N00204.AR.004147
NAS PENSACOLA
5090.3a

LETTER REPORT FOR RESAMPLING OF MONITORING WELLS AT SITE 1140NW BRONSON FIELD NAS PENSACOLA FL

2/24/2000

TETRA TECH

0380075 1

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

February 24, 2000

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: Resampling of Monitoring Wells MW-3 and MW-6, Site 1140NW, Outlying Landing Field Bronson, Pensacola, Florida**

Dear Mr. Fugitt:

This letter report presents the results of additional groundwater sampling completed by Tetra Tech NUS, Inc. (TtNUS) in response to the Florida Department of Environmental Protection (FDEP) response letter dated October 7, 1999 for the subject site. The response letter was issued by the FDEP based on their technical review of the Contamination Assessment Report (CAR) Addendum dated November 1998. The FDEP proposed that monitoring well MW-6, and a new monitoring well in the location of former MW-3, be resampled so that current data from the source area could be evaluated before the preparation of an FDEP Natural Attenuation Monitoring Plan Approval Order. A copy of the FDEP response letter is included as Attachment A.

The following text presents the results of these activities and provides a recommendation for site monitoring based on Chapter 62-770 of the Florida Administrative Code (F.A.C.) and groundwater cleanup criteria as established in Chapter 62-777, FAC.

Monitoring Well Installation

On October 12, 1999, replacement monitoring well MW-3 was installed under the supervision of TtNUS personnel. The monitoring well was installed using a direct-push technology (DPT) drilling method and was constructed with 1-inch inside diameter (ID) schedule 40 polyvinyl chloride (PVC) riser and 0.010-inch slot well screen. The well was completed at approximately 10 feet below land surface (bls) and screened from 5 to 10 feet bls to bracket the water table. The annulus between the well casing and borehole was completed with medium sand from the bottom of the well to approximately two feet above the top of the well screen. A 1-foot thick bentonite seal was placed on top of the sand pack. The top of the well casing was placed inside a 8-inch diameter steel manhole cover set in a 2-foot by 2-foot concrete pad. The location of monitoring well MW-3 is shown on Figure 1, Attachment B. The former monitoring well MW-3 was abandoned in place.

On October 16, 1999, monitoring well MW-3 was developed by pumping the well. During well development, field measurements of pH, temperature, specific conductance, turbidity and

dissolved oxygen were recorded. The well was developed until all field measurement stabilized and the purge water was visually clear.

Groundwater Sampling

On October 29, 1999, TtNUS personnel collected groundwater samples from monitoring wells MW-3 and MW-6. Groundwater samples were analyzed for polynuclear aromatic hydocarbons (PAHs) by United States Environmental Protection Agency (US EPA) SW 486 Method 8310, ethylene dibromide (EDB) by SW 846 Method 504.1, and for total recoverable petroleum hydrocarbons (TRPH) by Florida Pro. Groundwater sampling activities were conducted in accordance with TtNUS's FDEP approved, Comprehensive Quality Assurance Plan (QAP) No. 980038. However, an organic trap bottle was not used during the collection of samples for extractable organics (PAHs) and an equipment blank sample was inadvertently not collected. A duplicate sample was collected from MW-3 (sample 1140-DD-01) and submitted to the laboratory for quality control analysis.

Prior to groundwater sampling, TtNUS personnel recorded water level measurements in MW-3 and MW-6 to calculate well volumes for purging. Purging and sampling were performed using low flow sampling techniques with Teflon™ tubing and a peristaltic pump. Following the collection of the groundwater samples, the sample bottles were packed on ice and shipped via overnight transport to Environmental Conservation Laboratories in Orlando, Florida for analysis. Groundwater sampling field forms are provided in Attachment C.

On November 18, 1999, TtNUS personnel returned to the site and collected water level measurements from all accessible monitoring wells at the site. The depth-to-water measurements and top of casing elevations were later used to calculate groundwater elevations. The depth to groundwater on November 18, 1999 ranged from approximately 7.5 feet to 8.0 feet below land surface (bls). Groundwater elevations ranged from 21.99 feet mean sea level (MSL) to 22.29 feet MSL. The groundwater flow direction on November 18, 1999 was primarily in a westerly direction, similar to the direction previously reported in the CAR and CAR addendum. Depth to water measurements, top of casing elevations, and groundwater elevation data are provided in Table 1, Attachment D.

Groundwater Quality Results

Review of the October 29, 1999 groundwater sampling analytical data indicated three PAH compounds were detected in the groundwater samples from MW-3 at concentrations exceeding FDEP Groundwater Cleanup Target Levels. The groundwater sample for monitoring well MW-3 contained 1-methylnaphthalene at a concentration of 190 micrograms per liter (μg/L; duplicate sample 210 μg/L), 2-methylnaphthalene at a concentration of 130 μg/L (duplicate sample 140 μg/L), and naphthalene at a concentration of 66 μg/L (duplicate sample 170 μg/L). All of the detected concentrations exceeded the Florida Groundwater Cleanup Target Level of 20 μg/L established for these individual parameters in Chapter 62-777, FAC.

Two additional PAH compounds, anthracene and flourene, were detected at concentrations below the Groundwater Cleanup Target Levels in groundwater samples from monitoring well MW-3. Anthracene, flourene, and 1-methylnaphthalene were also detected in the groundwater sample from monitoring well MW-6 at concentrations below the Florida Groundwater Cleanup Target levels. Ethylene Dibromide was not detected above instrument detection levels in any of the groundwater samples.

TRPH was detected in the groundwater sample from monitoring well MW-3 at a concentration of 800 µg/L (duplicated sample 1,200 µg/L). The detected concentration is below the Florida Groundwater Cleanup Target Level of 5,000 µg/L. TRPH was not detected above analytical detection limit in the groundwater sample collected from MW-6. Detected groundwater compounds are summarized in Table 2, Attachment D. A copy of the groundwater laboratory data report is provided as Attachment E.

Conclusion and Recommendations

The October 29, 1999 groundwater quality results for samples collected from the source area, monitoring well (MW-3), indicate the concentrations of PAH compounds 1-methlynaphthalene, 2-methlynaphthalene, and naphthalene are above FDEP Groundwater Cleanup Target Levels. These PAH concentrations, when compared to concentrations reported in MW-3 during the previous groundwater sampling event (April 1996), indicates a 46 percent decrease in 1-methylnaphthalene (from 350 µg/L to 190 µg/L), a 75 percent decrease in the 2-methylnaphthalene (from 520 µg/L to 130 µg/L), and a 66 percent decrease in naphthalene (from 190 µg/L to 66 µg/L). The comparison also includes a decrease in phenanthrene (from 33 µg/L to < 20 µg/L) and an increase in flourene (from < 4 µg/L to 10 µg/L). No analytes were detected in the groundwater sample from monitoring well MW-6 during the previous sampling event (April 1996).

