiannual Groundwater Monitoring for Natural Attenuation Letter Report. A potentiometric surface map is provided as Figure 2 in Attachment B.

Groundwater Quality Results

Seventeen PAHs were detected in the groundwater samples from Site 1140NW. Three of the analytes, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene, were detected at concentrations exceeding FDEPs Groundwater Cleanup Target Levels (GCTLs). Naphthalene and 1-methylnaphthalene were detected in site perimeter monitoring well MW-8 at concentrations of 22 and 45 micrograms per liter (μg/L), respectively. 1-Methylnaphthalene and 2-methylnaphthalene were detected in contaminated monitoring well MW-3 at concentrations of 100 and 31μg/L, respectively and its duplicate at 110 and 33 μg/L, respectively. The FDEP GCTLs for each of these analytes is 20 μg/L.

The detected concentrations of naphthalene and 1-methylnaphthalene found in the groundwater sample from monitoring well MW-8 also exceeded the FDEP's site-specific action levels for perimeter wells set at 20 μg/L for both analytes. Only the concentration of 1-methylnaphthalene detected in the duplicate sample from monitoring well MW-3 exceeded the FDEP's site-specific milestone objective of 110 μg/L for contaminated wells. The levels were determined by the NA Monitoring Plan Approval Order. A copy of this letter is provided in Attachment A.

None of the groundwater samples from the additional wells contained any PAHs in exceedance of GCTLs. The groundwater analytical results for the June 5, 2001 sampling event are summarized in Table 4, Attachment D. A copy of the validated laboratory reports is provided in Attachment E. Historical groundwater analytical results are summarized in Table 5, Attachment D.

Conclusion and Recommendations

The soil analytical results for samples collected from Site 1140NW indicated no PAH analytes above FDEP direct exposure or leachability limits. Therefore, no determination could be made as to the source of the elevated concentrations of PAH analytes detected in the groundwater collected from the downgradient perimeter monitoring well MW-8 or monitoring well MW-3.

The groundwater quality results for samples collected from Site 1140NW indicate the concentrations of PAH analytes 1-methlynaphthalene, 2-methlynaphthalene, and naphthalene are above FDEP Groundwater Cleanup Target Levels in at least one groundwater sample. The levels of naphthalene and 1-methylnaphthalene detected in the groundwater sample from monitoring well MW-8 also exceeded the FDEP's site-specific action levels for perimeter wells. The level of 1-methylnaphthalene detected in the duplicate sample from monitoring well MW-3 exceeded the FDEP's site-specific first year milestone objective for contaminated wells.

Based on the comparison of the detected PAH concentrations to the Natural Attenuation Monitoring Approval Order, it is proposed that a Treatability Study be completed at the site. The Treatability Study will incorporate a grid system of DPT soil borings for the insertion of an oxygen releasing compound (ORC) in the subsurface environment. Following insertion of the ORC and an appropriate reaction period, the onsite monitoring wells will be resampled for PAHs. At that time, an evaluation of the Treatability Study will be completed. If necessary, following the Treatability Study a Remedial Action Plan will be completed for the site.

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

Sincerely,
TETRA TECH NUS, INC.

Gerald A Walker

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

GG/gw

Enclosures (2)

c: B. Glover, Southern Division
G. Campbell, NAS Pensacola
Debbie Wroblewski (Cover Letter Only)
M. Perry/file (unbound)

ATTACHMENT A

FDEP COMMENT LETTER DATED AUGUST 31, 2000
OUTLYING LANDING FIELD (OLF) BRONSON, SITE 1140NW, PENSACOLA, FLORIDA

FDEP NATURAL ATTENUATION MONITORING PLAN APPROVAL LETTER
DATED MAY 8, 2000
OUTLYING LANDING FIELD (OLF) BRONSON, SITE 1140NW, PENSACOLA, FLORIDA

0106

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

August 31, 2000

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: Initial Semi-annual Groundwater Monitoring for Natural Attenuation Letter Report, Site 1140NW, Outlying Landing Field Bronson, Pensacola, Florida, DEP Facility # 179300938

Dear Mr. Glover:

I have completed the technical review of the above referenced document dated August 11, 2000 (received August 14, 2000). I concur with the recommendation to perform a supplemental site assessment in order to determine if a continuing source of contamination is present at the site. Based on the results of the initial groundwater sampling event, semi-annual groundwater monitoring should be discontinued at the site.

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

Sincerely,

Joseph F. Fugitt

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

cc: Greg Campbell, NAS Pensacola
[redacted]
Charlie Goddard, FDEP Northwest District

TJB TB JJC JJC ESN ESN

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

May 8, 2000

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: Final Letter Report, Resampling of Monitoring Wells MW-3 and MW-6, Site 1140NW, Outlying Landing Field Bronson, Pensacola, Florida, DEP Facility # 179300938

Dear Mr. Glover:

I have completed the technical review of the Final Letter Report for Site 1140NW, OLF Bronson dated February 24, 2000 (received February 24, 2000). Based upon my review of this report and the previous Contamination Assessment Report Addendum dated November 1998, the enclosed Natural Attenuation Monitoring Approval Order was signed by Mr. Douglas A. Jones, Chief, Bureau of Waste Cleanup.

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

Sincerely,

Joseph F. Fugitt

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

cc: Greg Campbell, NAS Pensacola
[redacted]
Charlie Goddard, FDEP Northwest District

TJB B JJC JJC ESN ESN

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

May 8, 2000

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

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

Subject: Natural Attenuation Monitoring Plan Approval Order
Site 1140NW
Outlying Landing Field (OLF) Bronson
Pensacola, Escambia County
FDEP Facility ID# 179300938

Dear Mr. Glover:

The Bureau of Waste Cleanup has completed the review of the Final Letter Report dated February 24, 2000 (received February 24, 2000), submitted for the petroleum product discharge discovered at this site. Pursuant to Rule 62-770.690, Florida Administrative Code (F.A.C.), the Department of Environmental Protection (Department) approves the Natural Attenuation Monitoring Plan. Pursuant to Rule 62-770.690(7), F.A.C., you are required to complete the monitoring program outlined below. The first sampling event should be performed within 60 days of receipt of this Natural Attenuation Monitoring Plan Approval Order (Order). Water-level measurements should be made immediately prior to each sampling event. The analytical results (laboratory report), chain of custody, cumulative summary table of the analytical results, site map(s) illustrating the most recent analytical results, and the water-level elevation information (cumulative summary table and most recent flow interpretation map), should be submitted to the Department within 60 days of sample collection.

The monitoring wells to be sampled, the sampling parameters, and the sampling frequency are as follows:

Monitoring Wells	Contaminants of Concern	Frequency	Duration
MW-3, MW-8 and MW-9	PAHs	Semi-annually	Two years

The approved Remedial Action by Natural Attenuation monitoring period is two years. The sampling frequency will be evaluated following the submittal of the first annual report to determine whether semiannual or annual sampling may be appropriate.

The following are the "milestone" objectives that will be used for annual evaluation of remediation progress by natural attenuation. An explanation of the progress relative to these milestone objectives, and the need for corrective action (if applicable), should be provided in the annual evaluation:

	MW-3	MW-8	MW-9
1-Methylnapthalene			
End of year 1	110 µg/l	<20 µg/l	<20 µg/l
End of year 2	<20 µg/l	<20 µg/l	<20 µg/l
2-Methylnaphthalene			
End of year 1	80 µg/l	<20 µg/l	<20 µg/l
End of year 2	<20 µg/l	<20 µg/l	<20 µg/l
Naphthalene			
End of year 1	40 µg/l	<20 µg/l	<20 µg/l
End of year 2	<20 µg/l	<20 µg/l	<20 µg/l

If concentrations of contaminants of concern in any of the designated wells increase above the action levels listed below, the well or wells must be resampled no later than 30 days after the initial positive results are known. If the results of the resampling confirm the initial sampling results, then a proposal must be submitted to the Department, as described in Rule 62-770.690(7)(f), F.A.C.

Contaminated well:
MW-3: 200 µg/l 1-Methylnaphthalene; 200 µg/l 2-Methylnaphthalene; 200 µg/l Naphthalene.

Perimeter wells (temporary points of compliance):
MW-8 and MW-9: 20 µg/l 1-Methylnaphthalene; 20 µg/l 2-Methylnaphthalene; 20 µg/l Naphthalene.

If the applicable No Further Action criteria in Rule 62-770.680, F.A.C., are met at the end of the monitoring period, a Site Rehabilitation Completion Report, summarizing the monitoring program and containing documentation supporting the opinion that the cleanup objectives have been achieved, should be submitted as required in Rule 62-770.690(8), F.A.C. If the applicable No Further Action criteria in Rule 62-770.680, F.A.C., are not met following two years of

monitoring, then a report summarizing the monitoring program should be submitted, including a proposal as described in Rule 62-770.690(7)(g), F.A.C.

Legal Issues

The Department's Order shall become final unless a timely petition for an administrative proceeding (hearing) is filed under Sections 120.569 and 120.57, Florida Statutes (F.S.), within 21 days of receipt of this Order. The procedures for petitioning for a hearing are set forth below.

Persons affected by this Order have the following options:

If you choose to accept the above decision by the Department about the Final Letter Report you do not have to do anything. This Order is final and effective as of the date on the top of the first page of this Order.

If you disagree with the decision, you may do one of the following:

(1) File a petition for administrative hearing with the Department's Office of General Counsel within 21 days of receipt of this Order; or

(2) File a request for an extension of time to file a petition for hearing with the Department's Office of General Counsel within 21 days of receipt of this Order. Such a request should be made if you wish to meet with the Department in an attempt to informally resolve any disputes without first filing a petition for hearing.

Please be advised that mediation of this decision pursuant to Section 120.573, F.S., is not available.

How to Request an Extension of Time to File a Petition for Hearing

For good cause shown, pursuant to Rule 62-110.106(4), F.A.C., the Department may grant a request for an extension of time to file a petition for hearing. Such a request must be filed (received) in the Department's Office of General Counsel at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, within 21 days of receipt of this Order. Petitioner, if different from Southern Division of Naval Facilities Engineering Command, shall mail a copy of the request to Southern Division of Naval Facilities Engineering Command at the time of filing. Timely filing a request for an extension of time tolls the time period within which a petition for administrative hearing must be made.

How to File a Petition for Administrative Hearing

A person whose substantial interests are affected by this Order may petition for an administrative hearing under Sections 120.569 and 120.57, F.S. The petition must contain the

information set forth below and must be filed (received) in the Department's Office of General Counsel at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, within 21 days of receipt of this Order. Petitioner, if different from Southern Division of Naval Facilities Engineering Command, shall mail a copy of the petition to Southern Division of Naval Facilities Engineering Command at the time of filing. Failure to file a petition within this time period shall waive the right of anyone who may request an administrative hearing under Sections 120.569 and 120.57, F.S.

Pursuant to Section 120.54(5)(b)4.a., F.S. (1998, Supp.), and Rule 28-106.201, F.A.C., a petition for administrative hearing shall contain the following information:

(a) The name, address, and telephone number of each petitioner, the name, address, and telephone number of the petitioner's representative, if any, the site owner's name and address, if different from the petitioner, the FDEP facility number, and the name and address of the facility;
(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
(c) An explanation of how each petitioner's substantial interests are or will be affected by the Department's action or proposed action;
(d) A statement of the material facts disputed by the petitioner, or a statement that there are no disputed facts;
(e) A statement of the ultimate facts alleged, including a statement of the specific facts the petitioner contends warrant reversal or modification of the Department's action or proposed action;
(f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the Department's action or proposed action; and
(g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the Department to take with respect to the Department's action or proposed action.

This Order is final and effective as of the date on the top of the first page of this Order. Timely filing a petition for administrative hearing postpones the date this Order takes effect until the Department issues either a final order pursuant to an administrative hearing or an order responding to supplemental information provided pursuant to meetings with the Department.

Judicial Review

Any party to this Order has the right to seek judicial review of it under Section 120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The

notice of appeal must be filed within 30 days after this Order is filed with the clerk of the Department (see below).

The FDEP Facility Number for this site is 179300938. Please use this identification on all future correspondence with the Department.

Questions

Any questions regarding the Department's review of your Final Letter Report should be directed to Joseph F. Fugitt, P.G. at (850) 921-9989. Questions regarding legal issues should be referred to the Department's Office of General Counsel at (850) 488-9314. Contact with any of the above does not constitute a petition for administrative hearing or request for an extension of time to file a petition for administrative hearing.

Sincerely,

Douglas A. Jones, Chief
Bureau of Waste Cleanup
Division of Waste Management

DAJ/jff

cc: Charlie Goddard, FDEP Northwest District Office
Greg Cambell, NAS Pensacola, Building 1754, 190 Radford Boulevard, Pensacola, Florida 32508-5000
Gerry Walker, Tetra Tech NUS, 1401 Oven Park Drive, Suite 102, Tallahassee, Florida 32308
File

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to §120.52 Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk (or Deputy Clerk) — Date: 5/8/00

Mr. Byas Glover
Site 1140NW OLF Bronson
FDEP Facility #179300938

P.G. CERTIFICATION

Final Letter Report/Monitoring Only Plan for Natural Attenuation for FDEP Facility ID #179300938

I hereby certify that in my professional judgement, the components of this Final Letter Report and Monitoring Only Plan for Natural Attenuation for Site 1140NW at Outlying Landing Field Bronson, FDEP Facility ID #179300938, Pensacola, Florida, satisfy the requirements set forth in Chapter 62-770, F.A.C., and that the geological interpretations in this report provide reasonable assurances of achieving the Assessment objectives stated in Chapter 62-770, F.A.C.

____ I personally completed this review.

X This review was conducted by Joseph F. Fugitt, P.G. working under my supervision.

TIMOTHY J. BAHR
LICENSE
NO. 1209
STATE OF
FLORIDA
PROFESSIONAL GEOLOGIST

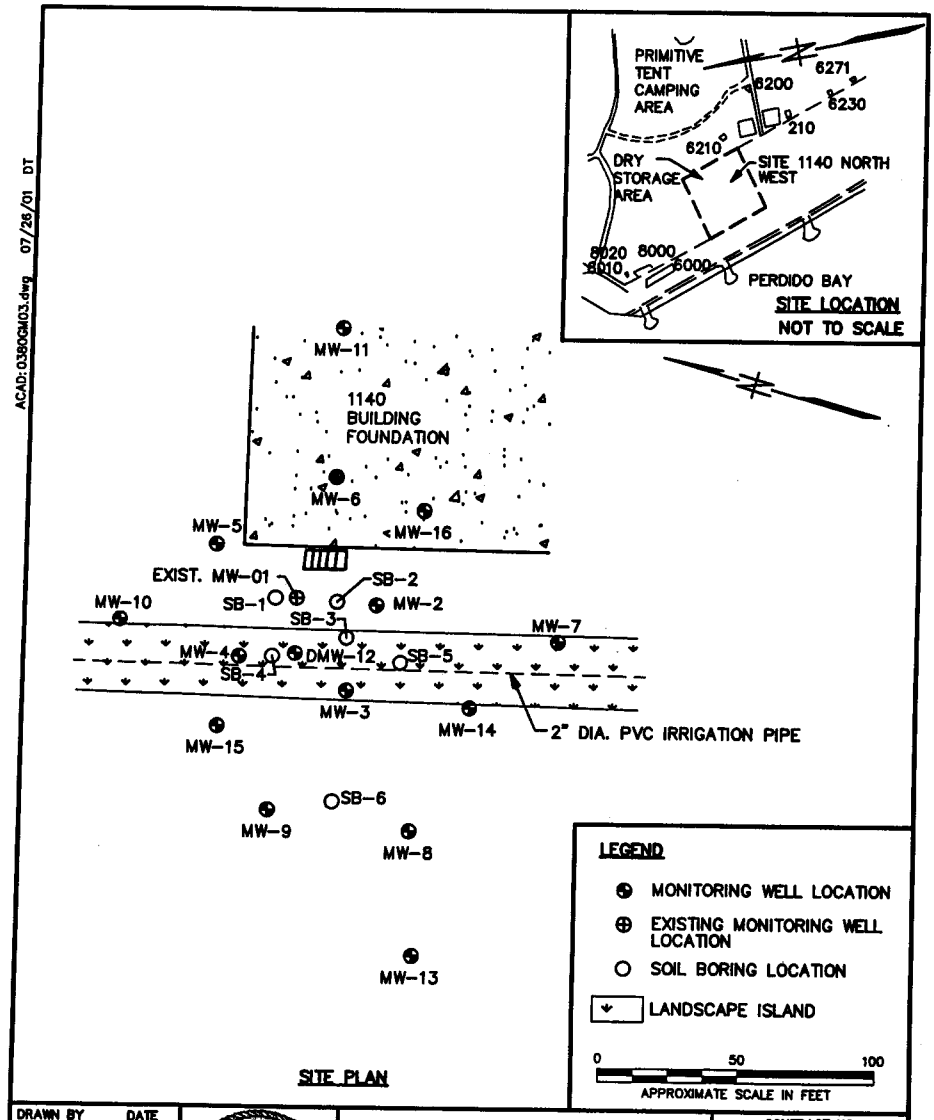
Timothy J. Bahr, P.G.
Professional Geologist Supervisor
Technical Review Section

