

N00204.AR.004965
NAS PENSACOLA
5090.3a

SUPPLEMENTAL SITE ASSESSMENT SAMPLING LETTER REPORT FOR SITE 1140NW
OUTLYING LANDING FIELD BRONSON NAS PENSACOLA FL
07/30/2001
TETRA TECH INC



TETRA TECH NUS, INC.

1401 Oven Park Drive • Suite 102 • Tallahassee, FL 32312
(850) 385-9899 • FAX (850) 385-9860 • www.tetrattech.com

July 30, 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 FDEP's 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 ($\mu\text{g/L}$), respectively. 1-Methylnaphthalene and 2-methylnaphthalene were detected in contaminated monitoring well MW-3 at concentrations of 100 and 31 $\mu\text{g/L}$, respectively and its duplicate at 110 and 33 $\mu\text{g/L}$, respectively. The FDEP GCTLs for each of these analytes is 20 $\mu\text{g/L}$.

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 $\mu\text{g/L}$ 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 $\mu\text{g/L}$ 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.

Mr. Joe Fugitt
FDEP
July 30, 2001 - Page 3

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-methylnaphthalene, 2-methylnaphthalene, 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 Remedial Action Plan 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, P.G
Task Order Manager
Florida License No. PG-0001180

GG/gw

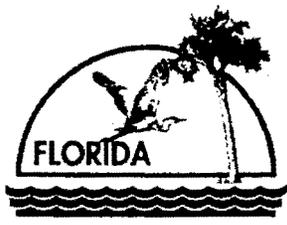
Enclosures (2)

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**



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
Gerry Walker, Tetra Tech NUS, Inc., Tallahassee
Charlie Goddard, FDEP Northwest District

TJB *TJB*

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:

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

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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

Mr. Byas Glover
May 8, 2000
Page Five

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)

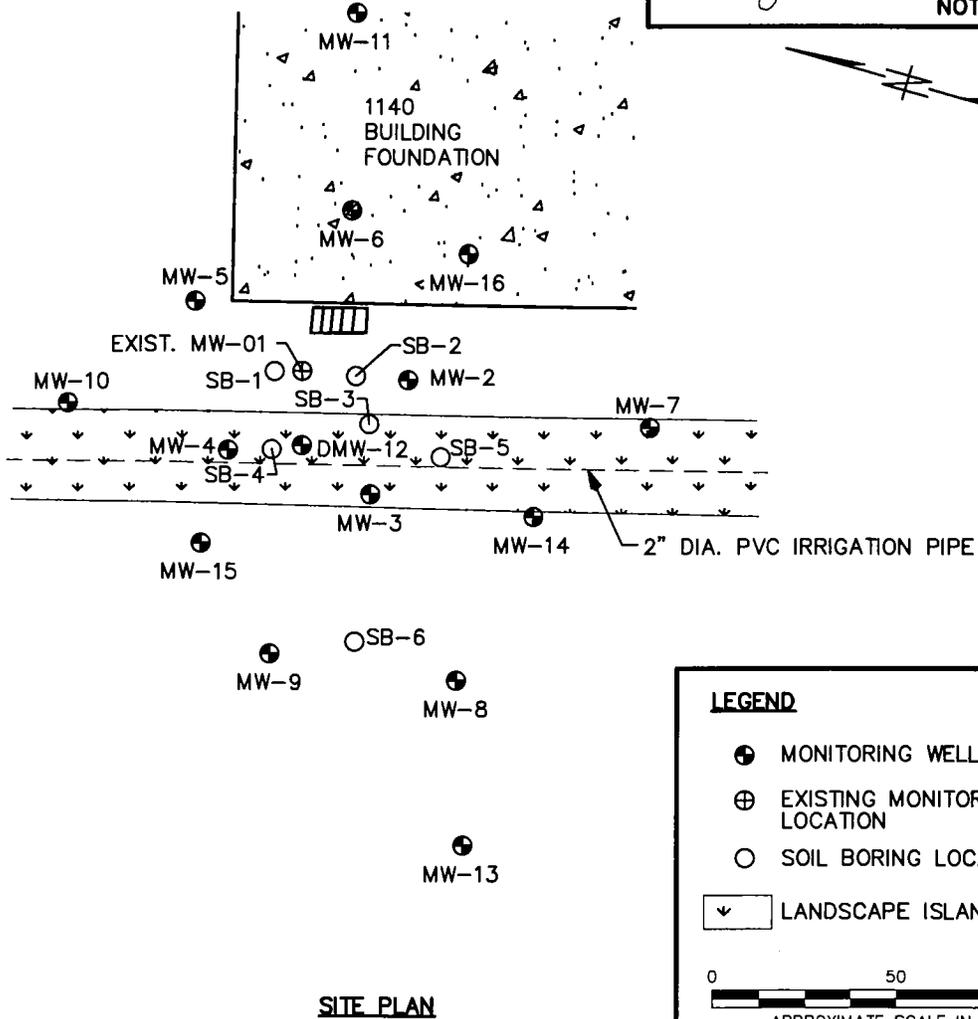
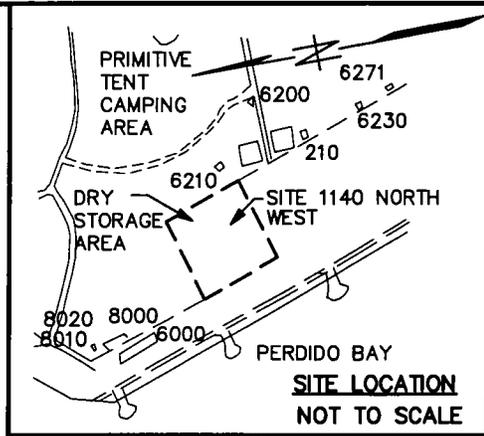
5/8/00
Date