Based on the comparison of these PAH, EDB, and TRPH concentrations, it is proposed that a Natural Attenuation Monitoring Approval Order be issued and that groundwater monitoring be implemented as outlined in the Contamination Assessment Report Addendum dated November 1998.

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 CAR ADDENDUM COMMENT LETTER DATED OCTOBER 7, 1999
CONTAMINATION ASSESSMENT REPORT ADDENDUM
OUTLYING FIELD (OLF) BRONSON, SITE 1140-NW, PENSACOLA, FLORIDA

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

October 7, 1999

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: Contamination Assessment Report Addendum, U.S. Navy Outlying Field (OLF) Bronson, Site 1140-NW, Pensacola, Florida

Dear Mr. Glover:

I have completed the technical review of the above referenced document dated November 1998 (received December 7, 1998). Please excuse the late review of this document.

The response to comment 1 (Page 2), correctly stated that groundwater cleanup target levels (GCTLs) were not specified for 1-methylnaphthalene and 2-methylnaphthalene in Chapter 62-770 Florida Administrative Code (FAC) at the time of report submittal. However, the GCTLs for 1-methylnaphthalene and 2-methylnaphthalene are now 20 ug/L, respectively, as referenced in the latest revision (August 5, 1999) to Chapter 62-770 FAC and specified in 62-777 FAC which was recently promulgated (August 5, 1999).

I concur with the recommendations to install a new monitoring well in the location of former MW-3. Since MW-3 and MW-6 were not sampled recently, I recommend resampling these monitoring wells and submitting a letter report so that current data from the source area can be evaluated before the preparation of a Natural Attenuation Monitoring Plan approval Order.

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

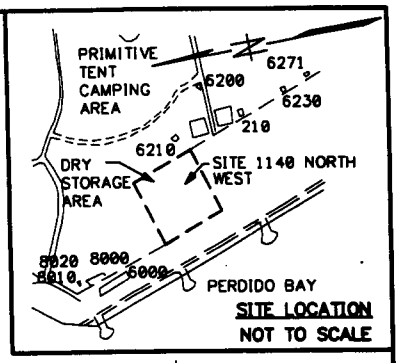
Sincerely,

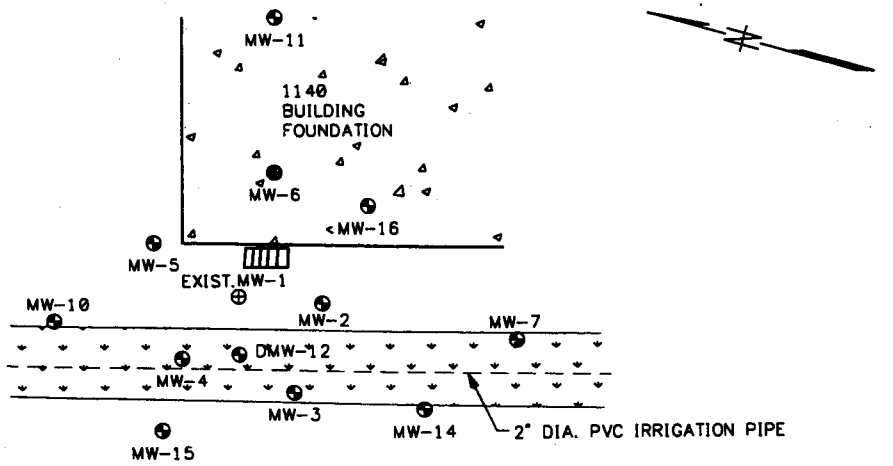
Joseph F. Fugitt

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

ATTACHMENT B

FIGURE 1
MONITORING WELL LOCATION MAP





SITE PLAN

LEGEND

- MONITORING WELL LOCATION
- EXISTING MONITORING WELL LOCATION
- LANDSCAPE ISLAND

0 50 100

APPROXIMATE SCALE IN FEET

DRAWN BY HJP DATE 1/28/00	MONITORING WELL LOCATION 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

ACAD: 0380CM05.dwg 01/31/00 HJP

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

ATTACHMENT C

GROUNDWATER SAMPLING FIELD FORMS

GROUNDWATER SAMPLE LOG SHEET

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

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

Sample ID No.: 1140-MW3-01
Sample Location: BRO-1140-MW3
Sampled By: JE/JA
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA/FIELD PARAMETERS

	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 10 29 99	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	%	NA
Time: 0935								
Method: PERISTALTIC	clear	6.30	0.153	25.9	5	0.90	—	—

PURGE DATA

	Time	pH	S.C.	Temp. (C)	Turbidity	DO	~~Salinity~~	~~Other~~
Date: 10 29 99								~~Flow Rate~~
Method: PERISTALTIC	0900	5.91	0.177	25.3	>1000	0.71		~150 mL/min
Monitor Reading (ppm): —	0857	6.17	0.157	25.6	137	1.660		11
Well Casing Diameter & Material	0913	6.257	0.158	25.8	34	1.060		400 mL/min
Type: ~~2" PVC~~ JE 1" PVC	SEE LOW FLOW PURGE DATA SHEET							
Total Well Depth (TD): 10.63	0921	6.30	0.155	25.9	8	1.25		11
Static Water Level (WL): 7.81	0925	6.31	0.155	25.9	11	2.10		11
One Casing Volume(gal/L): 0.4 gal	0929	6.32	0.153	25.9	5	0.90		~350 mL/min
Start Purge (hrs): 0900								
End Purge (hrs): 0929								
Total Purge Time (min): 29 min								
Total Vol. Purged (gal/L): ~2.8 gal								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
~~STB~~ TR TPH	~~H2SO4~~/4°C	(1) 1 L Amber	yes
PAHs	4°C	(1) 1 L Amber	↓
EDB	4°C	(2) 40 ml vials	↓

OBSERVATIONS / NOTES:

891
10.63
7.81
2.82

2.82
.0

Sulfur odor

Circle if Applicable:

MS/MSD | Duplicate ID No.: 1140-~~MW~~ JE DD-01

Signature(s):

GROUNDWATER SAMPLE LOG SHEET

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

Sample ID No.: 1140-MW6-01
Sample Location: BRO-1140-MW6
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	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 10 29 99	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	%	NA
Time: 0955	Clear	6.06	.142	26.4	11	1.16	0.00	—
Method: PERISTALTIC								

PURGE DATA:

	Time	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	Other rate
Date: 10 29 99	0924	5.76	.145	25.6	179	1.67	0.00	500ml/min
Method: PERISTALTIC	0925	5.99	.147	26.0	79	1.85	0.00	"
Monitor Reading (ppm): —	0932	6.10	.144	26.1	37	2.37	0.00	250ml/min
Well Casing Diameter & Material	SEE LOW FLOW PURGE DATA SHEET							
Type: 2" PVC								
Total Well Depth (TD): 12.75	0938	6.10	.144	26.3	13	1.47	0.00	"
Static Water Level (WL): 7.92	0944	6.01	.142	26.4	14	1.49	0.00	"
One Casing Volume(gal/L): .8	0950	6.06	.135	26.4	11	1.16	0.00	"
Start Purge (hrs): 0915								
End Purge (hrs): 0952								
Total Purge Time (min): 37								
Total Vol. Purged (gal/L): 3								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAH	—	1 x 1L	yes
TBA TPH	H_2SO_4	1 x 1L	yes
EDB	—	2 x 40ml	yes

OBSERVATIONS / NOTES:

12.75
7.92

5.0
.16
300
500

.8

5.0
.16
300
500
800

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

Signature(s):

screen .5 – 10 1/2

MONITORING WELL DEVELOPMENT RECORD

ll: MW-3
: BRO – [illegible] 1140
e Installed: 10 12 99
e Developed: 10 16 99
v. Method: surg
mp Type: peristaltic

Depth to Bottom (ft.): 10.69
Static Water Level Before (ft.): 7.45
Static Water Level After (ft.):
Screen Length (ft.): 10'
Specific Capacity:
Casing ID (in.):

Responsible Personnel: Jeff Alexander
Drilling Co.: teg
Project Name:
Project Number:

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ____)	Turbidity (NTU)	Remarks (odor, color, etc.) DO
1740		~ .5		26.5	5.68	.168	999	2.94
1746		~ 1.5		26.6	5.68	.157	999	2.70
1750		~ 2.5		26.6	5.67	.150	265	3.11
1757		~ 3.0		26.5	5.78	.148	0	2.97
			end development					

ATTACHMENT D

TABLE 1
GROUNDWATER ELEVATIONS

TABLE 2
SUMMARY OF COMPOUNDS DETECTED IN SITE 1140-NW GROUNDWATER SAMPLES

TABLE 1

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	11/18/99	ND	ND	7.78	22.22
MW-2	13	30.10	11/18/99	ND	ND	7.92	22.18
MW-3	10.6	NA	10/29/99	ND	ND	7.81	NA
			11/18/99	ND	ND	7.93	NA
MW-4	12.8	30.03	11/18/99	ND	ND	7.90	22.13
MW-5	12.6	30.03	11/18/99	ND	ND	7.81	22.22
MW-6	12.7	30.26	10/29/99	ND	ND	7.92	22.34
			11/18/99	ND	ND	8.00	22.26
MW-7	NM	30.02	NM	NA	NA	NA	NA
MW-8	12.8	29.80	11/18/99	ND	ND	7.72	22.08
MW-9	13.0	29.80	11/17/99	ND	ND	7.67	22.13
MW-10	NM	29.86	NM	NA	NA	NA	NA
MW-11	12.9	30.24	11/18/99	ND	ND	7.95	22.29
DMW-12	23.5	30.05	11/18/99	ND	ND	7.85	22.20
MW-13	12.9	29.73	11/18/99	ND	ND	7.70	22.03
MW-14	12.9	30.12	11/18/99	ND	ND	7.94	22.18
MW-15	12.9	29.87	11/18/99	ND	ND	7.88	21.99
MW-16	NM	30.23	11/18/99	NA	NA	NA	NA

Notes:
ft - feetMSL - Mean Sea Level
MSL - Mean Sea Level
BTOC = Below Top of Casing
ND - Not Detected
NM - Not Measured
NA - Not Available

Table 2

Summary of Analytes Detected in Site 1140-NW Groundwater Samples

Site 1140-NW
Outlying Landing Field Bronson
Naval Air Station Pensacola, Florida

Sample No.	1140-MW3-01	1140-DD-01	114-MW6-01	Groundwater Cleanup Target Level [4] (ug/L)
Sample Location	MW-3	Duplicate sample MW-3	MW-6	
Collect Date	10/29/99	10/29/99	10/29/99	
Total Residual Petroleum Hydrocarbons [1] (µg/L)	800	1200	0.20 U	5000
Ethylene Dibromide [2] (µg/L)				0.02
None Detected	0.02 U	0.02 U	0.02 U	
Polyaromatic Hydrocarbons [3] (µg/L)				
Anthracene	1.0 I	1.0 U	0.07 I	2100
Fluorene	10	14	0.29	280
1-Methylnaphthalene	190	210	1.1	20
2-Methylnaphthalene	130	140	1.0 U	20
Naphthalene	66	72	1.0 U	20

[1] FL-PRO
[2] EPA 504
[3] SW-846 8310
[4] As provided in Chapter 62-777, F.A.C.

µg/L = micrograms per Liter
U = Compound was analyzed for but not detected above action level shown.
I = Analyte detected; value is between the method detection level and Practical Quantitation level.

ATTACHMENT E

GROUNDWATER LABORATORY DATA REPORT

Groundwater Samples Collected October 29, 1999

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 # : OR8659
DATE SUBMITTED: October 30, 1999
DATE REPORTED : November 9, 1999

ATTENTION: Terry Hansen

SAMPLE IDENTIFICATION

Samples submitted and
identified by client as:

PROJECT #: CTO 106

NAS Pensacola/OLF Bronson

10/29/99

#1 - 1140-MW6-01 @ 09:55
#2 - 1140-MW3-01 @ 09:35
#3 - 1140-DD-01 @ 00:00
#4 - 1162-MW7-01 @ 11:35
#5 - 1162-MW1-01 @ 11:30
#6 - 1162-DD-01 @ 00:00
#7 - 1122-MW10-01 @ 12:50
#8 - 1122-DD-01 @ 00:00
#9 - TB102999-01 @ 07:00

PROJECT MANAGER David Vesey

ENVIRONMENTAL CONSERVATION LABORATORIES

4810 Executive Park Court, Suite 211
Jacksonville, Florida 32216-6069
Ph. (904) 296-3007 • Fax (904) 296-6210

10207 General Drive
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 / OLF Bronson | PROJECT NO.: CTO 166 | P.O. NUMBER:
PROJECT LOC. (State): FL | SAMPLER(s) NAME: Royce Franklin | PHONE: (850) 785-9899 | FAX:
CLIENT NAME: Tetra Tech NUS | CLIENT PROJECT MANAGER: Gerry Walker
CLIENT ADDRESS (CITY, STATE, ZIP):

