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FOURTH QUARTER GROUNDWATER MONITORING PLAN LETTER REPORT FOR
BUILDING 189 TRUMAN ANNEX NAS KEY WEST FL
7/19/1999
TETRA TECH NUS

**TETRA TECH NUS, INC.**

794 S. Military Trail ■ Deerfield Beach, Florida 33442
 (954) 570-5885 ■ FAX (954) 570-5974 ■ www.tetrattech.com

TtNUS/DFB-99-013/7846-7.2.3

19 July, 1999

Project Number 7846

Jorge R. Caspary, P.G.
 Remedial Project Manager
 Technical Review/Federal Facilities
 Florida Department of Environmental Protection
 2600 Blair Stone Road
 Tallahassee, Florida 32399-2400

Reference: Clean Contract No. N62467-94-D0888
 Contract Task Order No. 0059

Subject: Fourth Quarter Groundwater Monitoring Plan Letter Report
 Building 189, Truman Annex, Naval Air Station,
 Key West, Florida

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit the Groundwater Monitoring Report for the referenced Contract Task Order (CTO). This report has been prepared for the U.S. Navy Southern Division Naval Facilities Engineering Command under CTO-059, for the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888.

Monitoring Objectives. The objective of the quarterly groundwater monitoring program at Site 189 is to evaluate the contaminant plume stability and monitor product recovery efforts until cleanup levels are achieved. The monitoring program, contaminants of concern, and target concentrations are presented in the Remedial Action Plan (RAP) for Berthing Wharf Building 189 (ABB-ES, 1994). In 1997, however, the Florida Department of Environmental Protection (FDEP) updated Chapter 62-770 of the Florida Administrative Code (FAC). As a result, new chemicals of concern (CoCs) and updated groundwater cleanup target levels (GCTLs) need to be established for Site 189.

The groundwater at the site is classified as a G-III aquifer (McKenzie, 1990). As a result of this classification, the GCTLs for groundwater of low yield/poor quality, as prescribed by Chapter 62-770 FAC, are the appropriate GCTLs. Based on the first two sampling events at Site 189, TtNUS recommends the following list of CoCs and GCTLs:

<u>CoC</u>	<u>GCTL</u>
Benzo(a)anthracene	2 µg/L
Benzo(a)pyrene	2 µg/L
Indeno(123cd)pyrene	2 µg/L
Total Recoverable Petroleum Hydrocarbons (TRPH)	50 mg/L

Baseline Sampling. Activities and results from the baseline groundwater sampling event and first quarter of free product monitoring at NAS Key West, Site 189, are detailed in the first quarter monitoring report submitted to the FDEP on November 2, 1998.

Q A Record

First Quarter Monitoring. Activities and results from the first quarter of free product monitoring and first quarter groundwater sampling event at NAS Key West, Site 189, are detailed in the first quarter monitoring report submitted to the FDEP on November 2, 1998.

Second Quarter Monitoring. Activities and results from the second quarter of free product monitoring and second quarter groundwater sampling event at NAS Key West, Site 189, are detailed in the second quarter monitoring report submitted to the FDEP on January 18, 1999.

Third Quarter Monitoring. Activities and results from the third quarter of free product monitoring and third quarter groundwater sampling event at NAS Key West, Site 189, are detailed in the third quarter monitoring report submitted to the FDEP on April 16, 1999.

FOURTH QUARTER MONITORING

Free Product Monitoring. TtNUS personnel visited the site on April 3, 1999, May 29, 1999 and June 15, 1999 to perform monthly free product monitoring and recovery. During each of these visits, monitoring wells B189-MW01 B189-MW02, B189-MW03, B189-MW10 and B189-MW11 (see Figure 1, Attachment A) were gauged using an oil/water interface probe. During the site visits, globules of free product was observed in monitoring well B189-MW-2, however the thickness was insufficient to be recorded with the oil/water interface probe. TtNUS attempted to bail the product from the well but the viscous nature of the product prevented it from entering the bailer. No reportable quantities (>0.01 feet) of free product were detected in other monitoring wells during the three events. Findings for the three free product monitoring events are summarized in Table 1, Attachment B

GROUNDWATER MONITORING. On June 15, 1999 Tetra Tech, NUS, Inc. personnel collected groundwater samples from nine Site 189 monitoring wells (B189-MW01, B189-MW02, B189-MW03, B189-MW04 and B189-MW06, B189-MW07, B189-MW10, B189-MW12 and B189-MW13D). All sample activities were conducted in accordance with TtNUS, FDEP approved, Comp QAP # 980038.