ATTACHMENT B

**FIGURE 1
MONITORING WELL AND SOIL BORING LOCATION MAP**

**FIGURE 2
POTENTIOMETRIC SURFACE MAP**

ACAD: 0380GMO3.dwg 07/26/01 DT



LEGEND

- ⊕ MONITORING WELL LOCATION
- ⊕ EXISTING MONITORING WELL LOCATION
- SOIL BORING LOCATION
- ▾ LANDSCAPE ISLAND

0 50 100
 APPROXIMATE SCALE IN FEET

SITE PLAN

DRAWN BY DLT	DATE 7/26/01
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE AS NOTED	



MONITORING WELL AND
 SOIL BORING LOCATIONS
 SITE 1140 NW
 OLF BRONSON
 PENSACOLA, FLORIDA

CONTRACT NO. 0380	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 1	REV. 0

ATTACHMENT C
SOIL BORING LOGS
GROUNDWATER SAMPLING FIELD FORMS



Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page ___ of ___

Project Site Name: NAS Pensacola 1140NW ^{Bronson}
 Project No.: 0380
 Sample ID No.: 1140M0101
 Sample Location: 1140NW MW1
 Sampled By: JA
 C.O.C. No.: _____
 Type of Sample:
 Domestic Well Data
 Monitoring Well Data
 Other Well Type: _____
 QA Sample Type: _____
 Low Concentration
 High Concentration

SAMPLING DATA:

Date:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
6/6/01		6.37	.183	23.96	0	6.43	-	-164
Time: 1045								
Method: peristaltic								

PURGE DATA:

Date:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
6/6/01	initial	6.28	0.199	24.37	5	12.68	-	-142
Method: peristaltic	1st	6.27	0.175	24.04	4	10.51	-	-157
Monitor Reading (ppm): -	2nd	6.35	0.179	24.14	2	7.34	-	-159
Well Casing Diameter & Material Type: 2" PVC	3rd	6.34	0.183	23.99	0	7.40	-	-159
Total Well Depth (TD): 14.6	4th	6.33	0.183	23.96	0	6.43	-	-164
Static Water Level (WL): 7.93								
One Casing Volume (gal/L): 19								
Start Purge (hrs): 0900								
End Purge (hrs): 1045								
Total Purge Time (min): 59								
Total Vol. Purged (gal/L): 4.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAH 8310	-	1 x 12 amber	

OBSERVATIONS / NOTES:

16
6
96

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):



GROUNDWATER SAMPLE LOG SHEET

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

Sample ID No.: 1140M0301
Sample Location: 1140NW - MW3
Sampled By: JA

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

C.O.C. No.: _____
Type of Sample:
 Low Concentration
 High Concentration

SAMPLING DATA:

Date:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
<u>6 5 01</u>	<u>clear</u>	<u>6.03</u>	<u>0.226</u>	<u>24.87</u>	<u>11</u>	<u>5.87</u>	<u>-</u>	<u>-188</u>
Time: <u>1600</u>								
Method: <u>peristaltic</u>								

PURGE DATA:

Date:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
<u>6 5 01</u>								<u>ORP</u>
Method: <u>peristaltic</u>		<u>6.02</u>	<u>0.220</u>	<u>26.22</u>	<u>1</u>	<u>12.80</u>	<u>-</u>	<u>-137</u>
Monitor Reading (ppm): <u>-</u>	<u>1st</u>	<u>6.00</u>	<u>0.224</u>	<u>24.98</u>	<u>7</u>	<u>9.37</u>	<u>-</u>	<u>-185</u>
Well Casing Diameter & Material	<u>2nd</u>	<u>6.05</u>	<u>0.225</u>	<u>24.88</u>	<u>10</u>	<u>7.68</u>	<u>-</u>	<u>-178</u>
Type: <u>1" PVC</u>	<u>3rd</u>	<u>6.04</u>	<u>0.226</u>	<u>24.87</u>	<u>9</u>	<u>7.24</u>	<u>-</u>	<u>-180</u>
Total Well Depth (TD): <u>11.0</u>	<u>4th</u>	<u>6.02</u>	<u>0.225</u>	<u>24.80</u>	<u>10</u>	<u>4.84</u>	<u>-</u>	<u>-187</u>
Static Water Level (WL): <u>8.02</u>	<u>5th</u>	<u>6.03</u>	<u>0.226</u>	<u>24.87</u>	<u>11</u>	<u>5.87</u>	<u>-</u>	<u>-188</u>
One Casing Volume (gal/L): <u>9.08</u>								
Start Purge (hrs): <u>1520</u>								
End Purge (hrs): <u>1600</u>								
Total Purge Time (min): <u>40</u>								
Total Vol. Purged (gal/L): <u>3.4</u>								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
<u>PAH 8310</u>	<u>-</u>	<u>1 x 12 amber</u>	

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.: <u>1140M0D01</u>	Signature(s):
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Project Site Name: NASP site 1140mW Bronson
Project No.: NO 360

Sample ID No.: 1140 M08-01
Sample Location: MW-65
Sampled By: Gary J. Davis
C.O.C. No.: _____

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

- Type of Sample:
- Low Concentration
 - High Concentration

SAMPLING DATA:

Date: <u>06-06-01</u>	Color	pH	S.C.	Temp.	Turbidity	DO	TBD	TBD
Time: <u>1230</u>	Visual	Standard	mS/cm	°C	NTU	mg/l	SAL	Time
Method: <u>Peristaltic</u>	<u>clear</u>	<u>5.78</u>	<u>0.119</u>	<u>25.33</u>	<u>3.1</u>	<u>6.28</u>	<u>0.00</u>	

ORP
167

PURGE DATA:

Date: <u>06-06-01</u>	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD
Method: <u>Peristaltic</u>	<u>20.5 gal</u>	<u>5.81</u>	<u>0.120</u>	<u>25.19</u>	<u>29.7</u>	<u>10.90</u>	<u>0.00</u>	<u>1040</u>
Monitor Reading (ppm): <u>NK</u>	<u>21.0</u>	<u>5.79</u>	<u>0.119</u>	<u>25.32</u>	<u>4.3</u>	<u>8.60</u>	<u>0.00</u>	<u>1105</u>
Well Casing Diameter & Material	<u>2.0 gal</u>	<u>5.77</u>	<u>0.119</u>	<u>25.32</u>	<u>3.2</u>	<u>7.45</u>	<u>0.00</u>	<u>1145</u>
Type: <u>Sch 40 PVC 2 inch</u>	<u>27.0 gal</u>	<u>5.78</u>	<u>0.119</u>	<u>25.33</u>	<u>3.1</u>	<u>6.28</u>	<u>0.00</u>	<u>1220</u>
Total Well Depth (TD): <u>12.6</u>								
Static Water Level (WL): <u>7.89</u>								
One Casing Volume (gal): <u>7.71</u>								
Start Purge (hrs): <u>1025</u>								
End Purge (hrs): <u>1220</u>								
Total Purge Time (min): <u>125</u>								
Total Vol. Purged (gal): <u>23</u>								