PAGE 1 OF 1

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

SAMPLE STATION	SAMPLE DATE	SAMPLE TIME	GRAB	COMP	SAMPLE IDENTIFICATION	MATRIX TYPE: SURFACE WATER	GROUND WATER	WASTEWATER	DRINKING WATER	SOIL/SOLID/SEDIMENT	NONAQUEOUS LIQUID (Specify)	AIR	SLUDGE	OTHER	REQUIRED ANALYSIS: PAH	TPH	EDB	VOC	PRESERVATIVE: NUMBER OF CONTAINERS SUBMITTED	REMARKS
1 1140-MW6	10/29/99	0955	Y		1140-MW6-01	X									1	1			2	
2 1140-MW3	10/29/99	0935	X		1140-MW3-01	X									1	1			2	
3 —	10/29/99	—	X		1140-DD-01	X									1	1			2	Duplicate
4 1162-MW7	10/29/99	1135	X		1162-MW7-01	X												2		
5 1162-MW1	10/29/99	1130	X		1162-MW01-01	X												2		
6 —	10/29/99	—	X		1162-DD-01	X												2		Duplicate
7 1122-MW10	10/29/99	1250	X		1122-MW10-MW01	X										1	X	2		
8 —	10/29/99	—	X		1122-DD-01	X										1		2		Duplicate
9 —	10/29/99	0700	X		TB102999-01	X												2		Trip Blank
10																				
11																				
12																				
13																				
14																				

SAMPLE KIT PREPARED BY: ☐ JACKSONVILLE ☒ ORLANDO	DATE	TIME	RELINQUISHED BY: (SIGNATURE) R. Armstrong	DATE 10/30/99	TIME 1:00	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE 10/29/99	TIME 1600	RECEIVED BY: (SIGNATURE) Fed-Ex	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)	DATE	TIME	CUSTODY INTACT	ENCO LOG NO.	REMARKS
☐ Jacksonville ☒ Orlando Kevin Casey	10/30/99	10:30AM	☒ YES ☐ NO	OR8659	

ENCO LABORATORIES
REPORT # : OR8659
DATE REPORTED: November 9, 1999
REFERENCE : CTO 106
PROJECT NAME : NAS Pensacola/
OLF Bronson

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140-MW6-01	Units
Naphthalene	0.50 U	µg/L
Acenaphthylene	1.0 U	µg/L
2-Methylnaphthalene	**1.1**	µg/L
1-Methylnaphthalene	1.0 U	µg/L
Acenaphthene	0.50 U	µg/L
Fluorene	**0.29**	µg/L
Phenanthrene	1.0 U	µg/L
Anthracene	**0.070** I	µg/L
Fluoranthene	0.10 U	µg/L
Pyrene	0.050 U	µg/L
Benzo(a)anthracene	0.050 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	9.2	µg/L
Surrogate Expected Value	10	µg/L
Surrogate % Recovery	92	%
Surrogate Control Limits	39-148	%
Date Extracted	11/02/99	
Date Analyzed	11/05/99	

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

RESULTS OF ANALYSIS

PA METHOD 504 - THYLENE DIBROMIDE	1140-MW6-01	Units
thylene Dibromide	0.020 U	µg/L
ate Extracted	11/03/99	
ate Analyzed	11/03/99	

PA METHOD FLPRO - etrol Residual Org.	1140-MW6-01	Units
ydrocarbons (C8-C40)	0.20 U	mg/L
urrogate: (o-Terphenyl)		
urrogate Reported Value	46	mg/L
urrogate Expected Value	50	mg/L
urrogate % Recovery	92	%
urrogate Control Limits	35-153	%
ate Extracted	11/03/99	
ate Analyzed	11/06/99	

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

ENCO LABORATORIES
REPORT # : OR8659
DATE REPORTED: November 9, 1999
REFERENCE : CTO 106
PROJECT NAME : NAS Pensacola/
OLF Bronson

RESULTS OF ANALYSIS

PA METHOD 8310 - OLYAROMATIC HYDROCARBONS	1140-MW3-01		Units
aphthalene	66	D1	µg/L
cenaphthylene	20 U	D1	µg/L
-Methylnaphthalene	190	D1	µg/L
-Methylnaphthalene	130	D1	µg/L
cenaphthene	10 U	D1	µg/L
luorene	10	D1	µg/L
henanthrene	20 U	D1	µg/L
nthracene	1.0 I	D1	µg/L
luoranthene	2.0 U	D1	µg/L
yrene	1.0 U	D1	µg/L
enzo(a)anthracene	1.0 U	D1	µg/L
hrysene	1.0 U	D1	µg/L
enzo(b)fluoranthene	2.0 U	D1	µg/L
enzo(k)fluoranthene	1.0 U	D1	µg/L
enzo(a)pyrene	1.0 U	D1	µg/L
ibenzo(a,h)anthracene	2.0 U	D1	µg/L
enzo(g,h,i)perylene	2.0 U	D1	µg/L
ndeno(1,2,3-cd)pyrene	1.0 U	D1	µg/L
Surrogate: (p-Terphenyl)			
Surrogate Reported Value	5.2		µg/L
Surrogate Expected Value	10		µg/L
Surrogate % Recovery	52		%
Surrogate Control Limits	39-148		%
Date Extracted	11/02/99		
Date Analyzed	11/06/99		

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).
D1 = Analyte value determined from a 1:20 dilution.

ENCO LABORATORIES
REPORT # : OR8659
DATE REPORTED: November 9, 1999
REFERENCE : CTO 106
PROJECT NAME : NAS Pensacola/
OLF Bronson

RESULTS OF ANALYSIS

EPA METHOD 504 - ETHYLENE DIBROMIDE	1140-MW3-01	Units
Ethylene Dibromide	0.020 U	µg/L
Date Extracted	11/03/99	
Date Analyzed	11/03/99	

EPA METHOD FLPRO - Petrol Residual Org.	1140-MW3-01	Units
Hydrocarbons (C8-C40)	0.80	mg/L
Surrogate: (o-Terphenyl)		
Surrogate Reported Value	33	mg/L
Surrogate Expected Value	50	mg/L
Surrogate % Recovery	66	%
Surrogate Control Limits	35-153	%
Date Extracted	11/03/99	
Date Analyzed	11/06/99	

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

RESULTS OF ANALYSIS

EPA METHOD 8310 - POLYAROMATIC HYDROCARBONS	1140-DD-01		Units
Naphthalene	72	D1	µg/L
Acenaphthylene	20 U	D1	µg/L
1-Methylnaphthalene	210	D1	µg/L
2-Methylnaphthalene	140	D1	µg/L
Acenaphthene	10 U	D1	µg/L
Fluorene	14	D1	µg/L
Phenanthrene	20 U	D1	µg/L
Anthracene	1.0 U	D1	µg/L
Fluoranthene	2.0 U	D1	µg/L
Pyrene	1.0 U	D1	µg/L
Benzo(a)anthracene	1.0 U	D1	µg/L
Chrysene	1.0 U	D1	µg/L
Benzo(b)fluoranthene	2.0 U	D1	µg/L
Benzo(k)fluoranthene	1.0 U	D1	µg/L
Benzo(a)pyrene	1.0 U	D1	µg/L
Dibenzo(a,h)anthracene	2.0 U	D1	µg/L
Benzo(g,h,i)perylene	2.0 U	D1	µg/L
Indeno(1,2,3-cd)pyrene	1.0 U	D1	µg/L
Surrogate: (p-Terphenyl)			
Surrogate Reported Value	6.4		µg/L
Surrogate Expected Value	10		µg/L
Surrogate % Recovery	64		%
Surrogate Control Limits	39-148		%
Date Extracted	11/02/99		
Date Analyzed	11/06/99		

U = Compound was analyzed for but not detected to the level shown.
D1 = Analyte value determined from a 1:20 dilution.