5/8/00
Date

ATTACHMENT B

FIGURE 1
MONITORING WELL AND SOIL BORING LOCATION MAP

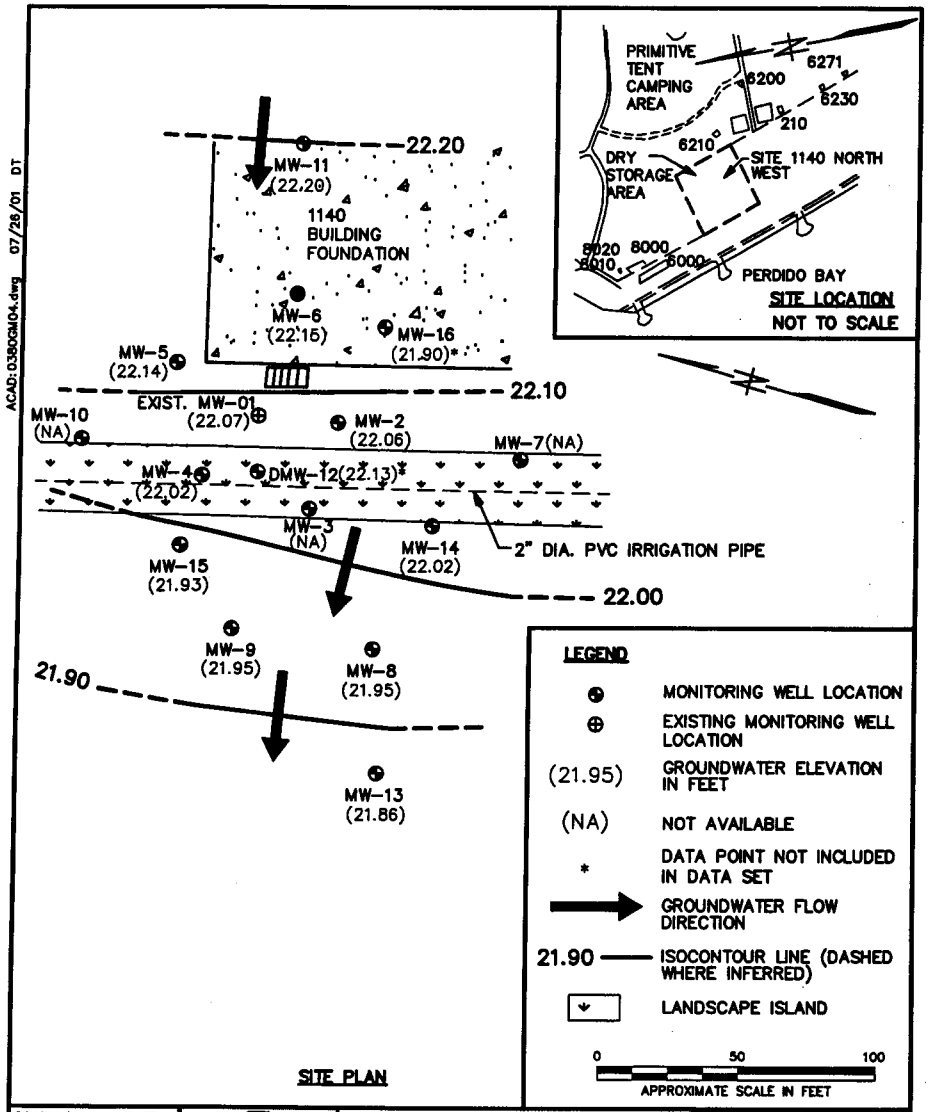
FIGURE 2
POTENTIOMETRIC SURFACE MAP



ACAD:0380GM03.dwg 07/26/01 DT

DRAWN BY DLT	DATE 7/26/01	MONITORING WELL AND SOIL BORING LOCATIONS SITE 1140 NW OLF BRONSON PENSACOLA, FLORIDA	CONTRACT NO. 0380
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHED-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1 / REV. 0

FORM CADD NO. SDIV_AV.DWG - REV 0 - 1/20/98



SITE PLAN

DRAWN BY DLT DATE 7/26/01	POTENTIOMETRIC SURFACE MAP FOR JUNE 5, 2001 SITE 1140 NW OLF BRONSON PENSACOLA, FLORIDA	CONTRACT NO. 0380	
CHECKED BY DATE		APPROVED BY DATE	
COST/SCHED-AREA		APPROVED BY DATE	
SCALE AS NOTED		DRAWING NO. FIGURE 2	REV. 0

FORM CADD NO. SDIV_AV.DWG - REV 0 - 1/20/98

ATTACHMENT C

SOIL BORING LOGS
GROUNDWATER SAMPLING FIELD FORMS

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NASP - Bronson Site 14 Area
PROJECT NUMBER: N0380
DRILLING COMPANY: ATI Drilling
DRILLING RIG: Geoprobe
BORING No.: SB-1
DATE: 05-17-01
GEOLOGIST: Gary J. Davis
DRILLER: Charles Simmons

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
									Grass Surface				
		NA	1				Yellowish brown to						
							light brown	SC			0	NA	0
	5						silty sand						
			N				w/ trace clay			0			
			AB/AB										
									6-7.5 Analytical Sample	0			
							@7' Brownish Black				0	NA	0
	10						Terminated boring at ~8' BGS						
	15												

~7.85' MW-1 PTOC Flush

* When rock coring, enter rock brokeness.

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

Remarks: Included ~0.5' of screen zone as possible + worst case location

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No ✓ Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NASP - Bronson Site 1 Area
PROJECT NUMBER: N0380
DRILLING COMPANY: ATI Drilling
DRILLING RIG: Geoprobe

BORING No.: SB-2
DATE: 05-17-01
GEOLOGIST: Gary J. Davis
DRILLER: Charles Simmons

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
									Grass Surface				
		NA	1		Yellowish brown to								
						Light brown		SC			0	NA	0
	5						silty sand			0			
			44"/48"				w/ trace clay						
									6-7' BGS Analytical sample	0			
					@7.5	Dark Brown					0	NA	0
							Terminated boring at ~8' BGS						
	10												
	15												

I ~7.85' BTOC MW-1 Flush

* When rock coring, enter rock brokeness.

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

Remarks:

Drilling Area Background (ppm): 0

Converted to Well: Yes No Well Dwg

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NASP - Bronson Site 114ow
PROJECT NUMBER: N0380
DRILLING COMPANY: ATI Drilling
DRILLING RIG: Geoprobe

BORING No.: SB-3
DATE: 05-17-01
GEOLOGIST: Gary J. Davis
DRILLER: Charles Simmons

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
									Grass Surface				
		NA	1		Yellowish brown to								
							Light brown	SC			0	NA	0
	5						silty sand						
							w/ trace clay						
			12"/12"						5-6'>	0			
									6-7' BGS Analytical Sample	0			
					~7.5'		Dark Gray to Black				0	NA	0
							Terminated boring at ~8' BGS						
	10												
									Strong Diesel-like odor				
	15												

~7.85' MW-1 BTOC Flush

* When rock coring, enter rock brokeness.

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

Remarks: No correction required = zero on charcoal filter

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No ✓ Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NASP - Bronson Site 1140nw
PROJECT NUMBER: N0380
DRILLING COMPANY: ATI Drilling
DRILLING RIG: Geoprobe

BORING No.: SB-4
DATE: 05-17-01
GEOLOGIST: Gary J. Davis
DRILLER: Charles Simmons

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
									Grass Surface				
		NA	1		Yellowish brown to								
						Light brown		SC			0	NA	0
	5						silty sand w/ trace clay			0			
			44"/48"						3 - 6-7' BGS Analytical Sample	0			
					~7.5'	Dark Brown					0	NK	0
							Terminated boring at ~8' BGS						
	10												
	15												

L 7.85' BTOC MW-1 Flush

* When rock coring, enter rock brokeness.

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

Remarks:

Drilling Area Background (ppm): 0

Converted to Well: Yes

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NASP - Bronson Site 11A Dnw
PROJECT NUMBER: N0380
DRILLING COMPANY: ATI Drilling
DRILLING RIG: Geoprobe

BORING No.: SB-5
DATE: 05-17-01
GEOLOGIST: Gary J. Davis
DRILLER: Charles Simmons

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
									Grass Surface				
		NA	1		Yellowish brown to								
							light brown	SC			0	NA	0
	5						silty sand						
			46"/48"				w/ trace clay			0			
									3-6-7' BGS Analytical Sample.	0	0	NA	0
							Terminated boring at ~8' BGS						
	10								No Odor				
	15												

~7.85' BTOC MW-1 Flush

* When rock coring, enter rock brokeness.

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

Remarks:

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No ✓ Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NASP - Bronson Site 1 (Area)
PROJECT NUMBER: N0380
DRILLING COMPANY: ATI Drilling
DRILLING RIG: Geoprobe

BORING No.: SB-6
DATE: 05-17-01
GEOLOGIST: Gary J. Davis
DRILLER: Charles Simmons

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
									Concrete Tarmac Area				
		NA	1			Yellowish brown to							
						Light brown		SC			0	NA	0
	5		1'				silty sand w/ trace clay						
			4.7 / 4.8'							0			
									6-7' BGS Analytical Sample				
										0	0	NA	0
							Terminated boring at ~8' BGS						
	10												
	15												

27.85' BTOC MW Flush

* When rock coring, enter rock brokeness.

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

Remarks:

Drilling Area Background (ppm): 0

Converted to Well: Yes No

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NAS Pensacola Bronson 1140NW
Project No.: 0380

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 1140M0101
Sample Location: 1140NW MW1
Sampled By: TA
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 6/6/01								
Time: 1005								
Method: peristaltic		6.37	.183	23.96	Ø	6.43	—	-164

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/6/01								
Method: peristaltic	initial	6.28	0.199	24.37	5	12.68	—	-142
Monitor Reading (ppm): —	1st	6.27	0.175	24.04	4	10.51	—	-157
Well Casing Diameter & Material	2nd	6.35	0.179	24.14	2	7.34	—	-159
Type: 2" PVC	3rd	6.34	0.183	23.99	Ø	7.40	—	-159
Total Well Depth (TD): 14.6	4th	6.33	0.183	23.96	Ø	6.43	—	-164
Static Water Level (WL): 7.93								
One Casing Volume(gal/L): 1.9								
Start Purge (hrs): 0906								
End Purge (hrs): 1005								
Total Purge Time (min): 59								
Total Vol. Purged (gal/L): ~4.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAH 8310	—	1 x 1 L amber	

OBSERVATIONS / NOTES:

·16
6
96

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NAS Pensacola 1140NW
Project No.: 0380

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 1140MØ2Ø1
Sample Location: 1140NW MW2
Sampled By: JA
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	~~Other~~ ORP
Date: 6 C 01								
Time: 1235								
Method: peristaltic	clear	6.24	.107	24.70	Ø	9.27	0.0	74

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6 C 01								
Method: peristaltic	Initial	6.12	0.115	24.77	3	12.31	—	-8
Monitor Reading (ppm): —	1st	6.06	0.107	24.63	Ø	10.21	—	38
Well Casing Diameter & Material		~~5.89~~	~~0.144~~		~~Ø~~			
Type: 2" PVC	2nd	5.95	0.106	24.62	Ø	8.07	—	56
Total Well Depth (TD): 13.0	3rd	6.04	0.107	24.70	Ø	9.27	0.0	74
Static Water Level (WL): 8.04								
One Casing Volume(gal/L): .8								
Start Purge (hrs): 1Ø5Ø								
End Purge (hrs): 1235								
Total Purge Time (min): 1Ø5								
Total Vol. Purged (gal/L): ~4								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAH 8310	—	1 x 1 Liter	

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NAS Pensacola 1140NW
Project No.: Ø38Ø

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 1140M0301
Sample Location: 1140NW-MW3
Sampled By: JA
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 6 5 01								
Time: 16ØØ								
Method: peristaltic	clear	6.03	.226	24.87	11	5.87	—	-188 ORP

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	~~Other~~
Date: 6 5 01								
Method: peristaltic		6.02	0.220	26.22	1	12.80	—	-137
Monitor Reading (ppm): —	1st	6.00	0.224	24.98	7	9.37	—	-185
Well Casing Diameter & Material	2nd	6.05	0.225	24.88	1Ø	7.68	—	-178
Type: 1" PVC	3rd	6.04	0.226	24.87	9	7.24	—	-180
Total Well Depth (TD): 11.0	4th	6.02	0.225	24.80	1Ø	4.84	—	-187
Static Water Level (WL): 8.02	5th	6.03	0.226	24.87	11	5.87	—	-188
One Casing Volume(gal/L): [illegible]								
Start Purge (hrs): 152Ø								
End Purge (hrs): 16ØØ								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L): 3 4								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAH 8310	—	1 x 1L amber	

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD

Duplicate ID No.: 1140MØDØ1

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NAS Pensacola - Branson Info
Project No.: D380

Sample ID No.: 1140MP401
Sample Location: 1140MW MW4
Sampled By: JA
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	~~Other~~ ORP
Date: 6/6/01								
Time: 1715								
Method: peristaltic	clear	6.30	0.174	24.4	0.5	19.94	0.0	211

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	~~Other~~ ORP
Date: 6/6/01								
Method: peristaltic	initial	6.45	0.168	24.8	5.2	19.99	0.0	207
Monitor Reading (ppm): —	1st	6.23	0.171	24.5	1.5	19.99	0.0	220
Well Casing Diameter & Material	2nd	6.25	0.173	24.5	0.2	19.99	0.0	216
Type: 2" PVC	3rd	6.30	0.174	24.4	0.5	19.99	0.0	211
Total Well Depth (TD): 18.0								
Static Water Level (WL): 8.01								
One Casing Volume(gal/L): .8								
Start Purge (hrs): 1538								
End Purge (hrs): 1710								
Total Purge Time (min): 92								
Total Vol. Purged (gal/L): ~3.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAH 8310	—	1 x 1l amber	

OBSERVATIONS / NOTES:

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

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NAS Site 1140MW Branson
Project No.: N0376D

[ ] Domestic Well Data
[✓] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: 1140MW05-01 [illegible]
Sample Location: MW-65 [illegible]
Sampled By: Gary J. Davis
C.O.C. No.:
Type of Sample:
[✓] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	~~TBD~~	~~TBD~~	
Date: 06-06-01	Visual	Standard	mS/cm	°C	NTU	mg/l	Sal	Time	
Time: 1230									
Method: Peristaltic	Clear	5.78	0.119	25.33	3.1	6.28	0.00		ORP

PURGE DATA:

	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD	
Date: 06-06-01									
Method: Peristaltic	~0.5gal	5.81	0.120	25.79	29.7	10.90	0.00	1040	160
Monitor Reading (ppm): NA	~1.0	5.79	0.119	25.32	4.3	8.60	0.00	1105	166
Well Casing Diameter & Material	~2.0gal	5.77	0.119	25.32	3.2	7.45	0.00	1145	167
Type: Sch 40 PVC 2-inch	~3.0gal	5.78	0.119	25.33	3.1	6.28	0.00	1220	167
Total Well Depth (TD): 12.6									
Static Water Level (WL): 7.89									
One Casing Volume (gal/L): .79									
Start Purge (hrs): 1025									
End Purge (hrs): 1220									
Total Purge Time (min): 125									
Total Vol. Purged (gal/L): ~3									

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAHs	Ice	1 - 1L Amber	✓ [illegible]

OBSERVATIONS / NOTES:

12.6
-7.89
4.71
x .1632 = .7646

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Gary J. Davis

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASP Site 11 Fonw Bronson
Project No.: N0380