Immediately prior to the collection of the groundwater samples, water level and product measurements were recorded from each site monitoring well. The water level data was used to determine purge volumes. In addition, depth-to-water measurements, along with top of casing elevations, were used to calculate groundwater elevations. Based on these elevations, the groundwater was flowing primarily to the east at the time of the sampling. Figure 2, Attachment A, depicts the groundwater elevations recorded on June 15, 1999. Depth to water measurements, top of casing elevations, and groundwater elevation data are provided in Table 2, Attachment B.

All monitoring wells were purged prior to collection groundwater samples. Purging and sampling were performed with a peristaltic pump using the low flow quiescent method. Water sampling logs, which detail the purge process, are provided in Attachment C.

Following collection of the groundwater samples, the sample bottles were packed on ice and shipped via overnight transport to PC&B Environmental Laboratories in Oviedo, Florida. The groundwater samples were analyzed for compounds specified in the baseline sampling event. The analytical results are summarized in Table 3, Attachment B. A copy of the laboratory report is provided in Attachment D.

TRPH were not detected in the groundwater samples collected during the June 1999 sampling event.

Polynuclear Aromatic Hydrocarbons (PAH) concentrations were detected in the samples collected from monitoring wells B189-MW02, B189-MW04, B189-MW06, B189-MW07, B189-MW10 and B189-MW12. The detected PAHs were Fluoranthene, Naphthalene, 1-Methyl naphthalene and Pyrene. PAH concentrations ranged from 1.1 µg/L to 6.7 µg/L. All PAH compounds detected were below their respective GCTLs.

Mr. Jorge R. Caspary, P.G.
FDEP

Conclusions. PAH compounds were the only chemicals detected in Site 189 groundwater samples. Several PAH compounds were detected in the samples collected this quarter, although none exceeded their respective GCTLs. PAH concentrations detected during this quarterly sampling event were slightly below those detected during the previous quarter. Additional monitoring data will be required to make any further conclusions concerning PAHs in Site 189 groundwater. TRPH compounds were not detected above laboratory detection limits for the second consecutive quarter.

Recommendations. Based on the results of the four sampling events and Section 3.1 of the Site 189 RAP (ABB-ES, 1994), TtNUS recommends that future monitoring at Site 189 include only the following analysis:

USEPA Method 8310 for PAHs

The next quarterly sampling event is scheduled for September 1999. If you have any questions with regard to this submittal, please contact me at (954) 570-5885.