RESULTS OF ANALYSIS

PA METHOD 504 - THYLENE DIBROMIDE	1140-DD-01	Units
thylene Dibromide	0.020 U	µg/L
ate Extracted	11/03/99	
ate Analyzed	11/03/99	

PA METHOD FLPRO - etrol Residual Org.	1140-DD-01	Units
ydrocarbons (C8-C40)	1.2	mg/L
urrogate: (o-Terphenyl)		
urrogate Reported Value	46.5	mg/L
urrogate Expected Value	50	mg/L
urrogate % Recovery	93	%
urrogate Control Limits	35-153	%
ate Extracted	11/03/99	
ate Analyzed	11/06/99	

ENCO LABORATORIES
REPORT # : OR8659
DATE REPORTED: November 9, 1999
REFERENCE : CTO 106
PROJECT NAME : NAS Pensacola/
OLF Bronson

RESULTS OF ANALYSIS

PA METHOD 8021 - OLATILE HALOGENS	1162-MW7-01	Units
ichlorodifluoromethane	1.0 U	µg/L
hloromethane	1.0 U	µg/L
inyl Chloride	1.0 U	µg/L
romomethane	1.0 U	µg/L
hloroethane	1.0 U	µg/L
richlorofluoromethane	1.0 U	µg/L
,1-Dichloroethene	1.0 U	µg/L
ethylene Chloride	3.0 U	µg/L
-1,2-Dichloroethene	1.0 U	µg/L
,1-Dichloroethane	1.0 U	µg/L
hloroform	**5.7**	µg/L
-1,2-Dichloroethene	1.0 U	µg/L
,1,1-Trichloroethane	1.0 U	µg/L
arbon Tetrachloride	1.0 U	µg/L
,2-Dichloroethane	1.0 U	µg/L
richloroethene	1.0 U	µg/L
,2-Dichloropropane	1.0 U	µg/L
romodichloromethane	1.0 U	µg/L
-1,3-Dichloropropene	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	µg/L
Tetrachloroethene	1.0 U	µg/L
Dibromochloromethane	1.0 U	µg/L
Chlorobenzene	1.0 U	µg/L
Bromoform	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	2.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	µg/L
Surrogate: (Bromofluorobenzene)		
Surrogate Reported Value	45	µg/L
Surrogate Expected Value	50	µg/L
Surrogate % Recovery	90	%
Surrogate Control Limits	54-151	%
Date Analyzed	10/31/99	

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

RESULTS OF ANALYSIS

EPA METHOD 8021 - VOLATILE AROMATICS	1162-MW7-01	Units
Methyl tert-butyl ether	2.0 U	µg/L
Benzene	1.0 U	µg/L
Toluene	1.0 U	µg/L
Chlorobenzene	1.0 U	µg/L
Ethylbenzene	1.0 U	µg/L
m-Xylene & p-Xylene	2.0 U	µg/L
o-Xylene	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	µg/L
Surrogate: (Bromofluorobenzene)		
Surrogate Reported Value	52.5	µg/L
Surrogate Expected Value	50	µg/L
Surrogate % Recovery	105	%
Surrogate Control Limits	64-140	%
Date Analyzed	10/31/99	

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

RESULTS OF ANALYSIS

PA METHOD 8021 - OLATILE HALOGENS	1162-MW1-01	Units
ichlorodifluoromethane	1.0 U	µg/L
hloromethane	1.0 U	µg/L
inyl Chloride	1.0 U	µg/L
romomethane	1.0 U	µg/L
hloroethane	1.0 U	µg/L
richlorofluoromethane	1.0 U	µg/L
,1-Dichloroethene	1.0 U	µg/L
ethylene Chloride	3.0 U	µg/L
-1,2-Dichloroethene	1.0 U	µg/L
,1-Dichloroethane	1.0 U	µg/L
hloroform	3.2 I	µg/L
-1,2-Dichloroethene	1.0 U	µg/L
,1,1-Trichloroethane	1.0 U	µg/L
arbon Tetrachloride	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	µg/L
richloroethene	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	µg/L
romodichloromethane	1.0 U	µg/L
-1,3-Dichloropropene	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	µg/L
Tetrachloroethene	1.0 U	µg/L
Dibromochloromethane	1.0 U	µg/L
Chlorobenzene	1.0 U	µg/L
Bromoform	2.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	µg/L
1,2-Dichlorobenzene		
Surrogate: (Bromofluorobenzene)		
Surrogate Reported Value	44.5	µg/L
Surrogate Expected Value	50	µg/L
Surrogate % Recovery	89	%
Surrogate Control Limits	54-151	%
Date Analyzed	10/31/99	

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

RESULTS OF ANALYSIS

EPA METHOD 8021 - VOLATILE AROMATICS	1162-MW1-01	Units
Methyl tert-butyl ether	2.0 U	µg/L
Benzene	1.0 U	µg/L
Toluene	1.0 U	µg/L
Chlorobenzene	1.0 U	µg/L
Ethylbenzene	1.0 U	µg/L
m-Xylene & p-Xylene	2.0 U	µg/L
o-Xylene	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	µg/L
Surrogate: (Bromofluorobenzene)		
Surrogate Reported Value	52	µg/L
Surrogate Expected Value	50	µg/L
Surrogate % Recovery	104	%
Surrogate Control Limits	64-140	%
Date Analyzed	10/31/99	