[] Domestic Well Data
[✓] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 1140 MW6-01
Sample Location: MW-6
Sampled By: Gary J. Davis
C.O.C. No.:
Type of Sample:
[✓] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	~~TBD~~ SAL	~~TBD~~ Time	ORP
Date: 06-06-01									
Time: 0955									
Method: Peristaltic	Clear	5.91	0.136	25.40	6.5	3.74	0.01		28

PURGE DATA:

	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD	
Date: 06-06-01									
Method: Peristaltic	~1 gal	5.56	0.152	25.33	33.3	6.03	0.01	0810	73
Monitor Reading (ppm): NA	~2 gal	5.91	0.140	25.42	12.4	4.58	0.01	0845	39
Well Casing Diameter & Material	~3 gal	5.94	0.137	25.80	6.9	4.08	0.01	0920	31
Type: Sch 40 PVC - 2 inch	~4 gal	5.91	0.136	25.40	6.5	3.74	0.01	0950	28
Total Well Depth (TD): 12.7									
Static Water Level (WL): 8.11									
One Casing Volume (gal/L): .75									
Start Purge (hrs): 0730									
End Purge (hrs): 0958									
Total Purge Time (min): 40									
Total Vol. Purged (gal/L): ~4									

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAHs	Ice	(1)-1L Amba	✓

OBSERVATIONS / NOTES:

12.7
-8.11
4.6
.1632
.75 gal

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Gary J. Davis

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of___

Project Site Name: NASP - Bronson 1140NW
Project No.: 0380

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 1140GEM0801
Sample Location: MW-8
Sampled By: JA
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 6/5/01								
Time: 1205								
Method: peristaltic	clear	6.09	.205	26.61	180.0	19.40	0.0	—

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/5/01								
Method: peristaltic	initial	5.53	0.213	26.10	39.4	15.97	—	
Monitor Reading (ppm): —	~~1st~~	~~6.86~~	~~0.136~~	~~25.59~~	~~0~~	~~8.31~~	—	—
Well Casing Diameter & Material	1st	5.45	0.214	19.52	48.9	26.04	—	
Type: 2" PVC	2nd	5.84	0.208	26.21	120.0	~~12.0~~ 19.95		
Total Well Depth (TD): 12.8	3rd	5.94	0.187	26.48	149.0	19.99	—	
Static Water Level (WL): 7.85	4th	5.98	0.200	26.59	162.0	19.92	—	
One Casing Volume(gal/L): 1.8	5th	6.09	0.205	26.61	180.0	19.40	—	
Start Purge (hrs): 1106								
End Purge (hrs): 1205								
Total Purge Time (min): 59								
Total Vol. Purged (gal/L): 5 g								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAH 8310	—	1 x 1L amber	

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NAS Pensacola 1140NW
Project No.: 0380

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 1140MØ9Ø1
Sample Location: 1140NW-MW9
Sampled By: JA
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 5/6/01								
Time: 1455								
Method: peristaltic	clear	6.14						

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	~~Other~~ ORP
Date: 5/6/01								
Method: peristaltic	initial	6.08	0.154	27.12	36.0	10.93	—	-115
Monitor Reading (ppm): —	1st	5.60	0.151	25.94	24.3	19.99*	—	-120
Well Casing Diameter & Material	2nd	5.72	0.153	25.80	18.1	19.99*	—	-135
Type: 2" PVC	3rd	6.01	0.154	25.77	16.4	18.01	—	-157
Total Well Depth (TD): 13.0	4th	6.14	0.154	25.69	15.8	16.98	—	-164
Static Water Level (WL): 7.85	5th	6.14	0.155	25.65	13.8	16.42	-	
One Casing Volume(gal/L): .8	6th							
Start Purge (hrs): 1350								
End Purge (hrs): 1455								
Total Purge Time (min): 65								
Total Vol. Purged (gal/L): ~3 g								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAH 8310	—	1 x 1 l amber	

OBSERVATIONS / NOTES:

* Max value

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Site 1140 NW Bronson
Project No.: N0380

[] Domestic Well Data
[✓] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 1140MW-01 ~~MW-11~~
Sample Location: MW-11
Sampled By: Gary J. Davis
C.O.C. No.:
Type of Sample:
[✓] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	TBD SAL	TBD Time
Date: 06-05-01								
Time: 1215								
Method: Peristaltic	Clear	5.60	0.113	26.1	6.2	0.04	0.00	

ORP

PURGE DATA:

	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD	
Date: 06-05-01									
Method: Peristaltic	~.5 gal	5.75	0.125	25.6	38.5	14.25	0.0	1105	246
Monitor Reading (ppm): NA	~.75	5.49	0.119	26.0	25.6	10.42	0.0	1115	240
Well Casing Diameter & Material	~1.5	5.55	0.116	26.3	9.5	7.36	0.0	1135	214
Type: Sch 40 PVC 2 inch	~2.0	5.59	0.114	26.2	8.4	6.70	0.0	1145	197
Total Well Depth (TD): 12.9	~2.5	5.60	0.113	26.1	6.2	6.24	0.0	1210	187
Static Water Level (WL): 8.04									
One Casing Volume (gal/L): .8									
Start Purge (hrs): 1100									
End Purge (hrs): 1215									
Total Purge Time (min): 75									
Total Vol. Purged (gal/l): ~3 ~~2.5~~									

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAHs	Ice	~~1-500~~ 1-1L AMBER	✓

OBSERVATIONS / NOTES:

12.9 TD
8.04
4.86 x .1632
0.79 = 1 vol
2.37 = 3 vol.

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
		Gary J. Davis

TBD: To Be Determined

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NAS Pensacola Bronson
Project No.: 6380

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 1140M1201
Sample Location: 1140NW DMW12
Sampled By: JA
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	~~Other~~ ORP
Date: 6/6/01								
Time: 1125								
Method: peristaltic	clear	4.81	0.064	23.8	1.2	19.99	0.0	231

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	~~Other~~ ORP
Date: 6/6/01								
Method: peristaltic		4.93	0.131	24.3	2.2	19.99	—	214
Monitor Reading (ppm): —	1st	4.68	0.063	23.7	1.9	19.99	—	234
Well Casing Diameter & Material	2nd	4.53	0.063	23.7	2.6	19.99	—	243
Type: 2" PVC	3rd	4.81	0.064	23.8	1.2	19.99	—	231
Total Well Depth (TD): 23.5								
Static Water Level (WL): 7.92								
One Casing Volume(gal/L): 2.4 g								
Start Purge (hrs): 0925								
End Purge (hrs): 1125								
Total Purge Time (min): 120								
Total Vol. Purged (gal/L): 9 4								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAH 8310	—	1 x 1l amber	

OBSERVATIONS / NOTES:

?
15
.16
190
150
2.40

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NAS Pensacola 1140nw
Project No.:

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 1140GEM1301
Sample Location: MW13
Sampled By: JA
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 6/5/01								
Time: 1150								
Method: peristaltic	clear	5.88	0.139	25.82	Ø	9.54	—	

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/5/01		5.82	0.135	25.79	9	14.98	—	
Method: peristaltic	1st	5.86	0.136	25.55	Ø	8.31	—	
Monitor Reading (ppm): —	2nd	5.92	0.135	25.76	Ø	9.25	—	
Well Casing Diameter & Material	3rd	5.88	0.139	25.82	Ø	9.54	—	
Type: 2" PVC								
Total Well Depth (TD): 12.9								
Static Water Level (WL): 7.87								
One Casing Volume(gal/L): .8								
Start Purge (hrs): 1105								
End Purge (hrs): 1150								
Total Purge Time (min): 45								
Total Vol. Purged (gal/L): 3q								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAH 8310	—	1 x 1L amber	

OBSERVATIONS / NOTES:

3
.16
5
.80

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

ATTACHMENT D

TABLE 1
SUMMARY OF ANALYTES DETECTED IN SOILS

TABLE 2
GROUNDWATER ELEVATIONS

TABLE 3
HISTORICAL GROUNDWATER ELEVATIONS

TABLE 4
SUMMARY OF COMPOUNDS DETECTED IN GROUNDWATER

TABLE 5
HISTORICAL SUMMARY OF COMPOUNDS DETECTED IN GROUNDWATER

TABLE 1
SUMMARY OF ANALYTES DETECTED IN SOILS-SITE 1140NW
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA
PAGE 1 OF 2

Sample No.		1140SB1-6 to 7.5'	1140SB2-6 to 7'	1140SB3-6 to 7'	1140SB4-6 to 7'	1140SB5-6 to 7'
Sample Location		Soil Boring No. 1	Soil Boring No. 2	Soil Boring No. 3	Soil Boring No. 4	Soil Boring No. 5
Collect Date		5/17/01	5/17/01	5/17/01	5/17/01	5/17/01
Sample Depth (bls)		6' to 7.5'	6' to 7'	6' to 7'	6' to 7'	6' to 7'
	DE1[1]/DE2[2]/LE[3] (mg/kg)					
Polycyclic Aromatic Hydrocarbons[4] (mg/kg)						
Acenaphthene	1,900/18,000/2.1	0.02	ND	ND	ND	ND
Benzo(a)anthracene	1.4/5/3.2	0.0061	0.003	ND	ND	ND
Benzo(b)fluoranthene	1.4/4.8/10	0.014	ND	ND	ND	ND
Benzo(k)fluoranthene	15/52/25	0.004	ND	ND	ND	ND
Benzo(g,h,i)perylene	2,300/41,000/32,000	0.019	0.003	ND	ND	ND
Benzo(a)pyrene	0.1/0.5/8	0.012	ND	ND	ND	ND
Chrysene	140/450/77	0.0068	ND	ND	ND	ND
Dibenzo(a,h)anthracene	0.1/0.5/30	0.01	ND	ND	ND	ND
Fluoranthene	2,900/48,000/1,200	0.017	ND	ND	ND	ND
Fluorene	2,200/28,000/160	ND	ND	0.078	ND	ND
Indeno(1,2,3-c,d)pyrene	1.5/5.3/28	0.01	ND	ND	ND	ND
Pyrene	2,200/37,000/880	0.004	ND	ND	ND	ND

[1] DE1 = Direct Exposure limit for residential area from Chapter 62-777, F.A.C.
[2] DE2 = Direct Exposure limit for industrial area from Chapter 62-777, F.A.C.
[3] LE = Leachability for groundwater limit from Chapter 62-777, F.A.C.
[4] SW-846 8310
ND = not detected.

TABLE 1
SUMMARY OF ANALYTES DETECTED IN SOILS-SITE 1140NW
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA

Sample No.		1140SB6-6 to 7'	1140SB6D-6 to 7'
Sample Location		Soil Boring No. 6	Duplicate of Soil Boring No. 6
Collect Date		5/17/01	5/17/01
Sample Depth (bls)		6' to 7'	6' to 7'
	DE1[1]/DE2[2]/LE[3] (mg/kg)		
Polycyclic Aromatic Hydrocarbons[4] (mg/kg)			
Acenaphthene	1,900/18,000/2.1	ND	ND
Benzo(a)anthracene	1.4/5/3.2	ND	ND
Benzo(b)fluoranthene	1.4/4.8/10	ND	ND
Benzo(k)fluoranthene	15/52/25	ND	ND
Benzo(g,h,i)perylene	2,300/41,000/32,000	ND	ND
Benzo(a)pyrene	0.1/0.5/8	ND	ND
Chrysene	140/450/77	ND	ND
Dibenzo(a,h)anthracene	0.1/0.5/30	ND	ND
Fluoranthene	2,900/48,000/1,200	ND	ND
Fluorene	2,200/28,000/160	ND	ND
Indeno(1,2,3-c,d)pyrene	1.5/5.3/28	ND	ND

[1] DE1 = Direct Exposure limit for residential area from Chapter 62-777, F.A.C.
[2] DE2 = Direct Exposure limit for industrial area from Chapter 62-777, F.A.C.
[3] LE = Leachability for groundwater limit from Chapter 62-777, F.A.C.
[4] SW-846 8310
ND = not detected.

TABLE 2

GROUNDWATER ELEVATIONS
SITE 1140NW
OUTLYING LANDING FIELD BRONSON
PENSACOLA, FLORIDA

Well No.	Total Depth of Well (ft)	Top of Casing Elevation, ft (MSL)	Date Measured	Depth to Free Product (BTOC)	Product Thickness, ft	Depth to Water, ft (BTOC)	Groundwater Elevation, ft (MSL)
MW-1	14.6	30.00	6/5/01	ND	ND	7.93	22.07
MW-2	13	30.10	6/5/01	ND	ND	8.04	22.06
MW-3	10.6	NA	6/5/01	ND	ND	8.02	NA
MW-4	12.8	30.03	6/5/01	ND	ND	8.01	22.02
MW-5	12.6	30.03	6/5/01	ND	ND	7.89	22.14
MW-6	12.7	30.26	6/5/01	ND	ND	8.11	22.15
MW-7	NM	30.02	6/5/01	NA	NA	NA	NA
MW-8	12.8	29.80	6/5/01	ND	ND	7.85	21.95
MW-9	13.0	29.80	6/5/01	ND	ND	7.85	21.95
MW-10	NM	29.86	6/5/01	NA	NA	NA	NA
MW-11	12.9	30.24	6/5/01	ND	ND	8.04	22.20
DMW-12	23.5	30.05	6/5/01	ND	ND	7.92	22.13
MW-13	12.9	29.73	6/5/01	ND	ND	7.87	21.86
MW-14	12.9	30.12	6/5/01	ND	ND	8.10	22.02
MW-15	12.9	29.87	6/5/01	ND	ND	7.94	21.93
MW-16	NM	30.23	6/5/01	ND	ND	8.33	21.90

Notes:
Measurements for free-product were made in each well, but not detected
MSL - Mean Sea Level
BTOC - Below Top of Casing
ft - feet
ND - Not Detected
NM - Not Measured
NA - Not Available

TABLE 3

HISTORICAL GROUNDWATER ELEVATIONS
SITE 1140NW
OUTLYING LANDING FIELD BRONSON
PENSACOLA, FLORIDA

Well No.	Total Depth of Well (ft)	Top of Casing Elevation, ft (MSL)	Date Measured	Depth to Free Product (BTOC)	Product Thickness, ft	Depth to Water, ft (BTOC)	Groundwater Elevation, ft (MSL)	Date Measured	Depth to Free Product (BTOC)	Product Thickness, ft	Depth to Water, ft (BTOC)	Groundwater Elevation, ft (MSL)
MW-1	14.6	30.00	11/18/99	ND	ND	7.78	22.22	5/25/00	ND	ND	7.80	22.20
MW-2	13	30.10	11/18/99	ND	ND	7.92	22.18	5/25/00	ND	ND	7.85	22.25
MW-3	10.6	NA	11/18/99	ND	ND	7.93	NA	5/25/00	ND	ND	7.82	NA
MW-4	12.8	30.03	11/18/99	ND	ND	7.90	22.13	5/25/00	ND	ND	NA	NA
MW-5	12.6	30.03	11/18/99	ND	ND	7.81	22.22	5/25/00	ND	ND	7.75	22.28
MW-6	12.7	30.26	11/18/99	ND	ND	8.00	22.26	5/25/00	ND	ND	7.91	22.35
MW-7	NM	30.02	NM	NA	NA	NA	NA	5/25/00	NA	NA	NA	NA
MW-8	12.8	29.80	11/18/99	ND	ND	7.72	22.08	5/25/00	ND	ND	7.66	22.14
MW-9	13.0	29.80	11/17/99	ND	ND	7.67	22.13	5/25/00	ND	ND	7.65	22.15
MW-10	NM	29.86	NM	NA	NA	NA	NA	5/25/00	NA	NA	NA	NA
MW-11	12.9	30.24	11/18/99	ND	ND	7.95	22.29	5/25/00	ND	ND	7.89	22.35
DMW-12	23.5	30.05	11/18/99	ND	ND	7.85	22.20	5/25/00	ND	ND	7.74	22.31
MW-13	12.9	29.73	11/18/99	ND	ND	7.70	22.03	5/25/00	ND	ND	7.66	22.07
MW-14	12.9	30.12	11/18/99	ND	ND	7.94	22.18	5/25/00	ND	ND	7.91	22.21
MW-15	12.9	29.87	11/18/99	ND	ND	7.88	21.99	5/25/00	ND	ND	NA	NA
MW-16	NM	30.23	11/18/99	NA	NA	NA	NA	5/25/00	NA	NA	8.15	22.08

Notes:
Measurements for free-product were made in each well, but not detected
MSL - Mean Sea Level
BTOC - Below Top of Casing
ft - feet
ND - Not Detected
NM - Not Measured
NA - Not Available

TABLE 4
SUMMARY OF ANALYTES DETECTED IN PERIMETER WELLS-SITE 1140NW
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA

Sample No. Sample Location Collect Date		1140M0801 Monitoring Well No. 8 6/5/01	1140M0901 Monitoring Well No. 9 6/5/01	FDEP Site-specific action levels/milestones for Site 1140NW perimeter wells [3]
	Groundwater Clean-up Target Levels [1] (µg/L)			
Polycyclic Aromatic Hydrocarbons [2] (µg/L)				
1-Methylnaphthalene	20	45	ND	20 / <20
2-Methylnaphthalene	20	ND	5.0	20 / <20
Acenaphthylene	210	ND	6.6	none
Anthracene	2,100	0.6	ND	none
Benzo(a)anthracene	0.2	ND	ND	none
Benzo(b)fluoranthene	0.2	ND	ND	none
Benzo(k)fluoranthene	0.5	ND	ND	none
Benzo(g,h,i)perylene	210	ND	ND	none
Benzo(a)pyrene	0.2	ND	ND	none
Chrysene	4.8	ND	ND	none
Dibenzo(a,h)anthracene	0.2	ND	ND	none
Fluoranthene	280	1.8	ND	none
Fluorene	280	8.0	3.4	none
Indeno(1,2,3-cd)pyrene	0.2	ND	ND	none
Phenanthrene	210	ND	1.0	none
Naphthalene	20	22	5.0	20 / <20
Pyrene	210	ND	ND	none

[1] Groundwater Clean-up Target Levels (GCTLs) as provided in Chapter 62-777, F.A.C.
[2] SW-846 8310
[3] As provided in Florida Department of Environmental Protection (FDEP) letter dated May 8, 2000.
Bold indicates an exceedance of action levels and/or GCTLs.
ND = Analyte was not detected.