160
166
167
167

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
<u>PAHs</u>	<u>ice</u>	<u>1 - 1L Amber</u>	<input checked="" type="checkbox"/> <u>GJD</u>

OBSERVATIONS / NOTES:

$$\begin{array}{r}
 12.6 \\
 - 7.89 \\
 \hline
 4.71 \\
 \times .1632 = 1.7666
 \end{array}$$

Circle if Applicable:

MS/MSD	Duplicate ID No.:
--------	-------------------

Signature(s): Gary J. Davis

TBD: To Be Determined



GROUNDWATER SAMPLE LOG SHEET

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

Sample ID No.: 11406EM0801
Sample Location: MW8

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

Sampled By: JA
C.O.C. No.: _____
Type of Sample:
 Low Concentration
 High Concentration

SAMPLING DATA:

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

PURGE DATA:

Date:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
<u>6/6/01</u>								
Method: <u>peristaltic</u>	<u>initial</u>	<u>5.63</u>	<u>0.213</u>	<u>26.10</u>	<u>39.4</u>	<u>15.97</u>		
Monitor Reading (ppm): <u>-</u>	<u>1st</u>	<u>6.86</u>	<u>2.136</u>	<u>25.59</u>	<u>0</u>	<u>8.31</u>		<u>GA</u>
Well Casing Diameter & Material:	<u>1st</u>	<u>5.45</u>	<u>0.214</u>	<u>19.52</u>	<u>48.9</u>	<u>26.04</u>		
Type: <u>2" PVC</u>	<u>2nd</u>	<u>6.84</u>	<u>0.208</u>	<u>26.21</u>	<u>120.0</u>	<u>19.99</u>		
Total Well Depth (TD): <u>12.8</u>	<u>3rd</u>	<u>5.94</u>	<u>0.187</u>	<u>26.48</u>	<u>149.0</u>	<u>19.99</u>		
Static Water Level (WL): <u>7.85</u>	<u>4th</u>	<u>5.98</u>	<u>0.200</u>	<u>26.59</u>	<u>162.0</u>	<u>19.92</u>		
One Casing Volume(gal/L): <u>18</u>	<u>5th</u>	<u>6.09</u>	<u>0.205</u>	<u>26.61</u>	<u>180.0</u>	<u>19.40</u>		
Start Purge (hrs): <u>1106</u>								
End Purge (hrs): <u>1205</u>								
Total Purge Time (min): <u>59</u>								
Total Vol. Purged (gal/L): <u>59</u>								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
<u>PA# 8310</u>	<u>-</u>	<u>1 x 12 amber</u>	

OBSERVATIONS / NOTES:

Circle if Applicable:		Signature(s): <u>[Signature]</u>
MS/MSD	Duplicate ID No.:	



Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page ___ of ___

Project Site Name: NAS Pensacola 1140pw
Project No.: _____Sample ID No.: 1140 GEM1301Sample Location: Area 13

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

Sampled By: J4

C.O.C. No.: _____

- Type of Sample:
 Low Concentration
 High Concentration

SAMPLING DATA:

Date:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
<u>6/5/01</u>	<u>clear</u>	<u>5.98</u>	<u>0.139</u>	<u>25.92</u>	<u>0</u>	<u>9.54</u>	<u>-</u>	
Time: <u>1150</u>								
Method: <u>peristaltic</u>								

PURGE DATA:

Date:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
<u>6/5/01</u>		<u>5.92</u>	<u>0.135</u>	<u>25.74</u>	<u>0</u>	<u>14.98</u>	<u>-</u>	
Method: <u>peristaltic</u>								
Monitor Reading (ppm): <u>-</u>	<u>1st</u>	<u>5.86</u>	<u>0.136</u>	<u>25.55</u>	<u>0</u>	<u>8.31</u>	<u>-</u>	
Well Casing Diameter & Material	<u>2nd</u>	<u>5.92</u>	<u>0.135</u>	<u>25.76</u>	<u>0</u>	<u>9.25</u>	<u>-</u>	
Type: <u>2" PVC</u>	<u>3rd</u>	<u>5.88</u>	<u>0.139</u>	<u>25.82</u>	<u>0</u>	<u>9.54</u>	<u>-</u>	
Total Well Depth (TD): <u>12.9</u>								
Static Water Level (WL): <u>7.87</u>								
One Casing Volume(gal/L): <u>8</u>								
Start Purge (hrs): <u>1205</u>								
End Purge (hrs): <u>1150</u>								
Total Purge Time (min): <u>45</u>								
Total Vol. Purged (gal/L): <u>39</u>								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
<u>PAH 8310</u>	<u>-</u>	<u>1 x 2 amber</u>	

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 Hydrocarbons⁴ (mg/kg)					
Acenaphthene	1,900/18,000/2.1	0.02	ND	ND	ND
Benzo(a)anthracene	1.4/5/3.2	0.0081	0.003	ND	ND
Benzo(b)fluoranthene	1.4/4.8/10	0.014	ND	ND	ND
Benzo(k)fluoranthene	15/52/25	0.004	ND	ND	ND
Benzo(g,h,i)perylene	2,300/41,000/32,000	0.019	0.003	ND	ND
Benzo(a)pyrene	0.1/0.5/8	0.012	ND	ND	ND
Chrysene	140/450/77	0.0088	ND	ND	ND
Dibenzo(a,h)anthracene	0.1/0.5/30	0.01	ND	ND	ND
Fluoranthene	2,900/48,000/1,200	0.017	ND	ND	ND
Fluorene	2,200/28,000/160	ND	ND	0.078	ND
Indeno(1,2,3-c,d)pyrene	1.5/5.3/28	0.01	ND	ND	ND
Pyrene	2,200/37,000/880	0.004	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 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 4
SUMMARY OF ANALYTES DETECTED IN PERIMETER WELLS-SITE 1140NW
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA**

PAGE 1 OF 4

Sample No.	1140M0801	1140M0901	FDEP Site-specific action levels/milestones for Site 1140NW perimeter wells ³	
Sample Location	Monitoring Well No. 8	Monitoring Well No. 9		
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	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 ADDITIONAL WELLS-SITE 1140NW
OUTLYING LANDING FIELD BRONSON, PENSACOLA, FLORIDA

PAGE 3 OF 4

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
2-Methylnaphthalene	20	ND	ND	ND	ND
Acenaphthylene	210	ND	ND	ND	ND
Anthracene	2,100	ND	ND	ND	0.060
Benzo(a)anthracene	0.2	ND	ND	ND	0.11
Benzo(b)fluoranthene	0.2	ND	ND	ND	0.11
Benzo(k)fluoranthene	0.5	ND	ND	ND	0.10
Benzo(g,h,i)perylene	210	ND	ND	ND	0.12
Benzo(a)pyrene	0.2	ND	ND	0.05	0.090
Chrysene	4.8	ND	0.050	0.06	0.13
Dibenzo(a,h)anthracene	0.2	ND	ND	0.10	ND
Fluoranthene	280	ND	ND	ND	ND
Fluorene	280	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	0.2	ND	ND	0.09	0.090
Phenanthrene	210	ND	ND	ND	ND
Naphthalene	20	ND	ND	ND	ND
Pyrene	210	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 5

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

Sample No. Sample Location	1140-MW-3	1140-GW-8	1140-MW-9	FDEP Site-specific Natural Attenuation Criteria ⁽²⁾		Florida Ground- water Guidance Concentration ⁽³⁾
	Monitoring Well No. 3	Monitoring Well No. 8	Monitoring Well No. 9	Contaminated Well (MW- 3) Action Level / Milestone	Perimeter Well (Wells MW-8 & MW-9) Action Level/Milestone	
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			
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



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; Outlying 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.

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 %	96.0 %	96.0 %
UNITS:	UG/KG	UG/KG	UG/KG	UG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE									
POLYNUCLEAR AROMATIC HYDROCARBONS												
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-CO)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		35	U		1.7	U	

P.14
 Jul 12 2001 12:25

Fax: 4129214040

TETRA TECH NUS INC.