Very truly yours,

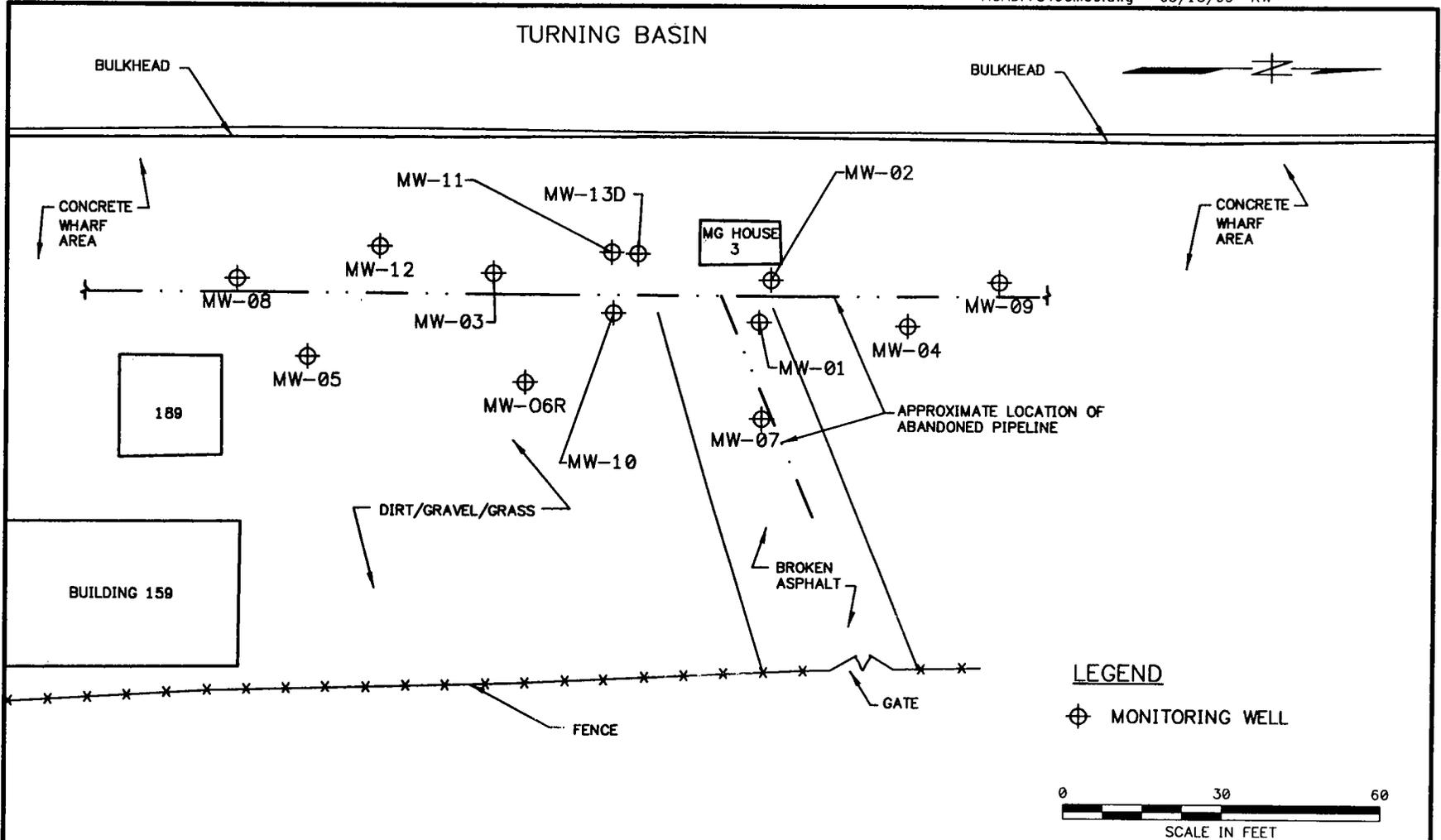
Rick Ofsanko
Task Order Manager


Gary Braganza, P.G. 7.19.99
Florida License No. 1822

RO/ro

Enclosures

c: B. Glover, SDIV
D. Wroblewski / DER (w/o attachments), TtNUS
A. Kendrick / File, TtNUS