TABLE 4
SUMMARY OF ANALYTES DETECTED IN CONTAMINATED WELLS-SITE 1140NW
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA

Sample No.		1140M0301	1140M0D01	FDEP Site-specific action levels/milestones for Site 1140NW contaminated wells [3]
Sample Location		Monitoring Well No. 3	Duplicate of Monitoring Well No. 3	
Collect Date		6/5/01	6/5/01	
	Groundwater Clean-up Target Levels [1] (µg/L)			
Polycyclic Aromatic Hydrocarbons [2] (µg/L)				
1-Methylnaphthalene	20	**100**	**110**	200/110
2-Methylnaphthalene	20	**31**	**33**	200/110
Acenaphthylene	210	ND	ND	none
Anthracene	2,100	ND	ND	none
Benzo(a)anthracene	0.2	ND	ND	none
Benzo(b)fluoranthene	0.2	ND	ND	none
Benzo(k)fluoranthene	0.5	ND	ND	none
Benzo(g,h,i)perylene	210	ND	ND	none
Benzo(a)pyrene	0.2	ND	ND	none
Chrysene	4.8	ND	ND	none
Dibenzo(a,h)anthracene	0.2	ND	ND	none
Fluoranthene	280	ND	ND	none
Fluorene	280	9.0	9.0	none
Indeno(1,2,3-cd)pyrene	0.2	ND	ND	none
Phenanthrene	210	ND	ND	none
Naphthalene	20	ND	10	200/110
Pyrene	210	ND	ND	none

[1] Groundwater Clean-up Target Levels (GCTLs) as provided in Chapter 62-777, F.A.C.
[2] SW-846 8310
[3] As provided in Florida Department of Environmental Protection (FDEP) letter dated May 8, 2000.
Bold indicates an exceedance of action levels and/or GCTLs.
ND = Analyte was not detected.

TABLE 4
SUMMARY OF ANALYTES DETECTED IN ADDITIONAL WELLS-SITE 1140NW
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA

Sample No.		1140M0101	1140M0201	1140M0401	1140M0501	1140M0601
Sample Location		Monitoring Well No. 1	Monitoring Well No. 2	Monitoring Well No. 4	Monitoring Well No. 5	Monitoring Well No. 6
Collect Date		6/6/01	6/6/01	6/6/01	6/6/01	6/6/01
	Groundwater Clean-up Target Levels [1] (µg/L)					
Polycyclic Aromatic Hydrocarbons [2] (µg/L)						
1-Methylnaphthalene	20	ND	ND	ND	ND	ND
2-Methylnaphthalene	20	ND	ND	ND	ND	ND
Acenaphthylene	210	ND	ND	ND	ND	ND
Anthracene	2,100	ND	ND	ND	ND	0.060
Benzo(a)anthracene	0.2	ND	ND	ND	ND	0.11
Benzo(b)fluoranthene	0.2	ND	ND	ND	ND	0.11
Benzo(k)fluoranthene	0.5	ND	ND	ND	ND	0.10
Benzo(g,h,i)perylene	210	ND	ND	ND	ND	0.12
Benzo(a)pyrene	0.2	ND	ND	ND	0.05	0.090
Chrysene	4.8	ND	0.050	ND	0.06	0.13
Dibenzo(a,h)anthracene	0.2	ND	ND	ND	0.10	ND
Fluoranthene	280	ND	ND	ND	ND	ND
Fluorene	280	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	0.2	ND	ND	ND	0.09	0.090
Phenanthrene	210	ND	ND	ND	ND	ND
Naphthalene	20	ND	ND	ND	ND	ND
Pyrene	210	ND	ND	ND	ND	0.19

[1] Groundwater Clean-up Target Levels (GCTLs) as provided in Chapter 62-777, F.A.C.
[2] SW-846 8310
[3] As provided in Florida Department of Environmental Protection (FDEP) letter dated May 8, 2000.
Bold indicates an exceedance of action levels and/or GCTLs.
ND = Analyte was not detected.

TABLE 4
SUMMARY OF ANALYTES DETECTED IN ADDITIONAL WELLS-SITE 1140NW
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA

Sample No.		1140M1101	1140M1201	1140M1301
Sample Location		Monitoring Well No. 11	Monitoring Well No. 12	Monitoring Well No. 13
Collect Date		6/5/01	6/6/01	6/6/01
	Groundwater Clean-up Target Levels [1] (µg/L)			
Polycyclic Aromatic Hydrocarbons [2] (µg/L)				
1-Methylnaphthalene	20	ND	ND	14
2-Methylnaphthalene	20	ND	ND	16
Acenaphthylene	210	ND	ND	ND
Anthracene	2,100	ND	ND	ND
Benzo(a)anthracene	0.2	ND	ND	ND
Benzo(b)fluoranthene	0.2	ND	ND	ND
Benzo(k)fluoranthene	0.5	ND	ND	ND
Benzo(g,h,i)perylene	210	ND	ND	ND
Benzo(a)pyrene	0.2	ND	ND	ND
Chrysene	4.8	ND	ND	ND
Dibenzo(a,h)anthracene	0.2	ND	ND	ND
Fluoranthene	280	ND	ND	ND
Fluorene	280	ND	ND	4.1
Indeno(1,2,3-cd)pyrene	0.2	ND	ND	ND
Phenanthrene	210	ND	ND	1.6
Naphthalene	20	ND	ND	12
Pyrene	210	ND	ND	ND

[1] Groundwater Clean-up Target Levels (GCTLs) as provided in Chapter 62-777, F.A.C.
[2] SW-846 8310
[3] As provided in Florida Department of Environmental Protection (FDEP) letter dated May 8, 2000.
Bold indicates an exceedance of action levels and/or GCTLs.
ND = Analyte was not detected.

TABLE 5

HISTORIC SUMMARY OF ANALYTES DETECTED IN SITE 1140NW
GROUNDWATER SAMPLES
OUTLYING LANDING FIELD BRONSON
PENSACOLA, FLORIDA

Sample No.	1140-MW-3	1140-GW-8	1140-MW-9	FDEP Site-specific Natural Attenuation Criteria [2]		Florida Ground-water Guidance Concentration [3]
Sample Location	Monitoring Well No. 3	Monitoring Well No. 8	Monitoring Well No. 9			
Collect Date	4/96; 6/96; 7/98; 10/29/99; 5/25/00; 6/23/00	4/96; 6/96; 7/98; 5/25/00; 6/23/00	4/96; 6/96; 7/98; 5/25/00; 6/23/00	Contaminated Well (MW-3) Action Level / Milestone	Perimeter Well (Wells MW-8 & MW-9) Action Level/Milestone	
Polyaromatic Hydrocarbons [1] (µg/L)						
Naphthalene	190;NS;NS;66;44;64	NS;ND;NS;37;24	NS;ND;10;3.6;NS	200 / 40	20 / <20	20
Acenaphthylene	ND;NS;NS;1.0;ND;ND	NS;ND;NS;6.5;ND	NS;ND;ND;ND;NS	none	none	210
1-Methylnaphthalene	350;NS;NS;190;**240;300**	NS;8.0;NS;33;29	NS;ND;7.0;1.6;NS	200 / 110	20 / <20	20
2-Methylnaphthalene	520;NS;NS;130;110;190	NS;ND;NS;25;11	NS;ND;18;3.2;NS	200 / 80	20 / <20	20
Flourene	ND;NS;NS;10;12;14	NS;ND;NS;7.0;8.8	NS;ND;ND;ND;NS	none	none	280
Phenanthrene	33;NS;NS;ND;ND	NS;ND;NS;ND;4.5	NS;ND;ND;ND;NS	none	none	210
Anthracene	ND;NS;NS;ND;ND	NS;ND;NS;ND;0.74	NS;ND;ND;ND;NS	none	none	2100

[1] SW-846 8310 µg/L = micrograms per Liter

[2] As provided in the Florida Department of Environmental Protection Letter Dated May 8, 2000.

[2] As provided in 62-777 FAC.

Bold = Concentration exceeded action level.

NS = Monitoring well was not sampled. ND = Analyte was not detected.

ATTACHMENT E

VALIDATED LABORATORY DATA

EDD + Data attached

Tetra Tech NUS, Inc.

Internal Correspondence

TO: Mr. Gerald Walker

DATE: July 12, 2001

FROM: Suzanne I. Smith

CC: File

SUBJECT: Organic Data Validation – PAH
CTO106 – OLF Bronson
SDG ORL16163

SAMPLES: 7/Soil

1140SB1-6 to 7.5'	1140SB2-6 to 7'	1140SB3-6 to 7'
1140SB4-6 to 7'	1140SB5-6 to 7'	1140SB6-6 to 7'
1140SB6D-6 to 7'		

OVERVIEW

The sample set for CTO106 SDG ORL16163; Outlaying Landing Field Bronson, Pensacola, Florida consists of seven (7) soil environmental samples. The samples were analyzed for Polycyclic Aromatic Hydrocarbons (PAHs).

The samples were collected by Tetra Tech NUS on May 17, 2001 and analyzed by ENCO 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 Method 8310 analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Laboratory method/field quality control blank results
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter.

PAH Fraction

All quality control criteria were met for this fraction.

Executive Summary

Laboratory performance:	All quality control criteria were met.
Other factors affecting data quality:	No other factors affected data quality.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (February, 1996), 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.

CTO106-NAS PENSACOLA
SOIL DATA
ENCO LABORATORIES
SDG: ORL16163

SAMPLE NUMBER:	1140SB1-6 TO 7.5'			1140SB2-6 TO 7'			1140SB3-6 TO 7'			1140SB4-6 TO 7'		
SAMPLE DATE:	05/17/01			05/17/01			05/17/01			05/17/01		
LABORATORY ID:	ORL16163-1			ORL16163-2			ORL16163-3			ORL16163-4		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	83.0 %			96.0 %			95.0 %			96.0 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
POLYNUCLEAR AROMATIC HYDROCARBONS	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
1-METHYLNAPHTHALENE	40	U		35	U		700	U		35	U	
2-METHYLNAPHTHALENE	40	U		35	U		700	U		35	U	
ACENAPHTHENE	20	U		18	U		360	U		18	U	
ACENAPHTHYLENE	40	U		35	U		700	U		35	U	
ANTHRACENE	2	U		2	U		35	U		2	U	
BENZO(A)ANTHRACENE	8.1			3			35	U		1.7	U	
BENZO(A)PYRENE	12			2	U		35	U		2	U	
BENZO(B)FLUORANTHENE	14			3.5	U		70	U		3.5	U	
BENZO(G,H,I)PERYLENE	19			3			70	U		3	U	
BENZO(K)FLUORANTHENE	4			1.7	U		35	U		1.7	U	
CHRYSENE	8.8			1.7	U		35	U		1.7	U	
DIBENZO(A,H)ANTHRACENE	10			3.4	U		69	U		3.4	U	
FLUORANTHENE	17			3.5	U		70	U		3.5	U	
FLUORENE	4	U		3	U		78			3	U	
INDENO(1,2,3-CD)PYRENE	10			1.7	U		35	U		1.7	U	
NAPHTHALENE	20	U		17	U		350	U		17	U	
PHENANTHRENE	40	U		35	U		700	U		35	U	
PYRENE	4			1.7	U		36	U		1.7	U	

CTO106-NAS PENSACOLA
SOIL DATA
ENCO LABORATORIES
SDG: ORL16163

SAMPLE NUMBER:	1140SB5-6 TO 7'			1140SB6-6 TO 7'			1140SB8D-6 TO 7'			/ /		
SAMPLE DATE:	05/17/01			05/17/01			05/17/01					
LABORATORY ID:	ORL16163-5			ORL16163-6			ORL16163-7					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	94.0 %			83.0 %			95.0 %			100.0 %		
UNITS:	UG/KG			UG/KG			UG/KG					
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	35	U		40	U		35	U				
2-METHYLNAPHTHALENE	35	U		40	U		35	U				
ACENAPHTHENE	18	U		20	U		18	U				
ACENAPHTHYLENE	35	U		40	U		35	U				
ANTHRACENE	2	U		2	U		2	U				
BENZO(A)ANTHRACENE	1.8	U		2	U		1.8	U				
BENZO(A)PYRENE	2	U		2	U		2	U				
BENZO(B)FLUORANTHENE	3.5	U		4	U		3.5	U				
BENZO(G,H,I)PERYLENE	3	U		4	U		3	U				
BENZO(K)FLUORANTHENE	1.8	U		2	U		1.8	U				
CHRYSENE	1.8	U		2	U		1.8	U				
DIBENZO(A,H)ANTHRACENE	3.5	U		4	U		3.5	U				
FLUORANTHENE	3.5	U		4	U		3.5	U				
FLUORENE	3	U		4	U		3	U				
INDENO(1,2,3-CD)PYRENE	1.8	U		2	U		1.8	U				
NAPHTHALENE	18	U		20	U		18	U				
PHENANTHRENE	35	U		40	U		35	U				
PYRENE	1.8	U		2	U		1.8	U				

ORL16163

HOLDING TIME
07/12/01

Units	Neamples	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/KG	1140SB1-6 TO 7.5'	ORL16163-1	NORMAL	ORL16163	PAH	05/17/01	05/22/01	05/24/01	5	2	7
UG/KG	1140SB2-6 TO 7'	ORL16163-2	NORMAL	ORL16163	PAH	05/17/01	05/22/01	05/24/01	5	2	7
UG/KG	1140SB3-6 TO 7'	ORL16163-3	NORMAL	ORL16163	PAH	05/17/01	05/22/01	05/24/01	5	2	7
UG/KG	1140SB4-6 TO 7'	ORL16163-4	NORMAL	ORL16163	PAH	05/17/01	05/22/01	05/24/01	5	2	7
UG/KG	1140SB5-6 TO 7'	ORL16163-5	NORMAL	ORL16163	PAH	05/17/01	05/22/01	05/24/01	5	2	7
UG/KG	1140SB6-6 TO 7'	ORL16163-6	NORMAL	ORL16163	PAH	05/17/01	05/22/01	05/24/01	5	2	7
UG/KG	1140SBMD-6 TO 7'	ORL16163-7	NORMAL	ORL16163	PAH	05/17/01	05/23/01	05/25/01	6	2	8

Environmental Conservation Laboratories, Inc.
10207 General Drive
Orlando, Florida 32824-8529
407 / 826-5314
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www.encolabs.com

ENCO Laboratories

DHRS Certification No. E83182

CLIENT : Tetra Tech NUS
ADDRESS: 1401 Oven Park Dr.
Suite 102
Tallahassee, FL 32312

REPORT # : ORL16163
DATE SUBMITTED: May 18, 2001
DATE REPORTED : June 20, 2001

ATTENTION: Gerry Walker

SAMPLE IDENTIFICATION

Samples submitted and
identified by client as:

PROJECT #: 0380

Nas Pensacola 1140 NW

05/17/01

#1 - 1140SB1-6 TO 7.5' @ 11:35
#2 - 1140SB2-6 TO 7' @ 12:18
#3 - 1140SB3-6 TO 7' @ 13:40
#4 - 1140SB4-6 TO 7' @ 14:00
#5 - 1140SB5-6 TO 7' @ 14:20
#6 - 1140SB6-6 TO 7' @ 14:45
#7 - 1140SB6D-6 TO 7' @ 14:45

PROJECT MANAGER _____
Marcia C. Terlep

Environmental Conservation Laboratories, Inc.
10207 General Drive
Orlando, Florida 32824-8529
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ENCO Laboratories

DHRS Certification No. E83182

CASE NARRATIVE

Date: June 25, 2001

Client: Tetra Tech NUS

Project #: NAS Pensacola 1140 NW CTO#106

Lab ID: ORL16163

Overview

All samples submitted were analyzed by Environmental Conservation Laboratories, Inc. in accordance with the methods referenced in the laboratory report. Any particular difficulties encountered during sample handling by Environmental Conservation Laboratories, Inc. will be discussed in the QC Remarks section below.