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

RESULTS OF ANALYSIS

PA METHOD 8021 - OLATILE HALOGENS	1162-DD-01	Units
ichlorodifluoromethane	1.0 U	µg/L
hloromethane	1.0 U	µg/L
inyl Chloride	1.0 U	µg/L
romomethane	1.0 U	µg/L
hloroethane	1.0 U	µg/L
richlorofluoromethane	1.0 U	µg/L
,1-Dichloroethene	1.0 U	µg/L
ethylene Chloride	3.0 U	µg/L
-1,2-Dichloroethene	1.0 U	µg/L
,1-Dichloroethane	1.0 U	µg/L
hloroform	6.1	µg/L
-1,2-Dichloroethene	1.0 U	µg/L
,1,1-Trichloroethane	1.0 U	µg/L
arbon Tetrachloride	1.0 U	µg/L
,2-Dichloroethane	1.0 U	µg/L
richloroethene	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	µg/L
Bromodichloromethane	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	µg/L
Tetrachloroethene	1.0 U	µg/L
Dibromochloromethane	1.0 U	µg/L
Chlorobenzene	1.0 U	µg/L
Bromoform	2.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	µg/L
1,2-Dichlorobenzene		
Surrogate: (Bromofluorobenzene)		
Surrogate Reported Value	45	µg/L
Surrogate Expected Value	50	µg/L
Surrogate % Recovery	90	%
Surrogate Control Limits	54-151	%
Date Analyzed	10/31/99	

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

RESULTS OF ANALYSIS

PA METHOD 8021 - OLATILE AROMATICS	1162-DD-01	Units
ethyl tert-butyl ether	2.0 U	µg/L
enzene	1.0 U	µg/L
oluene	1.0 U	µg/L
hlorobenzene	1.0 U	µg/L
thylbenzene	1.0 U	µg/L
-Xylene & p-Xylene	2.0 U	µg/L
-Xylene	1.0 U	µg/L
,3-Dichlorobenzene	1.0 U	µg/L
,4-Dichlorobenzene	1.0 U	µg/L
,2-Dichlorobenzene	1.0 U	µg/L
urrogate: (Bromofluorobenzene)		
urrogate Reported Value	54	µg/L
urrogate Expected Value	50	µg/L
urrogate % Recovery	108	%
urrogate Control Limits	64-140	%
ate Analyzed	10/31/99	

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

RESULTS OF ANALYSIS

EPA METHOD 504 - ETHYLENE DIBROMIDE	1122-MW10-01	Units
Ethylene Dibromide	0.020 U	µg/L
Date Extracted	11/03/99	
Date Analyzed	11/03/99	

EPA METHOD FLPRO - Petrol Residual Org.	1122-MW10-01	Units
Hydrocarbons (C8-C40)	0.20 U	mg/L
Surrogate: (o-Terphenyl)		
Surrogate Reported Value	49.5	mg/L
Surrogate Expected Value	50	mg/L
Surrogate % Recovery	99	%
Surrogate Control Limits	35-153	%
Date Extracted	11/03/99	
Date Analyzed	11/06/99	

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

RESULTS OF ANALYSIS

PA METHOD 504 - THYLENE DIBROMIDE	1122-DD-01	Units
thylene Dibromide	0.020 U	µg/L
ate Extracted	11/03/99	
ate Analyzed	11/03/99	

PA METHOD FLPRO - etrol Residual Org.	1122-DD-01	Units
ydrocarbons (C8-C40)	0.20 U	mg/L
urrogate: (o-Terphenyl)		
urrogate Reported Value	47.5	mg/L
urrogate Expected Value	50	mg/L
urrogate % Recovery	95	%
urrogate Control Limits	35-153	%
ate Extracted	11/03/99	
ate Analyzed	11/06/99	

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

RESULTS OF ANALYSIS

PA METHOD 8021 - OLATILE HALOGENS	TB102999-01	Units
ichlorodifluoromethane	1.0 U	µg/L
hloromethane	1.0 U	µg/L
inyl Chloride	1.0 U	µg/L
romomethane	1.0 U	µg/L
hloroethane	1.0 U	µg/L
richlorofluoromethane	1.0 U	µg/L
,1-Dichloroethene	1.0 U	µg/L
ethylene Chloride	3.0 U	µg/L
-1,2-Dichloroethene	1.0 U	µg/L
,1-Dichloroethane	1.0 U	µg/L
hloroform	1.0 U	µg/L
-1,2-Dichloroethene	1.0 U	µg/L
,1,1-Trichloroethane	1.0 U	µg/L
arbon Tetrachloride	1.0 U	µg/L
,2-Dichloroethane	1.0 U	µg/L
richloroethene	1.0 U	µg/L
,2-Dichloropropane	1.0 U	µg/L
romodichloromethane	1.0 U	µg/L
-1,3-Dichloropropene	1.0 U	µg/L
-1,3-Dichloropropene	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	µg/L
Tetrachloroethene	1.0 U	µg/L
Dibromochloromethane	1.0 U	µg/L
Chlorobenzene	1.0 U	µg/L
Bromoform	2.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	µg/L
1,2-Dichlorobenzene		
Surrogate: (Bromofluorobenzene)		
Surrogate Reported Value	43	µg/L
Surrogate Expected Value	50	µg/L
Surrogate % Recovery	86	%
Surrogate Control Limits	54-151	%
Date Analyzed	10/31/99	

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

RESULTS OF ANALYSIS

EPA METHOD 8021 - VOLATILE AROMATICS	TB102999-01	Units
Methyl tert-butyl ether	2.0 U	µg/L
Benzene	1.0 U	µg/L
Toluene	1.0 U	µg/L
Chlorobenzene	1.0 U	µg/L
Ethylbenzene	1.0 U	µg/L
m-Xylene & p-Xylene	2.0 U	µg/L
o-Xylene	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	µg/L
Surrogate: (Bromofluorobenzene)		
Surrogate Reported Value	49	µg/L
Surrogate Expected Value	50	µg/L
Surrogate % Recovery	98	%
Surrogate Control Limits	64-140	%
Date Analyzed	10/31/99	

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

RESULTS OF ANALYSIS

PA METHOD 8021 - OLATILE HALOGENS	LAB BLANK	Units
ichlorodifluoromethane	1.0 U	µg/L
hloromethane	1.0 U	µg/L
inyl Chloride	1.0 U	µg/L
romomethane	1.0 U	µg/L
hloroethane	1.0 U	µg/L
richlorofluoromethane	1.0 U	µg/L
,1-Dichloroethene	1.0 U	µg/L
ethylene Chloride	3.0 U	µg/L
-1,2-Dichloroethene	1.0 U	µg/L
,1-Dichloroethane	1.0 U	µg/L
hloroform	1.0 U	µg/L
-1,2-Dichloroethene	1.0 U	µg/L
,1,1-Trichloroethane	1.0 U	µg/L
arbon Tetrachloride	1.0 U	µg/L
,2-Dichloroethane	1.0 U	µg/L
richloroethene	1.0 U	µg/L
,2-Dichloropropane	1.0 U	µg/L
romodichloromethane	1.0 U	µg/L
-1,3-Dichloropropene	1.0 U	µg/L
-1,3-Dichloropropene	1.0 U	µg/L
,1,2-Trichloroethane	1.0 U	µg/L
etrachloroethene	1.0 U	µg/L
ibromochloromethane	1.0 U	µg/L
hlorobenzene	1.0 U	µg/L
romoform	1.0 U	µg/L
,1,2,2-Tetrachloroethane	2.0 U	µg/L
,3-Dichlorobenzene	1.0 U	µg/L
,4-Dichlorobenzene	1.0 U	µg/L
,2-Dichlorobenzene	1.0 U	µg/L
Surrogate: (Bromofluorobenzene)		
Surrogate Reported Value	43.5	µg/L
Surrogate Expected Value	50	µg/L
Surrogate % Recovery	87	%
Surrogate Control Limits	54-151	%
Date Analyzed	10/31/99	