ORL16163

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/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	1140SB6D-6 TO 7'	ORL16163-7	NORMAL	ORL16163	PAH	05/17/01	05/23/01	05/25/01	6	2	8

Jul 12 2001 12:25 P.16

TETRA TECH NUS INC., Fax:4129214040

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



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

PAGE 1 OF 11

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

ENCO LABORATORIES

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

PAGE 2 OF 11

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

PAGE 4 OF 11

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

PAGE 6 OF 11

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

PAGE 8 OF 11

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

PAGE 10 OF 11

RESULTS OF ANALYSIS

EPA METHOD 8310 -
POLYAROMATIC HYDROCARBONS

	<u>LAB BLANK</u>	<u>Units</u>
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
<u>Surrogate: (p-Terphenyl)</u>		
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.



ENVIRONMENTAL CONSERVATION LABORATORIES

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ENCO CompQAP No.: 960038G/0

CHAIN OF CUSTODY RECORD

PROJECT REFERENCE Site 1140NW NAS Pensacola - Branson		PROJECT NO. 0380		P.O. NUMBER		MATRIX TYPE		REQUIRED ANALYSIS		PAGE 1 OF 1	
PROJECT LOC. (State) FL	SAMPLER(S) NAME Jeff Alexander		PHONE 8503859899		FAX 8503859860		PAH 2310 SURFACE WATER GROUND WATER WASTEWATER DRINKING WATER SOIL/SOLID/SEDIMENT NONAQUEOUS LIQUID (oil solvent, etc.) AIR SLUDGE OTHER		<input checked="" type="checkbox"/> STANDARD REPORT DELIVERY <input type="checkbox"/> EXPEDITED REPORT DELIVERY (surcharge) Date Due: _____		
CLIENT NAME TetraTECH NUS		CLIENT PROJECT MANAGER G. Walker									
CLIENT ADDRESS (CITY, STATE, ZIP) Tallahassee, FL 32312											
SAMPLE		PRESERVATIVE									
STATION	DATE	TIME	GRAB	COMP	SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED		REMARKS		
1	5/17/01	1135			11405B1-6to7.5'		1				
2		1218			11405B2-6to7'		1				
3		1340			11405B3-6to7'		1				
4		1400			11405B4-6to7'		1				
5		1420			11405B5-6to7'		1				
6		1445			11405B6-6to7'		1				
7		1445			11405B6D-6to7'		1				
8											
9											
10											
11											
12											
13											
14											
SAMPLE KIT PREPARED BY: [] JACKSONVILLE [X] ORLANDO		DATE 5/15/01	TIME 13:10	RELINQUISHED BY: (SIGNATURE) G. Hooster		DATE 5/15/01	TIME 13:10	RECEIVED BY: (SIGNATURE)		DATE	TIME
RELINQUISHED BY: (SIGNATURE) Gary J. Davis		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) Mark Lee		DATE 5/18/01	TIME 14:00	CUSTODY INTACT <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	ENCO LOG NO. ORL16163	REMARKS					



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.

1140MD101 ✓
06/06/01
ORL16385-2
NORMAL
0.0 %
UGL

1140MD201 ✓
06/06/01
ORL16385-5
NORMAL
0.0 %
UGL

1140MD401 ✓
06/06/01
ORL16385-7
NORMAL
0.0 %
UGL

1140MD501 ✓
06/06/01
ORL16385-4
NORMAL
0.0 %
UGL

RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
AROMATIC CARBONS											
1	U		1	U		1	U		1	U	
1	U		1	U		1	U		1	U	
0.5	U		0.5	U		0.5	U		0.5	U	
1	U		1	U		1	U		1	U	
0.05	U		0.05	U		0.05	U		0.05	U	
0.07	U		0.07	U		0.07	U		0.07	U	
0.05	U		0.05	U		0.05	U		0.05	U	
0.1	U		0.1	U		0.1	U		0.1	U	
0.1	U		0.1	U		0.1	U		0.1	U	
0.05	U		0.05	U		0.05	U		0.05	U	
0.05	U		0.05	U		0.05	U		0.05	U	
0.1	U		0.1	U		0.1	U		0.1	U	
0.1	U		0.1	U		0.1	U		0.1	U	
0.1	U		0.1	U		0.1	U		0.1	U	
0.05	U		0.05	U		0.05	U		0.05	U	
0.5	U		0.5	U		0.5	U		0.5	U	
1	U		1	U		1	U		1	U	
0.08	U		0.08	U		0.08	U		0.08	U	