Quality Control Samples
Matrix interference inhibited recovery determination of spiked matrices in the sample batch prepared on 5/22/01 which included samples "1140SB1-6 to 7.5'", "1140SB2-6 to 7'", "1140SB3-6 to 7'", "1140SB4-6 to 7'", 1140SB5-6 to 7'", and "1140SB-6 to 7'." In this circumstance, Environmental Conservation Laboratories, Inc. adopts a policy consistent with EPA SW-846 methodology whereby data is validated based on recoveries in the Laboratory Control Sample (LCS). All target compounds where recovered at levels within acceptance criteria in the LCS. Results for samples associated with this QC batch should be considered valid as reported.

All other QC related samples demonstrated recoveries within laboratory and/or method specified limits.

Quality Control Remarks
Matrix interference inhibited determination of surrogate recoveries in sample "1140SB3-6 to 7'".

Other Comments
The analytical data presented in this report are consistent with the methods as referenced in the analytical report. Any exceptions or deviations are noted in the QC remarks section of this narrative. Should there be any questions regarding this package, please feel free to contact the undersigned for additional information.

Released By:

Environmental Conservation Laboratories, Inc.

Matthew Foti, Ph.D.
Laboratory Manager

ENCO LABORATORIES
REPORT # : ORL16163
DATE REPORTED: June 20, 2001
REFERENCE : 0380
PROJECT NAME : Nas Pensacola 1140 NW

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140SB1-6 TO 7.5'	Units
Naphthalene	20 U	µg/Kg
Acenaphthylene	40 U	µg/Kg
1-Methylnaphthalene	40 U	µg/Kg
2-Methylnaphthalene	40 U	µg/Kg
Acenaphthene	20	µg/Kg
Fluorene	4.0 U	µg/Kg
Phenanthrene	40 U	µg/Kg
Anthracene	2.0 U	µg/Kg
Fluoranthene	17	µg/Kg
Pyrene	4.0	µg/Kg
Benzo(a)anthracene	8.1	µg/Kg
Chrysene	8.8	µg/Kg
Benzo(b)fluoranthene	14	µg/Kg
Benzo(k)fluoranthene	4.0	µg/Kg
Benzo(a)pyrene	12	µg/Kg
Dibenzo(a,h)anthracene	10	µg/Kg
Benzo(g,h,i)perylene	19	µg/Kg
Indeno(1,2,3-cd)pyrene	10	µg/Kg
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	5.88	µg/Kg
Surrogate Expected Value	5.0	µg/Kg
Surrogate % Recovery	118	%
Surrogate Control Limits	50-146	%
Date Prepared	05/22/01	
Date Analyzed	05/24/01 00:47	

MISCELLANEOUS	METHOD	1140SB1-6 TO 7.5'	Units
Percent Solids	SM2540G	83	%
Date Analyzed		05/21/01 14:20	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16163
DATE REPORTED: June 20, 2001
REFERENCE : 0380
PROJECT NAME : Nas Pensacola 1140 NW

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140SB2-6 TO 7'	Units
Naphthalene	17 U	µg/Kg
Acenaphthylene	35 U	µg/Kg
1-Methylnaphthalene	35 U	µg/Kg
2-Methylnaphthalene	35 U	µg/Kg
Acenaphthene	18 U	µg/Kg
Fluorene	3.0 U	µg/Kg
Phenanthrene	35 U	µg/Kg
Anthracene	2.0 U	µg/Kg
Fluoranthene	3.5 U	µg/Kg
Pyrene	1.7 U	µg/Kg
Benzo(a)anthracene	3.0	µg/Kg
Chrysene	1.7 U	µg/Kg
Benzo(b)fluoranthene	3.5 U	µg/Kg
Benzo(k)fluoranthene	1.7 U	µg/Kg
Benzo(a)pyrene	2.0 U	µg/Kg
Dibenzo(a,h)anthracene	3.4 U	µg/Kg
Benzo(g,h,i)perylene	3.0	µg/Kg
Indeno(1,2,3-cd)pyrene	1.7 U	µg/Kg
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	6.24	µg/Kg
Surrogate Expected Value	5.0	µg/Kg
Surrogate % Recovery	125	%
Surrogate Control Limits	50-146	%
Date Prepared	05/22/01	
Date Analyzed	05/24/01 01:18	

MISCELLANEOUS	METHOD	1140SB2-6 TO 7'	Units
Percent Solids	SM2540G	96	%
Date Analyzed		05/21/01 14:20	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16163
DATE REPORTED: June 20, 2001
REFERENCE : 0380
PROJECT NAME : Nas Pensacola 1140 NW

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140SB3-6 TO 7'	Units
Naphthalene	350 U D1	µg/Kg
Acenaphthylene	700 U D1	µg/Kg
1-Methylnaphthalene	700 U D1	µg/Kg
2-Methylnaphthalene	700 U D1	µg/Kg
Acenaphthene	360 U D1	µg/Kg
Fluorene	78 D1	µg/Kg
Phenanthrene	700 U D1	µg/Kg
Anthracene	35 U D1	µg/Kg
Fluoranthene	70 U D1	µg/Kg
Pyrene	35 U D1	µg/Kg
Benzo(a)anthracene	35 U D1	µg/Kg
Chrysene	35 U D1	µg/Kg
Benzo(b)fluoranthene	70 U D1	µg/Kg
Benzo(k)fluoranthene	35 U D1	µg/Kg
Benzo(a)pyrene	35 U D1	µg/Kg
Dibenzo(a,h)anthracene	69 U D1	µg/Kg
Benzo(g,h,i)perylene	70 U D1	µg/Kg
Indeno(1,2,3-cd)pyrene	35 U D1	µg/Kg
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	*	µg/Kg
Surrogate Expected Value	5.0	µg/Kg
Surrogate % Recovery	*	%
Surrogate Control Limits	50-146	%
Date Prepared	05/22/01	
Date Analyzed	05/24/01 13:38	

MISCELLANEOUS	METHOD	1140SB3-6 TO 7'	Units
Percent Solids	SM2540G	95	%
Date Analyzed		05/21/01 14:20	

* = Matrix interference; unable to obtain surrogate recovery.
U = Compound was analyzed for but not detected to the level shown.
D1 = Analyte value determined from a 1:20 dilution.

ENCO LABORATORIES
REPORT # : ORL16163
DATE REPORTED: June 20, 2001
REFERENCE : 0380
PROJECT NAME : Nas Pensacola 1140 NW

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140SB4-6 TO 7'	Units
Naphthalene	17 U	µg/Kg
Acenaphthylene	35 U	µg/Kg
1-Methylnaphthalene	35 U	µg/Kg
2-Methylnaphthalene	35 U	µg/Kg
Acenaphthene	18 U	µg/Kg
Fluorene	3.0 U	µg/Kg
Phenanthrene	35 U	µg/Kg
Anthracene	2.0 U	µg/Kg
Fluoranthene	3.5 U	µg/Kg
Pyrene	1.7 U	µg/Kg
Benzo(a)anthracene	1.7 U	µg/Kg
Chrysene	1.7 U	µg/Kg
Benzo(b)fluoranthene	3.5 U	µg/Kg
Benzo(k)fluoranthene	1.7 U	µg/Kg
Benzo(a)pyrene	2.0 U	µg/Kg
Dibenzo(a,h)anthracene	3.4 U	µg/Kg
Benzo(g,h,i)perylene	3.0 U	µg/Kg
Indeno(1,2,3-cd)pyrene	1.7 U	µg/Kg
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	5.88	µg/Kg
Surrogate Expected Value	5.0	µg/Kg
Surrogate % Recovery	118	%
Surrogate Control Limits	50-146	%
Date Prepared	05/22/01	
Date Analyzed	05/24/01 02:20	

MISCELLANEOUS	METHOD	1140SB4-6 TO 7'	Units
Percent Solids	SM2540G	96	%
Date Analyzed		05/21/01 14:20	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16163
DATE REPORTED: June 20, 2001
REFERENCE : 0380
PROJECT NAME : Nas Pensacola 1140 NW

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140SB5-6 TO 7'	Units
Naphthalene	18 U	µg/Kg
Acenaphthylene	35 U	µg/Kg
1-Methylnaphthalene	35 U	µg/Kg
2-Methylnaphthalene	35 U	µg/Kg
Acenaphthene	18 U	µg/Kg
Fluorene	3.0 U	µg/Kg
Phenanthrene	35 U	µg/Kg
Anthracene	2.0 U	µg/Kg
Fluoranthene	3.5 U	µg/Kg
Pyrene	1.8 U	µg/Kg
Benzo(a)anthracene	1.8 U	µg/Kg
Chrysene	1.8 U	µg/Kg
Benzo(b)fluoranthene	3.5 U	µg/Kg
Benzo(k)fluoranthene	1.8 U	µg/Kg
Benzo(a)pyrene	2.0 U	µg/Kg
Dibenzo(a,h)anthracene	3.5 U	µg/Kg
Benzo(g,h,i)perylene	3.0 U	µg/Kg
Indeno(1,2,3-cd)pyrene	1.8 U	µg/Kg
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	4.48	µg/Kg
Surrogate Expected Value	5.0	µg/Kg
Surrogate % Recovery	90	%
Surrogate Control Limits	50-146	%
Date Prepared	05/22/01	
Date Analyzed	05/24/01 02:51	

MISCELLANEOUS	METHOD	1140SB5-6 TO 7'	Units
Percent Solids	SM2540G	94	%
Date Analyzed		05/21/01 14:20	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16163
DATE REPORTED: June 20, 2001
REFERENCE : 0380
PROJECT NAME : Nas Pensacola 1140 NW

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140SB6-6 TO 7'	Units
Naphthalene	20 U	µg/Kg
Acenaphthylene	40 U	µg/Kg
1-Methylnaphthalene	40 U	µg/Kg
2-Methylnaphthalene	40 U	µg/Kg
Acenaphthene	20 U	µg/Kg
Fluorene	4.0 U	µg/Kg
Phenanthrene	40 U	µg/Kg
Anthracene	2.0 U	µg/Kg
Fluoranthene	4.0 U	µg/Kg
Pyrene	2.0 U	µg/Kg
Benzo(a)anthracene	2.0 U	µg/Kg
Chrysene	2.0 U	µg/Kg
Benzo(b)fluoranthene	4.0 U	µg/Kg
Benzo(k)fluoranthene	2.0 U	µg/Kg
Benzo(a)pyrene	2.0 U	µg/Kg
Dibenzo(a,h)anthracene	4.0 U	µg/Kg
Benzo(g,h,i)perylene	4.0 U	µg/Kg
Indeno(1,2,3-cd)pyrene	2.0 U	µg/Kg
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	5.59	µg/Kg
Surrogate Expected Value	5.0	µg/Kg
Surrogate % Recovery	112	%
Surrogate Control Limits	50-146	%
Date Prepared	05/22/01	
Date Analyzed	05/24/01 03:22	

MISCELLANEOUS	METHOD	1140SB6-6 TO 7'	Units
Percent Solids	SM2540G	83	%
Date Analyzed		05/21/01 14:20	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16163
DATE REPORTED: June 20, 2001
REFERENCE : 0380
PROJECT NAME : Nas Pensacola 1140 NW

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140SB6D-6 TO 7'	Units
Naphthalene	18 U	µg/Kg
Acenaphthylene	35 U	µg/Kg
1-Methylnaphthalene	35 U	µg/Kg
2-Methylnaphthalene	35 U	µg/Kg
Acenaphthene	18 U	µg/Kg
Fluorene	3.0 U	µg/Kg
Phenanthrene	35 U	µg/Kg
Anthracene	2.0 U	µg/Kg
Fluoranthene	3.5 U	µg/Kg
Pyrene	1.8 U	µg/Kg
Benzo(a)anthracene	1.8 U	µg/Kg
Chrysene	1.8 U	µg/Kg
Benzo(b)fluoranthene	3.5 U	µg/Kg
Benzo(k)fluoranthene	1.8 U	µg/Kg
Benzo(a)pyrene	2.0 U	µg/Kg
Dibenzo(a,h)anthracene	3.5 U	µg/Kg
Benzo(g,h,i)perylene	3.0 U	µg/Kg
Indeno(1,2,3-cd)pyrene	1.8 U	µg/Kg
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	5.45	µg/Kg
Surrogate Expected Value	5.0	µg/Kg
Surrogate % Recovery	109	%
Surrogate Control Limits	50-146	%
Date Prepared	05/23/01	
Date Analyzed	05/25/01 04:09	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16163
DATE REPORTED: June 20, 2001
REFERENCE : 0380
PROJECT NAME : Nas Pensacola 1140 NW

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	LAB BLANK	Units
Naphthalene	17 U	µg/Kg
Acenaphthylene	33 U	µg/Kg
1-Methylnaphthalene	33 U	µg/Kg
2-Methylnaphthalene	33 U	µg/Kg
Acenaphthene	17 U	µg/Kg
Fluorene	3.0 U	µg/Kg
Phenanthrene	33 U	µg/Kg
Anthracene	2.0 U	µg/Kg
Fluoranthene	3.3 U	µg/Kg
Pyrene	1.7 U	µg/Kg
Benzo(a)anthracene	1.7 U	µg/Kg
Chrysene	1.7 U	µg/Kg
Benzo(b)fluoranthene	3.3 U	µg/Kg
Benzo(k)fluoranthene	1.7 U	µg/Kg
Benzo(a)pyrene	2.0 U	µg/Kg
Dibenzo(a,h)anthracene	3.3 U	µg/Kg
Benzo(g,h,i)perylene	3.0 U	µg/Kg
Indeno(1,2,3-cd)pyrene	1.7 U	µg/Kg
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	5.06	µg/Kg
Surrogate Expected Value	5.0	µg/Kg
Surrogate % Recovery	101	%
Surrogate Control Limits	50-146	%
Date Prepared	05/22/01	
Date Analyzed	05/24/01 15:27	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16163
DATE REPORTED: June 20, 2001
REFERENCE : 0380
PROJECT NAME : Nas Pensacola 1140 NW

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	LAB BLANK	Units
Naphthalene	17 U	µg/Kg
Acenaphthylene	33 U	µg/Kg
1-Methylnaphthalene	33 U	µg/Kg
2-Methylnaphthalene	33 U	µg/Kg
Acenaphthene	17 U	µg/Kg
Fluorene	3.0 U	µg/Kg
Phenanthrene	33 U	µg/Kg
Anthracene	2.0 U	µg/Kg
Fluoranthene	3.3 U	µg/Kg
Pyrene	1.7 U	µg/Kg
Benzo(a)anthracene	1.7 U	µg/Kg
Chrysene	1.7 U	µg/Kg
Benzo(b)fluoranthene	3.3 U	µg/Kg
Benzo(k)fluoranthene	1.7 U	µg/Kg
Benzo(a)pyrene	2.0 U	µg/Kg
Dibenzo(a,h)anthracene	3.3 U	µg/Kg
Benzo(g,h,i)perylene	3.0 U	µg/Kg
Indeno(1,2,3-cd)pyrene	1.7 U	µg/Kg
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	5.43	µg/Kg
Surrogate Expected Value	5.0	µg/Kg
Surrogate % Recovery	109	%
Surrogate Control Limits	50-146	%
Date Prepared	05/23/01	
Date Analyzed	05/25/01 02:05	

U = Compound was analyzed for but not detected to the level shown.