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

RESULTS OF ANALYSIS

PA METHOD 8021 - OLATILE AROMATICS	LAB BLANK	Units
ethyl tert-butyl ether	2.0 U	µg/L
enzene	1.0 U	µg/L
oluene	1.0 U	µg/L
hlorobenzene	1.0 U	µg/L
thylbenzene	1.0 U	µg/L
-Xylene & p-Xylene	2.0 U	µg/L
-Xylene	1.0 U	µg/L
,3-Dichlorobenzene	1.0 U	µg/L
,4-Dichlorobenzene	1.0 U	µg/L
,2-Dichlorobenzene	1.0 U	µg/L
Surrogate: (Bromofluorobenzene)		
Surrogate Reported Value	53	µg/L
Surrogate Expected Value	50	µg/L
Surrogate % Recovery	106	%
Surrogate Control Limits	64-140	%
Date Analyzed	10/31/99	

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

RESULTS OF ANALYSIS

PA METHOD 8310 - OLYAROMATIC HYDROCARBONS	LAB BLANK	Units
aphthalene	0.50 U	µg/L
cenaphthylene	1.0 U	µg/L
-Methylnaphthalene	1.0 U	µg/L
-Methylnaphthalene	1.0 U	µg/L
cenaphthene	0.50 U	µg/L
luorene	0.10 U	µg/L
henanthrene	1.0 U	µg/L
nthracene	0.050 U	µg/L
luoranthene	0.10 U	µg/L
yrene	0.050 U	µg/L
enzo(a)anthracene	0.050 U	µg/L
hrysene	0.050 U	µg/L
enzo(b)fluoranthene	0.10 U	µg/L
enzo(k)fluoranthene	0.050 U	µg/L
enzo(a)pyrene	0.050 U	µg/L
ibenzo(a,h)anthracene	0.10 U	µg/L
enzo(g,h,i)perylene	0.10 U	µg/L
ndeno(1,2,3-cd)pyrene	0.050 U	µg/L
urrogate: (p-Terphenyl)		
urrogate Reported Value	8.1	µg/L
urrogate Expected Value	10	µg/L
urrogate % Recovery	81	%
urrogate Control Limits	39-148	%
ate Extracted	11/02/99	
ate Analyzed	11/05/99	

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

RESULTS OF ANALYSIS

PA METHOD 504 - THYLENE DIBROMIDE	LAB BLANK	Units
thylene Dibromide	0.020 U	µg/L
ate Extracted	11/03/99	
ate Analyzed	11/03/99	

PA METHOD FLPRO - etrol Residual Org.	LAB BLANK	Units
ydrocarbons (C8-C40)	0.20 U	mg/L
urrogate: (o-Terphenyl)		
urrogate Reported Value	50.5	mg/L
urrogate Expected Value	50	mg/L
urrogate % Recovery	101	%
urrogate Control Limits	35-153	%
ate Extracted	11/03/99	
ate Analyzed	11/05/99	

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 8021					
Methylene Chloride	83/ 98/114	20	66-137	16	25
Chloroform	102/112/129	20	61-131	9	24
Carbon Tetrachloride	108/122/124	20	65-130	12	26
Trichloroethene	76/ 86/ 96	20	55-139	12	26
Tetrachloroethene	104/104/117	20	60-135	<1	23
Chlorobenzene	95/ 99/114	20	68-123	4	22
EPA Method 8021					
Benzene	113/113/130	20	72-134	<1	20
Toluene	105/106/120	20	72-124	<1	19
Ethylbenzene	103/105/122	20	67-129	2	21
p-Xylene	99/102/120	20	66-131	3	21
EPA Method 8310					
Naphthalene	74/ 74/ 67	10	22-130	<1	20
Acenaphthene	79/ 78/ 70	10	14-163	1	19
Benzo(a)pyrene	68/ 81/ 72	1	33-137	17	36
Benzo(g,h,i)perylene	63/ 57/ 74	2	36-135	10	34
EPA Method 504					
Ethylene Dibromide	96/ 96/ 52	0.25	57-130	<1	18
EPA Method FLPRO					
Hydrocarbons (C8-C40)	120/125/119	850	33-165	4	27

Environmental Conservation Laboratories Comprehensive QA Plan #960038

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

QSARF # [illegible]

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ENCO CompQAP No.: 960038G/0

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
[illegible]	CTO 146	

PROJECT LOC. (State): FL
SAMPLER(s) NAME: [illegible]
PHONE: [illegible]
FAX:
CLIENT NAME: [illegible]
CLIENT PROJECT MANAGER: [illegible]
CLIENT ADDRESS (CITY, STATE, ZIP):

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

MATRIX TYPE / REQUIRED ANALYSIS / PRESERVATIVE / NUMBER OF CONTAINERS SUBMITTED

	STATION	DATE	TIME	GRAB	COMP	SAMPLE IDENTIFICATION	SURFACE WATER	GROUND WATER	WASTEWATER	DRINKING WATER	SOIL/SOLID/SEDIMENT	NONAQUEOUS LIQUID (oil, solvent, etc.)	AIR	SLUDGE	OTHER	[illegible]	[illegible]	[illegible]	[illegible]	REMARKS
1	[illegible]	[illegible]	[illegible]	Y		[illegible]-01		X								1	1	2		
2	[illegible]	[illegible]	0955	X		[illegible]-01		Y								1	1	2		Duplicate
3	—	[illegible]	—	Y		[illegible]-01		Y								1	1	2		
4	[illegible]	[illegible]	[illegible]	Y		[illegible]-01		Y											2	
5	[illegible]	[illegible]	[illegible]	Y		[illegible]-01		Y											2	Duplicate
6	—	[illegible]		Y		[illegible]-01		Y											2	
7	[illegible]	[illegible]	[illegible]	Y		[illegible]-01		Y									1X	2		Duplicate
8	—	[illegible]	—	Y		[illegible]-01		Y									1	2		
9																				
10																				
11																				
12																				
13																				
14																				