ORL16385

HOLDING TIME
07/12/01

Units	Nsample	Lab Id	Oc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
UGL	1140M0101	ORL16385-2	NORMAL	ORL16385	PAH	06/06/01	06/08/01	06/13/01	2	5	7
UGL	1140M0201	ORL16385-5	NORMAL	ORL16385	PAH	06/06/01	06/08/01	06/13/01	2	5	7
UGL	1140M0401	ORL16385-7	NORMAL	ORL16385	PAH	06/06/01	06/08/01	06/13/01	2	5	7
UGL	1140M0501	ORL16385-4	NORMAL	ORL16385	PAH	06/06/01	06/08/01	06/13/01	2	5	7
UGL	1140M0601	ORL16385-1	NORMAL	ORL16385	PAH	06/06/01	06/08/01	06/13/01	2	5	7
UGL	1140M1201	ORL16385-3	NORMAL	ORL16385	PAH	06/06/01	06/08/01	06/14/01	2	6	8
UGL	1140RSB01	ORL16385-6	NORMAL	ORL16385	PAH	06/06/01	06/08/01	06/14/01	2	6	8

Jul 12 2001 12:25 P.12

TETRA TECH NUS INC., Fax:4129214040

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



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

PAGE 1 OF 10

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

A handwritten signature in black ink, appearing to read "Marcia C. Terlep", written over a horizontal line.

Marcia C. Terlep

ENCO LABORATORIES

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

PAGE 2 OF 10

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

PAGE 4 OF 10

RESULTS OF ANALYSIS

EPA METHOD 8310 -
POLYAROMATIC HYDROCARBONS

	<u>1140M1201</u>	<u>Units</u>
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

PAGE 6 OF 10

RESULTS OF ANALYSIS

EPA METHOD 8310 -
POLYAROMATIC HYDROCARBONS

	<u>1140M0201</u>	<u>Units</u>
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
<u>Surrogate: (p-Terphenyl)</u>		
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

PAGE 8 OF 10

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

PAGE 10 OF 10

QUALITY CONTROL DATA

<u>Parameter</u>	<u>% RECOVERY MS/MSD/LCS</u>	<u>LCS Target µg</u>	<u>ACCEPT LIMITS</u>	<u>% RPD MS/MSD</u>	<u>ACCEPT LIMITS</u>
<u>EPA Method 8310</u>					
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.



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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		PROJECT NO.	P.O. NUMBER	MATRIX TYPE		REQUIRED ANALYSIS		PAGE	OF		
NAS Pensacola 1140NW		0380		SURFACE WATER GROUND WATER WASTEWATER DRINKING WATER SOIL/SOLID/SEDIMENT NONAQUEOUS LIQUID (oil, solvent, etc.) AIR SLUDGE OTHER		PRESERVATIVE PAH 2310					
PROJECT LOC. (State)	SAMPLER(S) NAME	PHONE	FAX					<input type="checkbox"/> STANDARD REPORT DELIVERY <input type="checkbox"/> EXPEDITED REPORT DELIVERY (surcharge)			
CLIENT NAME	CLIENT PROJECT MANAGER		Date Due: _____								
CLIENT ADDRESS (CITY, STATE, ZIP)											
STATION		DATE	TIME	GRAB	COMP	SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED		REMARKS	
1		0955				1140M0601		1			
2		1005				1140M0101		1			
3		1125				1140M1201		1			
4		1230				1140M0501		1			
5		1235				1140M0201		1			
6		1525				1140RSB01		1		RINSE	
7		1715				1140M0401		1			
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		5-31-01	14:20	R. Luley		5-31-01	14:20				
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME
[Signature]		6/6/01	1745								
RECEIVED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME
[Signature]											
RECEIVED FOR LABORATORY BY: (SIGNATURE)		DATE	TIME	CUSTODY INTACT	ENCO LOG NO.	REMARKS					
Dana Deauman		6/7/01	9:15	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	01-16385						



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.