QUALITY CONTROL DATA

Parameter	% RECOVERY MS/MSD/LCS	LCS Target µg	ACCEPT LIMITS	% RPD MS/MSD	ACCEPT LIMITS
EPA Method 8310					
Naphthalene	*/ */100	10	26-125	*	45
Acenaphthene	*/ */ 78	10	20-143	*	35
Benzo(a)pyrene	*/ */ 90	1	42-138	*	38
Benzo(g,h,i)perylene	*/ */ 98	2	51-142	*	26
EPA Method 8310					
Naphthalene	94/ 93/ 95	10	26-125	1	45
Acenaphthene	80/ 80/ 81	10	20-143	<1	35
Benzo(a)pyrene	97/ 97/ 95	1	42-138	<1	38
Benzo(g,h,i)perylene	102/100/102	2	51-142	2	26

Environmental Conservation Laboratories Comprehensive QA Plan #960038

* = Matrix interference; unable to obtain accurate recovery.
< = Less Than
MS = Matrix Spike
MSD = Matrix Spike Duplicate
LCS = Laboratory Control Standard
RPD = Relative Percent Difference

This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.

ENVIRONMENTAL CONSERVATION LABORATORIES

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Cary, North Carolina 27513
Ph. (919) 677-1669 • Fax (919) 677-9846

ENCO CompQAP No.: 960038G/0

CHAIN OF CUSTODY RECORD

PROJECT REFERENCE: Site 11 Rnw NAS Pensacola – Branson
PROJECT NO.: 0380
P.O. NUMBER:
PROJECT LOC. (State): FL
SAMPLER(s) NAME: Jeff Alexander, Gary Davis
PHONE: 850 385 9899
FAX: 850 585 9860
CLIENT NAME: Tetra Tech NUS
CLIENT PROJECT MANAGER: G. Walker
CLIENT ADDRESS (CITY, STATE, ZIP): Tallahassee, FL 32312

PAGE 1 OF 1

☒ STANDARD REPORT DELIVERY
☐ EXPEDITED REPORT DELIVERY (surcharge)
Date Due: _____

SAMPLE NUMBER	DATE	TIME	GRAB	COMP	SAMPLE IDENTIFICATION	SURFACE WATER	GROUND WATER	WASTEWATER	DRINKING WATER	SOIL/SOLID/SEDIMENT	NONAQUEOUS LIQUID (oil, solvent, etc.)	AIR	SLUDGE	OTHER	PAH 8310	PRESERVATIVE	REMARKS
1	5/17/01	1135			11405B1-6to7.5'					X					1		
2		1218			11405B2-6to7'					X					1		
3		1340			11405B3-6to7'					X					1		
4		1400			11405B4-6to7'					X					1		
5		1420			11405B5-6to7'					X					1		
6		1445			11405B6-6to7'					X					1		
7		1445			11405B6D-6to7'					X					1		
8																	
9																	
10																	
11																	
12																	
13																	
14																	

SAMPLE KIT PREPARED BY: ☐ JACKSONVILLE ☒ ORLANDO	DATE 5/15/01	TIME 13:10	RELINQUISHED BY: (SIGNATURE)	DATE 5/15/01	TIME 13:10	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
RECEIVED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

RECEIVED FOR LABORATORY BY: (SIGNATURE) ☐ Jacksonville ☒ Orlando	DATE 5/18/01	TIME 14:00	CUSTODY INTACT ☒ YES ☐ NO	ENCO LOG NO. ORL 16163	REMARKS

Data + EDD attached

Tetra Tech NUS, Inc.

Internal Correspondence

TO: Mr. Gerald Walker

DATE: July 12, 2001

FROM: Suzanne I. Smith

CC: File

SUBJECT: Organic Data Validation – PAH
CTO106 – OLF Bronson
SDG ORL16385

SAMPLES: 7/Aqueous

1140M0601 1140M0101 1140M1201 1140M0501 1140M0201
1140RSB01 1140M0401

OVERVIEW

The sample set for CTO106 SDG ORL16385; Outlying Landing Field Bronson, Pensacola, Florida consists of six (6) aqueous environmental samples and one (1) rinsate blank. The samples were analyzed for Polycyclic Aromatic Hydrocarbons (PAHs).

The samples were collected by Tetra Tech NUS on June 6, 2001 and analyzed by ENCO 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 Method 8310 analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Laboratory method/field quality control blank results
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter.

PAH Fraction

Blank Analysis

Affected samples : 1140M0601

Analyte	Maximum Concentration (ug/L)	Action Limit (ug/L)
Fluoranthene	0.11	0.55

An action level of 5x the maximum concentration has been used to evaluate the sample for contamination in trip, rinsate, and preparation blanks. Dilution factors and sample aliquots were taken into consideration when evaluating for blank contamination. Results between the Method Detection Limit (MDL) and the action level are reported as nondetects.

All other quality control criteria were met for this fraction.

Executive Summary

Laboratory performance: Fluoranthene in sample 1140M0601 was qualified as a nondetect "U" due to blank contamination.

Other factors affecting data quality: No other factors affected data quality.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (February, 1996), 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 L Smith

Project Chemist
Tetra Tech NUS, Inc.

CTO106-NAS PENSACOLA
WATER DATA
ENCO LABORATORIES
SDG: ORL16385

SAMPLE NUMBER:	1140M0101			1140M0201			1140M0401			1140M0501		
SAMPLE DATE:	06/06/01			06/06/01			06/06/01			06/06/01		
LABORATORY ID:	ORL16385-2			ORL16385-5			ORL16385-7			ORL16385-4		
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	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	1	U		1	U		1	U		1	U	
2-METHYLNAPHTHALENE	1	U		1	U		1	U		1	U	
ACENAPHTHENE	0.5	U		0.5	U		0.5	U		0.5	U	
ACENAPHTHYLENE	1	U		1	U		1	U		1	U	
ANTHRACENE	0.05	U		0.05	U		0.05	U		0.05	U	
BENZO(A)ANTHRACENE	0.07	U		0.07	U		0.07	U		0.07	U	
BENZO(A)PYRENE	0.05	U		0.05	U		0.05	U		0.05		
BENZO(B)FLUORANTHENE	0.1	U		0.1	U		0.1	U		0.1	U	
BENZO(G,H,I)PERYLENE	0.1	U		0.1	U		0.1	U		0.1	U	
BENZO(K)FLUORANTHENE	0.05	U		0.05	U		0.05	U		0.05	U	
CHRYSENE	0.05	U		0.05			0.05	U		0.05		
DIBENZO(A,H)ANTHRACENE	0.1	U		0.1	U		0.1	U		0.1		
FLUORANTHENE	0.1	U		0.1	U		0.1	U		0.1	U	
FLUORENE	0.1	U		0.1	U		0.1	U		0.1	U	
INDENO(1,2,3-CD)PYRENE	0.05	U		0.05	U		0.05	U		0.05		
NAPHTHALENE	0.5	U		0.5	U		0.5	U		0.5	U	
PHENANTHRENE	1	U		1	U		1	U		1	U	
PYRENE	0.08	U		0.08	U		0.08	U		0.08	U	

CTO106-NAS PENSACOLA
WATER DATA
ENCO LABORATORIES
SDG: ORL16385

SAMPLE NUMBER:	1140M0601 ✓			1140M1201 ✓			1140RSB01 ✓					
SAMPLE DATE:	06/06/01			06/06/01			06/06/01			/ /		
LABORATORY ID:	ORL16385-1			ORL16385-3			ORL16385-6					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	0.0 %			0.0 %			0.0 %			100.0 %		
UNITS:	UG/L			UG/L			UG/L					
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	1	U		1	U		1	U				
2-METHYLNAPHTHALENE	1	U		1	U		1	U				
ACENAPHTHENE	0.5	U		0.5	U		0.5	U				
ACENAPHTHYLENE	1	U		1	U		1	U				
ANTHRACENE	0.06			0.05	U		0.05	U				
BENZO(A)ANTHRACENE	0.11			0.07	U		0.07	U				
BENZO(A)PYRENE	0.09			0.05	U		0.05	U				
BENZO(B)FLUORANTHENE	0.11			0.1	U		0.1	U				
BENZO(G,H,I)PERYLENE	0.12			0.1	U		0.1	U				
BENZO(K)FLUORANTHENE	0.1			0.05	U		0.05	U				
CHRYSENE	0.13			0.05	U		0.05	U				
DIBENZO(A,H)ANTHRACENE	0.1	U		0.1	U		0.1	U				
FLUORANTHENE	0.13	U	B	0.1	U		0.11					
FLUORENE	0.1	U		0.1	U		0.1	U				
INDENO(1,2,3-CD)PYRENE	0.09			0.05	U		0.05	U				
NAPHTHALENE	0.5	U		0.5	U		0.5	U				
PHENANTHRENE	1	U		1	U		1	U				
PYRENE	0.19			0.08	U		0.08	U				

ORL16385

HOLDING TIME
07/12/01

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	1140M0101	ORL16385-2	NORMAL	ORL16385	PAH	06/06/01	06/08/01	06/13/01	2	5	7
UG/L	1140M0201	ORL16385-5	NORMAL	ORL16385	PAH	06/06/01	06/08/01	06/13/01	2	5	7
UG/L	1140M0401	ORL16385-7	NORMAL	ORL16385	PAH	06/06/01	06/08/01	06/13/01	2	5	7
UG/L	1140M0501	ORL16385-4	NORMAL	ORL16385	PAH	06/06/01	06/08/01	06/13/01	2	5	7
UG/L	1140M0601	ORL16385-1	NORMAL	ORL16385	PAH	06/06/01	06/08/01	06/13/01	2	5	7
UG/L	1140M1201	ORL16385-3	NORMAL	ORL16385	PAH	06/06/01	06/08/01	06/13/01	2	5	7
UG/L	1140R6B01	ORL16385-6	NORMAL	ORL16385	PAH	06/06/01	06/08/01	06/14/01	2	6	8
						06/06/01	06/08/01	06/14/01	2	6	8

Environmental Conservation Laboratories, Inc.
10207 General Drive
Orlando, Florida 32824-8529
407 / 826-5314
Fax 407 / 850-6945
www.encolabs.com

ENCO Laboratories

DHRS Certification No. E83182

CLIENT : Tetra Tech NUS
ADDRESS: 1401 Oven Park Dr.
Suite 102
Tallahassee, FL 32312

REPORT # : ORL16385
DATE SUBMITTED: June 7, 2001
DATE REPORTED : June 15, 2001

ATTENTION: Gerry Walker

SAMPLE IDENTIFICATION

Samples submitted and
identified by client as:

PROJECT #: NO. 0380

NAS Pensacola 1140 NW CTO#106

06/06/01

#1 - 1140M0601 @ 09:55
#2 - 1140M0101 @ 10:05
#3 - 1140M1201 @ 11:25
#4 - 1140M0501 @ 12:30
#5 - 1140M0201 @ 12:35
#6 - 1140RSB01 @ 15:25
#7 - 1140M0401 @ 17:15

PROJECT MANAGER _____
Marcia C. Terlep

Environmental Conservation Laboratories, Inc.
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Orlando, Florida 32824-8529
407 / 826-5314
Fax 407 / 850-6945
www.encolabs.com

ENCO Laboratories

DHRS Certification No. E83182

CASE NARRATIVE

Date: June 25, 2001

Client: Tetra Tech NUS

Project #: NAS Pensacola-1140NW CTO#106

Lab ID: ORL16385

Overview

All samples submitted were analyzed by Environmental Conservation Laboratories, Inc. in accordance with the methods referenced in the laboratory report. Any particular difficulties encountered during sample handling by Environmental Conservation Laboratories, Inc. will be discussed in the QC Remarks section below.

Quality Control Samples
RPD exceeded the upper limit for the target analyte acenapthene. However, recovery of acenapthene in the matrix spike and duplicate were within laboratory specified limits. Results were validated based on this acceptable recovery in both QC samples in addition to the Laboratory Control Sample (LCS).

Quality Control Remarks
No discrepancies noted. All surrogate recoveries met acceptance criteria.

Other Comments
The analytical data presented in this report are consistent with the methods as referenced in the analytical report. Any exceptions or deviations are noted in the QC remarks section of this narrative. Should there be any questions regarding this package, please feel free to contact the undersigned for additional information.

Released By:

Environmental Conservation Laboratories, Inc.

Matthew Foti, Ph.D.
Laboratory Manager

ENCO LABORATORIES
REPORT # : ORL16385
DATE REPORTED: June 15, 2001
REFERENCE : NO. 0380
PROJECT NAME : NAS Pensacola
1140 NW CTO#106

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140M0601	Units
Naphthalene	0.50 U	µg/L
Acenaphthylene	1.0 U	µg/L
1-Methylnaphthalene	1.0 U	µg/L
2-Methylnaphthalene	1.0 U	µg/L
Acenaphthene	0.50 U	µg/L
Fluorene	0.10 U	µg/L
Phenanthrene	1.0 U	µg/L
Anthracene	0.060	µg/L
Fluoranthene	0.13	µg/L
Pyrene	0.19	µg/L
Benzo(a)anthracene	0.11	µg/L
Chrysene	0.13	µg/L
Benzo(b)fluoranthene	0.11	µg/L
Benzo(k)fluoranthene	0.10	µg/L
Benzo(a)pyrene	0.090	µg/L
Dibenzo(a,h)anthracene	0.10 U	µg/L
Benzo(g,h,i)perylene	0.12	µg/L
Indeno(1,2,3-cd)pyrene	0.090	µg/L
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	5.62	µg/L
Surrogate Expected Value	5.0	µg/L
Surrogate % Recovery	112	%
Surrogate Control Limits	39-148	%
Date Prepared	06/08/01	
Date Analyzed	06/13/01 14:52	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16385
DATE REPORTED: June 15, 2001
REFERENCE : NO. 0380
PROJECT NAME : NAS Pensacola
1140 NW CTO#106

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140M0101	Units
Naphthalene	0.50 U	µg/L
Acenaphthylene	1.0 U	µg/L
1-Methylnaphthalene	1.0 U	µg/L
2-Methylnaphthalene	1.0 U	µg/L
Acenaphthene	0.50 U	µg/L
Fluorene	0.10 U	µg/L
Phenanthrene	1.0 U	µg/L
Anthracene	0.050 U	µg/L
Fluoranthene	0.10 U	µg/L
Pyrene	0.080 U	µg/L
Benzo(a)anthracene	0.070 U	µg/L
Chrysene	0.050 U	µg/L
Benzo(b)fluoranthene	0.10 U	µg/L
Benzo(k)fluoranthene	0.050 U	µg/L
Benzo(a)pyrene	0.050 U	µg/L
Dibenzo(a,h)anthracene	0.10 U	µg/L
Benzo(g,h,i)perylene	0.10 U	µg/L
Indeno(1,2,3-cd)pyrene	0.050 U	µg/L
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	4.54	µg/L
Surrogate Expected Value	5.0	µg/L
Surrogate % Recovery	91	%
Surrogate Control Limits	39-148	%
Date Prepared	06/08/01	
Date Analyzed	06/13/01 15:23	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16385
DATE REPORTED: June 15, 2001
REFERENCE : NO. 0380
PROJECT NAME : NAS Pensacola
1140 NW CTO#106

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140M1201	Units
Naphthalene	0.50 U	µg/L
Acenaphthylene	1.0 U	µg/L
1-Methylnaphthalene	1.0 U	µg/L
2-Methylnaphthalene	1.0 U	µg/L
Acenaphthene	0.50 U	µg/L
Fluorene	0.10 U	µg/L
Phenanthrene	1.0 U	µg/L
Anthracene	0.050 U	µg/L
Fluoranthene	0.10 U	µg/L
Pyrene	0.080 U	µg/L
Benzo(a)anthracene	0.070 U	µg/L
Chrysene	0.050 U	µg/L
Benzo(b)fluoranthene	0.10 U	µg/L
Benzo(k)fluoranthene	0.050 U	µg/L
Benzo(a)pyrene	0.050 U	µg/L
Dibenzo(a,h)anthracene	0.10 U	µg/L
Benzo(g,h,i)perylene	0.10 U	µg/L
Indeno(1,2,3-cd)pyrene	0.050 U	µg/L
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	5.34	µg/L
Surrogate Expected Value	5.0	µg/L
Surrogate % Recovery	107	%
Surrogate Control Limits	39-148	%
Date Prepared	06/08/01	
Date Analyzed	06/14/01 11:32	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16385
DATE REPORTED: June 15, 2001
REFERENCE : NO. 0380
PROJECT NAME : NAS Pensacola
1140 NW CTO#106