SAMPLE KIT PREPARED BY: ☐ JACKSONVILLE ☒ ORLANDO

	DATE	TIME		DATE	TIME		DATE	TIME
SAMPLE KIT PREPARED BY			RELINQUISHED BY: (SIGNATURE) [illegible]	[illegible]	1:00	RECEIVED BY: (SIGNATURE)		
RELINQUISHED BY: (SIGNATURE) [illegible]	[illegible]	[illegible]	RECEIVED BY: (SIGNATURE) Fed Ex			RELINQUISHED BY: (SIGNATURE)		
RECEIVED BY (SIGNATURE)			RELINQUISHED BY: (SIGNATURE)			RECEIVED BY: (SIGNATURE)		

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	ENCO LOG NO.	REMARKS
			☐ YES ☐ NO		

QSARF # 10243

ENVIRONMENTAL CONSERVATION LABORATORIES

ENCO

4810 Executive Park Court, Suite 211
Jacksonville, Florida 32216-6069
Ph. (904) 296-3007 • Fax (904) 296-6210

10207 General Drive
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

PAGE 1 OF 1

PROJECT REFERENCE: NAS Pensacola / OLF Bronson
PROJECT NO.: CTO 166
P.O. NUMBER:
PHONE: (850) 385-9899
FAX:
PROJECT LOC. (State): FL
SAMPLER(s) NAME: Roger Franklin
CLIENT NAME: Tetra Tech NUS
CLIENT PROJECT MANAGER: Terry Walker
CLIENT ADDRESS (CITY, STATE, ZIP):

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

MATRIX TYPE / REQUIRED ANALYSIS / PRESERVATIVE / NUMBER OF CONTAINERS SUBMITTED

STATION	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	TPH	EDB	VOC						REMARKS
1 1140-mw6	10/29/99	0955	X		1140-mw6-01		X								1	1	2							
2 1140-mw3	10/29/99	0935	X		1140-mw3-01		X								1	1	2							
3 —	10/29/99	—	X		1140-DD-01		X								1	1	2							Duplicate
4 1167-mw7	10/29/99	1135	X		1167-mw7-01		X											2						
5 1167-mw4	10/29/99	1130	X		1167-mw4-01		X											2						
6 —	10/29/99	—	X		1167-DD-01		X											2						Duplicate
7 1122-mw10	10/29/99	1250	X		1122-mw10-01		X									1x	2							
8 —	10/29/99	—	X		1122-DD-01		X									1	2							Duplicate
9 —	10/29/99	0700	X		TB102999-01		X											2						Trip Blank
10																								
11																								
12																								
13																								
14																								

SAMPLE KIT PREPARED BY: ☐ JACKSONVILLE ☒ ORLANDO — DATE: TIME:

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
[illegible signature]	10/29/99	1600	Fed Ex		

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
K. Armstrong	11/3/99	1:00			

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
			☐ YES ☐ NO		

QSARF # 10866

ENVIRONMENTAL CONSERVATION LABORATORIES

4810 Executive Park Court, Suite 211
Jacksonville, Florida 32216-6069
Ph. (904) 296-3007 • Fax (904) 296-6210

10207 General Drive
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	PROJECT NO.	P.O. NUMBER	PAGE	OF
DLF Bronson [illegible]	FLORN	CT-106		

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE	FAX
FL	J. Elliot; J. Alexander & [illegible]	850 385 4854	850 385 9860

CLIENT NAME	CLIENT PROJECT MANAGER
[illegible]	[illegible] Harrison

CLIENT ADDRESS (CITY, STATE, ZIP)
Tallahassee FL 32308

MATRIX TYPE — REQUIRED ANALYSIS

☐ STANDARD REPORT DELIVERY

☐ EXPEDITED REPORT DELIVERY (surcharge)

Date Due:__________

PRESERVATIVE — NUMBER OF CONTAINERS SUBMITTED

STATION	DATE	TIME	GRAB	COMP	SAMPLE IDENTIFICATION	SURFACE WATER	GROUND WATER	WASTEWATER	DRINKING WATER	SOIL/SOLID/SEDIMENT	NONAQUEOUS LIQUID (oil, solvent, etc.)	AIR	SLUDGE	OTHER	[illegible]	[illegible]							REMARKS
															[illegible]	—							
1	10-23-[illegible]	1152			1101-MW7-01		Y								1								
2	10-23-[illegible]	1136			1101-MW5-01		Y								1								
3	10-23-[illegible]	1115	Y		1101-MW7-01		Y								1								
4	10-23-[illegible]	—	Y		1101-DP-01		Y								1								Dup.
5	10-23-[illegible]	1152	Y		1172-MW2-01		Y								1	2							
6	10-23-[illegible]	1415	Y		1127-MW5-01		Y								1	2							
7	10-23-[illegible]	1518	Y		1127-MW8-01		Y								1	2							
8	10-23-[illegible]	1500	Y		1172-MW15-01		Y								1	2							
9					[illegible]											2							T[illegible] Blank
10																							
11																							
12																							
13																							
14																							

SAMPLE KIT PREPARED BY: ☐JACKSONVILLE ☒ORLANDO	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
			K. Armstrong	10/26/[illegible]	5:00			
RELINQUISHED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RELINQUISHED BY: (SIGNATURE)**	**DATE**	**TIME**
[illegible]	[illegible]	[illegible]	[illegible]					
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
[illegible]			☐YES ☐NO		

CHAIN OF CUSTODY RECORD

~~SOUTHWEST LABORATORY OF OKLAHOMA, INC.~~
~~1700 W. Albany • Broken Arrow, Oklahoma 74012-1421~~
~~Office: 918-251-2858 • Fax 918-251-2599~~

SAMPLING FIRM	CLIENT CONTACT	PHONE NUMBER
Tetra Tech	David Zazul	770 413-0965

P.O. or PROPOSAL NUMBER	PROJECT NAME
	NAS Pensacola/Site 1101/CTO 146

SAMPLER: (Signature)

ANALYTICAL TESTS REQUESTED: VOC, PAH, TPH

SAMPLE NO.	DATE	TIME	COMP.	GRAB	LOCATION	MATRIX	NUMBER OF CONTAINERS	VOC	PAH	TPH						REMARKS
1101 SUB...	10/10/02	[illegible]		✓	Site 1101	S	4	✓	✓	✓						
TBlank 101-02	10/10/02	[illegible]		✓	Trip Blank	W	2	✓								

RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)
[signature]	10/10/02	[illegible]	FedEx

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

RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED FOR LABORATORY BY: (Signature)

REMARKS:

[SR012-1192-03]