**CTO106-NAS PENSACOLA
WATER DATA
ENCO LABORATORIES
SDG: ORL16369**

SAMPLE NUMBER:
SAMPLE DATE:
LABORATORY ID:
QC_TYPE:
% SOLIDS:
UNITS:
FIELD DUPLICATE OF:

1140M0301 ✓
06/05/01
ORL16369-5
NORMAL
0.0 %
UGL

1140M0801 ✓
06/05/01
ORL16369-2
NORMAL
0.0 %
UGL

1140M0901 ✓
06/05/01
ORL16369-4
NORMAL
0.0 %
UGL

1140M0001 ✓
06/05/01
ORL16369-6
NORMAL
0.0 %
UGL

P.03
11:13
Jul 16 2001

Fax:4129214040

TETRA TECH NUS INC.,

	RESULT	QUAL	CODE									
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	100			45			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		0.6			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			8			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	0.8	U		0.8	U		0.05	U		0.8	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
UGL	1140M0301	ORL16369-5	NORMAL	ORL16369	PAH	06/05/01	06/08/01	06/11/01	1	5	6
UGL	1140M0801	ORL16369-2	NORMAL	ORL16369	PAH	06/05/01	06/06/01	06/11/01	1	5	6
UGL	1140M0901	ORL16369-4	NORMAL	ORL16369	PAH	06/05/01	06/06/01	06/08/01	1	2	3
UGL	1140M0D01	ORL16369-6	NORMAL	ORL16369	PAH	06/05/01	06/06/01	06/11/01	1	5	6
UGL	1140M1101	ORL16369-3	NORMAL	ORL16369	PAH	06/05/01	06/06/01	06/08/01	1	2	3
UGL	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



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

PAGE 1 OF 9

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

A handwritten signature in black ink, appearing to read "Marcia C. Terlep", written over a horizontal line.

Marcia C. Terlep

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

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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

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RESULTS OF ANALYSIS

EPA METHOD 8310 -
POLYAROMATIC HYDROCARBONS

	<u>1140M1101</u>	<u>Units</u>
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
<u>Surrogate: (p-Terphenyl)</u>		
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

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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

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RESULTS OF ANALYSIS

EPA METHOD 8310 -
POLYAROMATIC HYDROCARBONS

	<u>LAB BLANK</u>	<u>Units</u>
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
<u>Surrogate: (p-Terphenyl)</u>		
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.



ENVIRONMENTAL CONSERVATION LABORATORIES

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1015 Passport Way
 Cary, North Carolina 27513
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ENCO CompQAP No.: 960038G/0

CHAIN OF CUSTODY RECORD

PROJECT REFERENCE					PROJECT NO.		P.O. NUMBER		MATRIX TYPE		REQUIRED ANALYSIS				PAGE	OF				
NAS Pensacola - 1140NW					0380				SURFACE WATER GROUND WATER WASTEWATER DRINKING WATER SOIL/SOLID/SEDIMENT NONAQUEOUS LIQUID (oil, solvent, etc.) AIR SLUDGE OTHER		PAH - 8310								<input type="checkbox"/> STANDARD REPORT DELIVERY <input type="checkbox"/> EXPEDITED REPORT DELIVERY (surcharge) Date Due: _____	
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																				
SAMPLE																				
STATION	DATE	TIME	GRAB	COMP	SAMPLE IDENTIFICATION	PRESERVATIVE														
						NUMBER OF CONTAINERS SUBMITTED										REMARKS				
1	6/5/01	115φ			1140M13φ1	Y														
2	↓	12φ5			114φMφ8φ1	Y														
3	↓	1215			114φMφ5φ1	Y														
4	↓	14φφφ			114φMφ9φ1	X														
5	↓	16φφ			114φMφ3φ1	X														
6	↓	φφφφ			114φMφDφ1	Y														
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				

SAMPLE KIT PREPARED BY:		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME
D. JACKSONVILLE		5-30-01	15:20	<i>R. Lelew</i>		5-30-01	15:20				
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME
<i>[Signature]</i>		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
<i>Dana D. [Signature]</i>		4/6/01	10:00	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	01-16369	
<input type="checkbox"/> Jacksonville <input checked="" type="checkbox"/> Orlando						