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140M0501	Units
Naphthalene	0.50 U	µg/L
Acenaphthylene	1.0 U	µg/L
1-Methylnaphthalene	1.0 U	µg/L
2-Methylnaphthalene	1.0 U	µg/L
Acenaphthene	0.50 U	µg/L
Fluorene	0.10 U	µg/L
Phenanthrene	1.0 U	µg/L
Anthracene	0.050 U	µg/L
Fluoranthene	0.10 U	µg/L
Pyrene	0.080 U	µg/L
Benzo(a)anthracene	0.070 U	µg/L
Chrysene	**0.060**	µg/L
Benzo(b)fluoranthene	0.10 U	µg/L
Benzo(k)fluoranthene	0.050 U	µg/L
Benzo(a)pyrene	**0.050**	µg/L
Dibenzo(a,h)anthracene	**0.10**	µg/L
Benzo(g,h,i)perylene	0.10 U	µg/L
Indeno(1,2,3-cd)pyrene	**0.090**	µg/L
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	3.42	µg/L
Surrogate Expected Value	5.0	µg/L
Surrogate % Recovery	68	%
Surrogate Control Limits	39-148	%
Date Prepared	06/08/01	
Date Analyzed	06/13/01 16:25	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16385
DATE REPORTED: June 15, 2001
REFERENCE : NO. 0380
PROJECT NAME : NAS Pensacola
1140 NW CTO#106

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140M0201	Units
Naphthalene	0.50 U	µg/L
Acenaphthylene	1.0 U	µg/L
1-Methylnaphthalene	1.0 U	µg/L
2-Methylnaphthalene	1.0 U	µg/L
Acenaphthene	0.50 U	µg/L
Fluorene	0.10 U	µg/L
Phenanthrene	1.0 U	µg/L
Anthracene	0.050 U	µg/L
Fluoranthene	0.10 U	µg/L
Pyrene	0.080 U	µg/L
Benzo(a)anthracene	0.070 U	µg/L
Chrysene	0.050	µg/L
Benzo(b)fluoranthene	0.10 U	µg/L
Benzo(k)fluoranthene	0.050 U	µg/L
Benzo(a)pyrene	0.050 U	µg/L
Dibenzo(a,h)anthracene	0.10 U	µg/L
Benzo(g,h,i)perylene	0.10 U	µg/L
Indeno(1,2,3-cd)pyrene	0.050 U	µg/L
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	3.45	µg/L
Surrogate Expected Value	5.0	µg/L
Surrogate % Recovery	69	%
Surrogate Control Limits	39-148	%
Date Prepared	06/08/01	
Date Analyzed	06/13/01 16:57	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16385
DATE REPORTED: June 15, 2001
REFERENCE : NO. 0380
PROJECT NAME : NAS Pensacola
1140 NW CTO#106

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140RSB01	Units
Naphthalene	0.50 U	µg/L
Acenaphthylene	1.0 U	µg/L
1-Methylnaphthalene	1.0 U	µg/L
2-Methylnaphthalene	1.0 U	µg/L
Acenaphthene	0.50 U	µg/L
Fluorene	0.10 U	µg/L
Phenanthrene	1.0 U	µg/L
Anthracene	0.050 U	µg/L
Fluoranthene	0.11	µg/L
Pyrene	0.080 U	µg/L
Benzo(a)anthracene	0.070 U	µg/L
Chrysene	0.050 U	µg/L
Benzo(b)fluoranthene	0.10 U	µg/L
Benzo(k)fluoranthene	0.050 U	µg/L
Benzo(a)pyrene	0.050 U	µg/L
Dibenzo(a,h)anthracene	0.10 U	µg/L
Benzo(g,h,i)perylene	0.10 U	µg/L
Indeno(1,2,3-cd)pyrene	0.050 U	µg/L
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	2.79	µg/L
Surrogate Expected Value	5.0	µg/L
Surrogate % Recovery	56	%
Surrogate Control Limits	39-148	%
Date Prepared	06/08/01	
Date Analyzed	06/14/01 12:03	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16385
DATE REPORTED: June 15, 2001
REFERENCE : NO. 0380
PROJECT NAME : NAS Pensacola
1140 NW CTO#106

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140M0401	Units
Naphthalene	0.50 U	µg/L
Acenaphthylene	1.0 U	µg/L
1-Methylnaphthalene	1.0 U	µg/L
2-Methylnaphthalene	1.0 U	µg/L
Acenaphthene	0.50 U	µg/L
Fluorene	0.10 U	µg/L
Phenanthrene	1.0 U	µg/L
Anthracene	0.050 U	µg/L
Fluoranthene	0.10 U	µg/L
Pyrene	0.080 U	µg/L
Benzo(a)anthracene	0.070 U	µg/L
Chrysene	0.050 U	µg/L
Benzo(b)fluoranthene	0.10 U	µg/L
Benzo(k)fluoranthene	0.050 U	µg/L
Benzo(a)pyrene	0.050 U	µg/L
Dibenzo(a,h)anthracene	0.10 U	µg/L
Benzo(g,h,i)perylene	0.10 U	µg/L
Indeno(1,2,3-cd)pyrene	0.050 U	µg/L
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	4.69	µg/L
Surrogate Expected Value	5.0	µg/L
Surrogate % Recovery	94	%
Surrogate Control Limits	39-148	%
Date Prepared	06/08/01	
Date Analyzed	06/13/01 18:30	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16385
DATE REPORTED: June 15, 2001
REFERENCE : NO. 0380
PROJECT NAME : NAS Pensacola
1140 NW CTO#106

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	LAB BLANK	Units
Naphthalene	0.50 U	µg/L
Acenaphthylene	1.0 U	µg/L
1-Methylnaphthalene	1.0 U	µg/L
2-Methylnaphthalene	1.0 U	µg/L
Acenaphthene	0.50 U	µg/L
Fluorene	0.10 U	µg/L
Phenanthrene	1.0 U	µg/L
Anthracene	0.050 U	µg/L
Fluoranthene	0.10 U	µg/L
Pyrene	0.080 U	µg/L
Benzo(a)anthracene	0.070 U	µg/L
Chrysene	0.050 U	µg/L
Benzo(b)fluoranthene	0.10 U	µg/L
Benzo(k)fluoranthene	0.050 U	µg/L
Benzo(a)pyrene	0.050 U	µg/L
Dibenzo(a,h)anthracene	0.10 U	µg/L
Benzo(g,h,i)perylene	0.10 U	µg/L
Indeno(1,2,3-cd)pyrene	0.050 U	µg/L
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	4.82	µg/L
Surrogate Expected Value	5.0	µg/L
Surrogate % Recovery	96	%
Surrogate Control Limits	39-148	%
Date Prepared	06/08/01	
Date Analyzed	06/13/01 12:17	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16385
DATE REPORTED: June 15, 2001
REFERENCE : NO. 0380
PROJECT NAME : NAS Pensacola
1140 NW CTO#106

QUALITY CONTROL DATA

Parameter	% RECOVERY MS/MSD/LCS	LCS Target µg	ACCEPT LIMITS	% RPD MS/MSD	ACCEPT LIMITS
EPA Method 8310					
Naphthalene	82/ 69/ 57	10	33-143	17	20
Acenaphthene	89/ 72/104	10	14-163	21 *	19
Benzo(a)pyrene	87/ 74/ 81	1	33-137	16	36
Benzo(g,h,i)perylene	67/ 68/ 99	2	36-135	1	34

Environmental Conservation Laboratories Comprehensive QA Plan #960038

* = Data does not meet established RPD criteria. MS/MSD fall within acceptable criteria established by laboratory.
< = Less Than
MS = Matrix Spike
MSD = Matrix Spike Duplicate
LCS = Laboratory Control Standard
RPD = Relative Percent Difference

This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.

ENVIRONMENTAL CONSERVATION LABORATORIES

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Orlando, Florida 32824-8529
Ph. (407) 826-5314 • Fax (407) 850-6945

1015 Passport Way
Cary, North Carolina 27513
Ph. (919) 677-1669 • Fax (919) 677-9846

ENCO CompQAP No.: 960038G/0

CHAIN OF CUSTODY RECORD

PROJECT REFERENCE: NAS Pensacola 1140NW
PROJECT NO.: 0380
P.O. NUMBER:
PROJECT LOC. (State): FL
SAMPLER(s) NAME: J. Alexander, G. Davis
PHONE: 850 385 9899
FAX: 850 385 9860
CLIENT NAME: Tetra Tech NUS, Inc.
CLIENT PROJECT MANAGER: G. Walker
CLIENT ADDRESS (CITY, STATE, ZIP): 1401 Oven Park Dr., Tallahassee FL 32308

PAGE ___ OF ___

☐ STANDARD REPORT DELIVERY
☐ EXPEDITED REPORT DELIVERY (surcharge)
Date Due: ___

MATRIX TYPE: SURFACE WATER, GROUND WATER, WASTEWATER, DRINKING WATER, SOIL/SOLID/SEDIMENT, NONAQUEOUS LIQUID (oil, solvent, etc), AIR, SLUDGE, OTHER

REQUIRED ANALYSIS: PAH 8310

PRESERVATIVE / NUMBER OF CONTAINERS SUBMITTED

STATION	DATE	TIME	GRAB	COMP	SAMPLE IDENTIFICATION	OTHER	REMARKS
1		0955			1140M06Ø1	1	
2		1005			1140M01Ø1	1	
3		1125			1140M12Ø1	1	
4		1230			1140M05Ø1	1	
5		1235			1140M02Ø1	1	
6		1525			1140RSBØ1	1	
7		1715			1140M04Ø1	1	RINSATE
8							
9							
10							
11							
12							
13							
14							

SAMPLE KIT PREPARED BY: ☐ JACKSONVILLE ☒ ORLANDO — DATE 5-31-01 TIME 14:20

RELINQUISHED BY: (SIGNATURE) R. Kelley — DATE 5-31-01 TIME 14:20

RECEIVED BY: (SIGNATURE) — DATE ___ TIME ___

RELINQUISHED BY: (SIGNATURE) — DATE 6/4/01 TIME 1745

RECEIVED BY: (SIGNATURE) — DATE ___ TIME ___

RELINQUISHED BY: (SIGNATURE) — DATE ___ TIME ___

RECEIVED BY: (SIGNATURE) — DATE ___ TIME ___

RECEIVED FOR LABORATORY BY: (SIGNATURE) Dana Heuamann — ☐ Jacksonville ☒ Orlando — DATE 6/7/01 TIME 9:15

CUSTODY INTACT: ☒ YES ☐ NO

ENCO LOG NO.: ORL-16385

REMARKS:

EDD + Data attached

Tetra Tech NUS, Inc. **Internal Correspondence**

TO:	**Mr. Gerald Walker**	**DATE:**	**July 18, 2001**
FROM:	**Suzanne I. Smith**	**CC:**	**File**
SUBJECT:	**Organic Data Validation – PAH CTO106 – OLF Bronson SDG ORL16369**		
SAMPLES:	**6/Aqueous**		

1140M0301 1140M0801 1140M0901 1140M0D01 1140M1101 1140M1301

OVERVIEW

The sample set for CTO106 SDG ORL16369; Outlying Landing Field Bronson, Pensacola, Florida consists of six (6) aqueous environmental samples. The samples were analyzed for Polycyclic Aromatic Hydrocarbons (PAHs). One set of duplicates is associated with this SDG : 1140M0301/1140M0D01

The samples were collected by Tetra Tech NUS on June 5, 2001 and analyzed by ENCO 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 Method 8310 analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Laboratory method/field quality control blank results
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter.

PAH Fraction

All quality control criteria were met for this fraction.

Field Duplicate Summary

Analyte	1140M0301 (ug/L)	1140M0D01 (ug/L)	%RPD
1-methylnaphthalene	100	110	9.5
2-methylnaphthalene	31	33	6.2
Fluorene	9	9	0
Naphthalene	ND	10	NA

No action was taken based on field duplicate analysis.

Executive Summary

Laboratory performance: All quality control criteria were met for this fraction.

Other factors affecting data quality: No other factors affected data quality.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (February, 1996), 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.

CTO106-NAS PENSACOLA
WATER DATA
ENCO LABORATORIES
SDG: ORL16369

SAMPLE NUMBER:	1140M0301			1140M0601			1140M0901			1140MDD01		
SAMPLE DATE:	06/05/01			06/05/01			06/05/01			06/05/01		
LABORATORY ID:	ORL16369-5			ORL16369-2			ORL16369-4			ORL16369-6		
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	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	100			46			1	U		110		
2-METHYLNAPHTHALENE	31			10	U		5			33		
ACENAPHTHENE	5	U		5	U		0.5	U		5	U	
ACENAPHTHYLENE	10	U		10	U		6.6			10	U	
ANTHRACENE	0.5	U		0.8			0.05	U		0.5	U	
BENZO(A)ANTHRACENE	0.7	U		0.7	U		0.07	U		0.7	U	
BENZO(A)PYRENE	0.5	U		0.5	U		0.05	U		0.5	U	
BENZO(B)FLUORANTHENE	1	U		1	U		0.1	U		1	U	
BENZO(G,H,I)PERYLENE	1	U		1	U		0.1	U		1	U	
BENZO(K)FLUORANTHENE	0.5	U		0.5	U		0.05	U		0.5	U	
CHRYSENE	0.5	U		0.5	U		0.05	U		0.5	U	
DIBENZO(A,H)ANTHRACENE	1	U		1	U		0.1	U		1	U	
FLUORANTHENE	1	U		1.8			0.1	U		1	U	
FLUORENE	9			6			3.4			9		
INDENO(1,2,3-CD)PYRENE	0.5	U		0.5	U		0.05	U		0.5	U	
NAPHTHALENE	5	U		22			5			10		
PHENANTHRENE	10	U		10	U		1			10	U	
PYRENE	0.5	U		0.5	U		0.05	U		0.5	U	

CTO106-NAS PENSACOLA
WATER DATA
ENCO LABORATORIES
SDG: ORL16369

SAMPLE NUMBER:	1140M1101	1140M1301	/ /	/ /
SAMPLE DATE:	06/05/01	06/05/01		
LABORATORY ID:	ORL16369-3	ORL16369-1		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	0.0 %	0.0 %	100.0 %	100.0 %
UNITS:	UG/L	UG/L		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	1	U		14								
2-METHYLNAPHTHALENE	1	U		16								
ACENAPHTHENE	0.5	U		0.5	U							
ACENAPHTHYLENE	1	U		1	U							
ANTHRACENE	0.05	U		0.05	U							
BENZO(A)ANTHRACENE	0.07	U		0.07	U							
BENZO(A)PYRENE	0.05	U		0.05	U							
BENZO(B)FLUORANTHENE	0.1	U		0.1	U							
BENZO(G,H,I)PERYLENE	0.1	U		0.1	U							
BENZO(K)FLUORANTHENE	0.05	U		0.05	U							
CHRYSENE	0.05	U		0.05	U							
DIBENZO(A,H)ANTHRACENE	0.1	U		0.1	U							
FLUORANTHENE	0.1	U		0.1	U							
FLUORENE	0.1	U		4.1								
INDENO(1,2,3-CD)PYRENE	0.05	U		0.05	U							
NAPHTHALENE	0.5	U		12								
PHENANTHRENE	1	U		1.6								
PYRENE	0.08	U		0.08	U							

ORL16369

HOLDING TIME

07/16/01

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	1140M03D1	ORL16369-5	NORMAL	ORL16369	PAH	06/05/01	06/06/01	06/11/01	1	5	6
UG/L	1140M09D1	ORL16369-2	NORMAL	ORL16369	PAH	06/05/01	06/06/01	06/11/01	1	5	6
UG/L	1140M09D1	ORL16369-4	NORMAL	ORL16369	PAH	06/05/01	06/06/01	06/08/01	1	2	3
UG/L	1140M0D01	ORL16369-6	NORMAL	ORL16369	PAH	06/05/01	06/06/01	06/11/01	1	5	6
UG/L	1140M1101	ORL16369-3	NORMAL	ORL16369	PAH	06/05/01	06/06/01	06/08/01	1	2	3
UG/L	1140M1301	ORL16369-1	NORMAL	ORL16369	PAH	06/05/01	06/06/01	06/08/01	1	2	3

Environmental Conservation Laboratories, Inc.
10207 General Drive
Orlando, Florida 32824-8529
407 / 826-5314
Fax 407 / 850-6945
www.encolabs.com

ENCO Laboratories

DHRS Certification No. E83182

CLIENT : Tetra Tech NUS
ADDRESS: 1401 Oven Park Dr.
Suite 102
Tallahassee, FL 32312

REPORT # : ORL16369
DATE SUBMITTED: June 6, 2001
DATE REPORTED : June 12, 2001

ATTENTION: Gerry Walker

SAMPLE IDENTIFICATION

Samples submitted and
identified by client as:

PROJECT #: NAS PENSACOLA-1140NW

0380

06/05/01

#1 - 1140M1301 @ 11:50
#2 - 1140M0801 @ 12:05
#3 - 1140M1101 @ 12:15
#4 - 1140M0901 @ 14:55
#5 - 1140M0301 @ 16:00
#6 - 1140M0D01 @ 00:00

PROJECT MANAGER _____
Marcia C. Terlep

Environmental Conservation Laboratories, Inc.
10207 General Drive
Orlando, Florida 32824-8529
407 / 826-5314
Fax 407 / 850-6945
www.encolabs.com

ENCO Laboratories

DHRS Certification No. E83182

CASE NARRATIVE

Date: June 25, 2001

Client: Tetra Tech NUS

Project #: NAS Pensacola-1140NW CTO#106

Lab ID: ORL16369

Overview

All samples submitted were analyzed by Environmental Conservation Laboratories, Inc. in accordance with the methods referenced in the laboratory report. Any particular difficulties encountered during sample handling by Environmental Conservation Laboratories, Inc. will be discussed in the QC Remarks section below.

Quality Control Samples
No discrepancies noted. All QC (MS/MSD/LCS) met acceptance criteria.

Quality Control Remarks
No discrepancies noted. All surrogate recoveries met acceptance criteria.

Other Comments
The analytical data presented in this report are consistent with the methods as referenced in the analytical report. Any exceptions or deviations are noted in the QC remarks section of this narrative. Should there be any questions regarding this package, please feel free to contact the undersigned for additional information.

Released By:

Environmental Conservation Laboratories, Inc.

Matthew Foti, Ph.D.
Laboratory Manager

ENCO LABORATORIES
REPORT # : ORL16369
DATE REPORTED: June 12, 2001
REFERENCE : NAS PENSACOLA-1140NW
PROJECT NAME : 0380

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140M1301	Units
Naphthalene	12	µg/L
Acenaphthylene	1.0 U	µg/L
1-Methylnaphthalene	14	µg/L
2-Methylnaphthalene	16	µg/L
Acenaphthene	0.50 U	µg/L
Fluorene	4.1	µg/L
Phenanthrene	1.6	µg/L
Anthracene	0.050 U	µg/L
Fluoranthene	0.10 U	µg/L
Pyrene	0.080 U	µg/L
Benzo(a)anthracene	0.070 U	µg/L
Chrysene	0.050 U	µg/L
Benzo(b)fluoranthene	0.10 U	µg/L
Benzo(k)fluoranthene	0.050 U	µg/L
Benzo(a)pyrene	0.050 U	µg/L
Dibenzo(a,h)anthracene	0.10 U	µg/L
Benzo(g,h,i)perylene	0.10 U	µg/L
Indeno(1,2,3-cd)pyrene	0.050 U	µg/L
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	5.05	µg/L
Surrogate Expected Value	5.0	µg/L
Surrogate % Recovery	101	%
Surrogate Control Limits	39-148	%
Date Extracted	06/06/01	
Date Analyzed	06/08/01 00:12	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16369
DATE REPORTED: June 12, 2001
REFERENCE : NAS PENSACOLA-1140NW
PROJECT NAME : 0380

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140M0801			Units
Naphthalene	22		D1	µg/L
Acenaphthylene	10	U	D1	µg/L
1-Methylnaphthalene	45		D1	µg/L
2-Methylnaphthalene	10	U	D1	µg/L
Acenaphthene	5.0	U	D1	µg/L
Fluorene	8.0		D1	µg/L
Phenanthrene	10	U	D1	µg/L
Anthracene	0.60		D1	µg/L
Fluoranthene	1.8		D1	µg/L
Pyrene	0.80	U	D1	µg/L
Benzo(a)anthracene	0.70	U	D1	µg/L
Chrysene	0.50	U	D1	µg/L
Benzo(b)fluoranthene	1.0	U	D1	µg/L
Benzo(k)fluoranthene	0.50	U	D1	µg/L
Benzo(a)pyrene	0.50	U	D1	µg/L
Dibenzo(a,h)anthracene	1.0	U	D1	µg/L
Benzo(g,h,i)perylene	1.0	U	D1	µg/L
Indeno(1,2,3-cd)pyrene	0.50	U	D1	µg/L
Surrogate: (p-Terphenyl)				
Surrogate Reported Value	5.05			µg/L
Surrogate Expected Value	5.0			µg/L
Surrogate % Recovery	101			%
Surrogate Control Limits	39-148			%
Date Extracted	06/06/01			
Date Analyzed	06/11/01 20:14			

U = Compound was analyzed for but not detected to the level shown.
D1 = Analyte value determined from a 1:10 dilution.

ENCO LABORATORIES
REPORT # : ORL16369
DATE REPORTED: June 12, 2001
REFERENCE : NAS PENSACOLA-1140NW
PROJECT NAME : 0380

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140M1101	Units
Naphthalene	0.50 U	µg/L
Acenaphthylene	1.0 U	µg/L
1-Methylnaphthalene	1.0 U	µg/L
2-Methylnaphthalene	1.0 U	µg/L
Acenaphthene	0.50 U	µg/L
Fluorene	0.10 U	µg/L
Phenanthrene	1.0 U	µg/L
Anthracene	0.050 U	µg/L
Fluoranthene	0.10 U	µg/L
Pyrene	0.080 U	µg/L
Benzo(a)anthracene	0.070 U	µg/L
Chrysene	0.050 U	µg/L
Benzo(b)fluoranthene	0.10 U	µg/L
Benzo(k)fluoranthene	0.050 U	µg/L
Benzo(a)pyrene	0.050 U	µg/L
Dibenzo(a,h)anthracene	0.10 U	µg/L
Benzo(g,h,i)perylene	0.10 U	µg/L
Indeno(1,2,3-cd)pyrene	0.050 U	µg/L
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	5.50	µg/L
Surrogate Expected Value	5.0	µg/L
Surrogate % Recovery	110	%
Surrogate Control Limits	39-148	%
Date Extracted	06/06/01	
Date Analyzed	06/08/01 01:14	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16369
DATE REPORTED: June 12, 2001
REFERENCE : NAS PENSACOLA-1140NW
PROJECT NAME : 0380

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140M0901	Units
Naphthalene	5.0	µg/L
Acenaphthylene	6.6	µg/L
1-Methylnaphthalene	1.0 U	µg/L
2-Methylnaphthalene	5.0	µg/L
Acenaphthene	0.50 U	µg/L
Fluorene	3.4	µg/L
Phenanthrene	1.0	µg/L
Anthracene	0.050 U	µg/L
Fluoranthene	0.10 U	µg/L
Pyrene	0.080 U	µg/L
Benzo(a)anthracene	0.070 U	µg/L
Chrysene	0.050 U	µg/L
Benzo(b)fluoranthene	0.10 U	µg/L
Benzo(k)fluoranthene	0.050 U	µg/L
Benzo(a)pyrene	0.050 U	µg/L
Dibenzo(a,h)anthracene	0.10 U	µg/L
Benzo(g,h,i)perylene	0.10 U	µg/L
Indeno(1,2,3-cd)pyrene	0.050 U	µg/L
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	5.55	µg/L
Surrogate Expected Value	5.0	µg/L
Surrogate % Recovery	111	%
Surrogate Control Limits	39-148	%
Date Extracted	06/06/01	
Date Analyzed	06/08/01 01:46	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16369
DATE REPORTED: June 12, 2001
REFERENCE : NAS PENSACOLA-1140NW
PROJECT NAME : 0380

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140M0301			Units
Naphthalene	5.0	U	D1	µg/L
Acenaphthylene	10	U	D1	µg/L
1-Methylnaphthalene	100		D1	µg/L
2-Methylnaphthalene	31		D1	µg/L
Acenaphthene	5.0	U	D1	µg/L
Fluorene	9.0		D1	µg/L
Phenanthrene	10	U	D1	µg/L
Anthracene	0.50	U	D1	µg/L
Fluoranthene	1.0	U	D1	µg/L
Pyrene	0.80	U	D1	µg/L
Benzo(a)anthracene	0.70	U	D1	µg/L
Chrysene	0.50	U	D1	µg/L
Benzo(b)fluoranthene	1.0	U	D1	µg/L
Benzo(k)fluoranthene	0.50	U	D1	µg/L
Benzo(a)pyrene	0.50	U	D1	µg/L
Dibenzo(a,h)anthracene	1.0	U	D1	µg/L
Benzo(g,h,i)perylene	1.0	U	D1	µg/L
Indeno(1,2,3-cd)pyrene	0.50	U	D1	µg/L
Surrogate: (p-Terphenyl)				
Surrogate Reported Value	4.3			µg/L
Surrogate Expected Value	5.0			µg/L
Surrogate % Recovery	86			%
Surrogate Control Limits	39-148			%
Date Extracted	06/06/01			
Date Analyzed	06/11/01 20:45			

U = Compound was analyzed for but not detected to the level shown.
D1 = Analyte value determined from a 1:10 dilution.

ENCO LABORATORIES
REPORT # : ORL16369
DATE REPORTED: June 12, 2001
REFERENCE : NAS PENSACOLA-1140NW
PROJECT NAME : 0380

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140M0D01			Units
Naphthalene	10		D1	µg/L
Acenaphthylene	10	U	D1	µg/L
1-Methylnaphthalene	110		D1	µg/L
2-Methylnaphthalene	33		D1	µg/L
Acenaphthene	5.0	U	D1	µg/L
Fluorene	9.0		D1	µg/L
Phenanthrene	10	U	D1	µg/L
Anthracene	0.50	U	D1	µg/L
Fluoranthene	1.0	U	D1	µg/L
Pyrene	0.80	U	D1	µg/L
Benzo(a)anthracene	0.70	U	D1	µg/L
Chrysene	0.50	U	D1	µg/L
Benzo(b)fluoranthene	1.0	U	D1	µg/L
Benzo(k)fluoranthene	0.50	U	D1	µg/L
Benzo(a)pyrene	0.50	U	D1	µg/L
Dibenzo(a,h)anthracene	1.0	U	D1	µg/L
Benzo(g,h,i)perylene	1.0	U	D1	µg/L
Indeno(1,2,3-cd)pyrene	0.50	U	D1	µg/L
Surrogate: (p-Terphenyl)				
Surrogate Reported Value	4.3			µg/L
Surrogate Expected Value	5.0			µg/L
Surrogate % Recovery	86			%
Surrogate Control Limits	39-148			%
Date Extracted	06/06/01			
Date Analyzed	06/11/01 21:16			

U = Compound was analyzed for but not detected to the level shown.
D1 = Analyte value determined from a 1:10 dilution.

ENCO LABORATORIES
REPORT # : ORL16369
DATE REPORTED: June 12, 2001
REFERENCE : NAS PENSACOLA-1140NW
PROJECT NAME : 0380

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	LAB BLANK	Units
Naphthalene	0.50 U	µg/L
Acenaphthylene	1.0 U	µg/L
1-Methylnaphthalene	1.0 U	µg/L
2-Methylnaphthalene	1.0 U	µg/L
Acenaphthene	0.50 U	µg/L
Fluorene	0.10 U	µg/L
Phenanthrene	1.0 U	µg/L
Anthracene	0.050 U	µg/L
Fluoranthene	0.10 U	µg/L
Pyrene	0.080 U	µg/L
Benzo(a)anthracene	0.070 U	µg/L
Chrysene	0.050 U	µg/L
Benzo(b)fluoranthene	0.10 U	µg/L
Benzo(k)fluoranthene	0.050 U	µg/L
Benzo(a)pyrene	0.050 U	µg/L
Dibenzo(a,h)anthracene	0.10 U	µg/L
Benzo(g,h,i)perylene	0.10 U	µg/L
Indeno(1,2,3-cd)pyrene	0.050 U	µg/L
Surrogate: (p-Terphenyl)		
Surrogate Reported Value	4.75	µg/L
Surrogate Expected Value	5.0	µg/L
Surrogate % Recovery	95	%
Surrogate Control Limits	39-148	%
Date Extracted	06/06/01	
Date Analyzed	06/07/01 20:03	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : ORL16369
DATE REPORTED: June 12, 2001
REFERENCE : NAS PENSACOLA-1140NW
PROJECT NAME : 0380

QUALITY CONTROL DATA

Parameter	% RECOVERY MS/MSD/LCS	LCS Target µg	ACCEPT LIMITS	% RPD MS/MSD	ACCEPT LIMITS
EPA Method 8310					
Naphthalene	82/ 88/ 86	10	33-143	7	20
Acenaphthene	74/ 79/ 78	10	14-163	6	19
Benzo(a)pyrene	82/ 87/ 85	1	33-137	6	36
Benzo(g,h,i)perylene	88/ 94/ 91	2	36-135	6	34

Environmental Conservation Laboratories Comprehensive QA Plan #960038

< = Less Than
MS = Matrix Spike
MSD = Matrix Spike Duplicate
LCS = Laboratory Control Standard
RPD = Relative Percent Difference

This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.

QSARF # P1406C

ENVIRONMENTAL CONSERVATION LABORATORIES

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Ph. (407) 826-5314 • Fax (407) 850-6945

1015 Passport Way
Cary, North Carolina 27513
Ph. (919) 677-1669 • Fax (919) 677-9846

ENCO CompQAP No.: 960038G/0

CHAIN OF CUSTODY RECORD

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
NAS Pensacola - 1140NW	0380	

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE	FAX
FL	J. Alexander, G. Davis	850 385 9899	850 385 9860

CLIENT NAME	CLIENT PROJECT MANAGER
Tetra Tech NUS, Inc.	G. Walker

CLIENT ADDRESS (CITY, STATE, ZIP): 1401 Owen Park Dr. Ste 102 Tall. FL 32308

MATRIX TYPE: SURFACE WATER, GROUND WATER, WASTEWATER, DRINKING WATER, SOIL/SOLID/SEDIMENT, NONAQUEOUS LIQUID (list solvent, oil), AIR, SLUDGE, OTHER

REQUIRED ANALYSIS: PAH-8310

PAGE ___ OF ___

☐ STANDARD REPORT DELIVERY

☐ EXPEDITED REPORT DELIVERY (surcharge)

Date Due: ___

PRESERVATIVE

NUMBER OF CONTAINERS SUBMITTED

SAMPLE TIME	DATE	TIME	COMP	GRAB	SAMPLE IDENTIFICATION	SURFACE WATER	GROUND WATER	WASTEWATER	DRINKING WATER	SOIL/SOLID/SEDIMENT	NONAQUEOUS LIQUID	AIR	SLUDGE	OTHER	PAH-8310								REMARKS
1	6/5/01	1150			1140M1301	X									1								
2	↓	1205			1140M0801	X									1								
3		1215			1140M0501	X									1								
4		1400			1140M0901	X									1								
5		1600			1140M0301	X									1								
6	↓	0000			1140M0D01	X									1								
7																							
8																							
9																							
10																							
11																							
12																							
13																							
14																							

SAMPLE KIT PREPARED BY:	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
☐ JACKSONVILLE ☒ ORLANDO	5-30-01	15:20	K. Lelux	5-30-01	15:20			

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	6/5/01	1800						

RECEIVED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	ENCO LOG NO.	REMARKS
Dana Eccaman ☐ Jacksonville ☒ Orlando	6/6/01	10:00	☒ YES ☐ NO	01-16369	