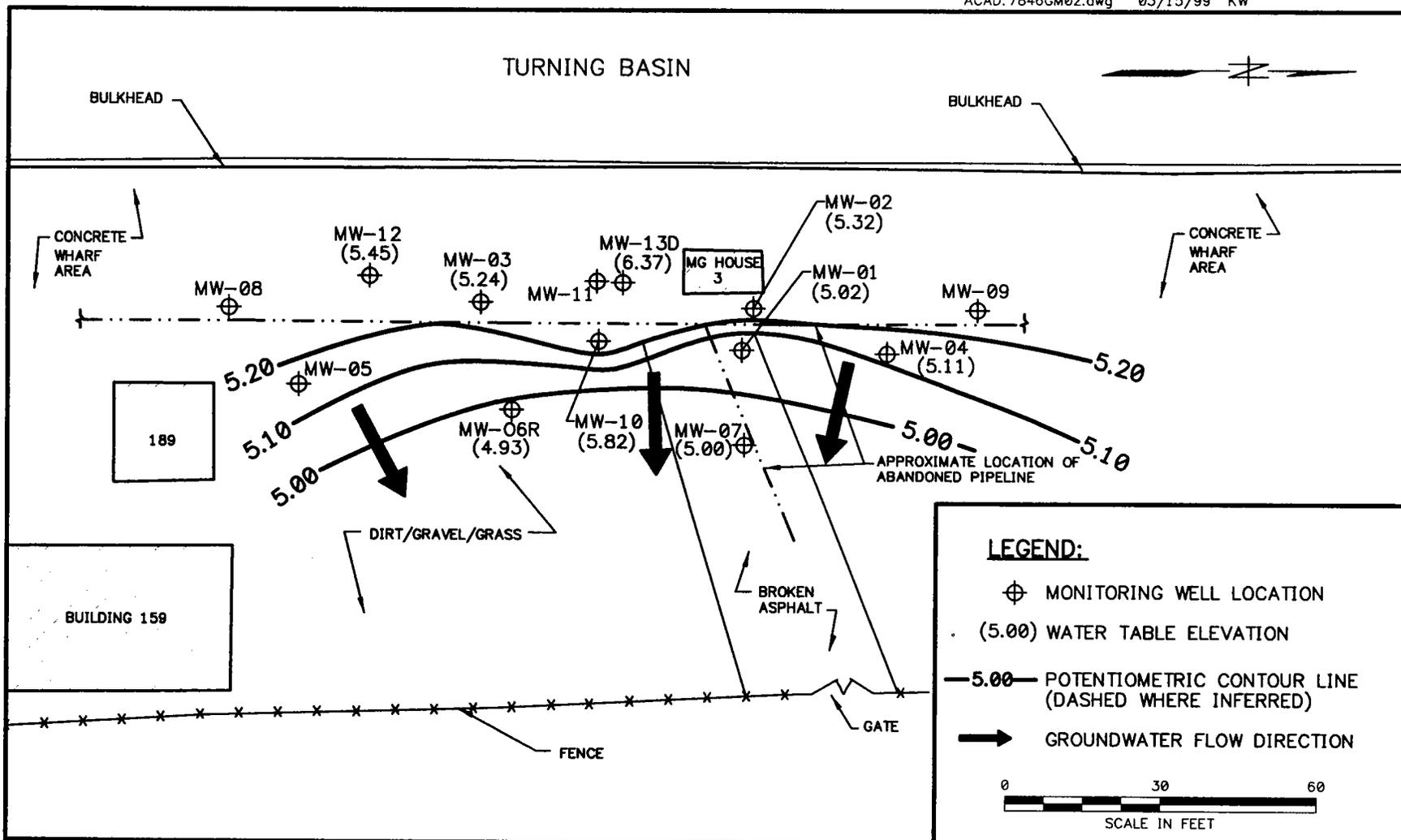


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SCALE	
AS NOTED	



SITE MAP
 BUILDING 189
 TRUMAN ANNEX
 NAVAL AIR STATION
 KEY WEST, FLORIDA

CONTRACT NO. 7846	
APPROVED BY	DATE
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DRAWING NO.	FIGURE 1
REV.	0



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POTENTIOMETRIC SURFACE MAP
 JUNE 15, 1999
 BUILDING 189
 TRUMAN ANNEX
 NAVAL AIR STATION
 KEY WEST, FLORIDA

CONTRACT NO. 7846	
APPROVED BY	DATE
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DRAWING NO. FIGURE 2	REV. 0

Mr. Jorge R. Caspary, P.G.
FDEP

ATTACHMENT B

TABLE 1
FREE PHASE PETROLEUM MEASUREMENTS
Site 189, Truman Annex
Naval Air Station, Key West, Florida

Field Data	B189-MW02				
	June 27, 1998	July 25, 1998	August 15, 1998	August 24, 1998	September 1, 1998
Depth to Product	unobtainable	5.65 feet	NA	NA	NA
Depth to Groundwater	5.62 feet	5.67 feet	6.02 feet	5.87 feet	5.98 feet
Appearance	sticky globules	dark and sticky	Sheen	sheen	sheen
Apparent Thickness ⁽²⁾	0.10 feet	0.02 feet	<0.01 feet	<0.01 feet	<0.01 feet
Removal Amount ⁽³⁾	5 gallons	8 gallons	0 gallons	0 gallons	0 gallons

Field Data	B189-MW03				
	June 27, 1998	July 25, 1998	August 15, 1998	August 24, 1998	September 1, 1998
Depth to Product	Unobtainable	NA	NA	NA	NA
Depth to Groundwater	5.85 feet	5.43 feet	6.15 feet	5.63 feet	5.75 feet
Appearance	sticky globules	Sheen	NA	sheen	sheen
Apparent Thickness	0.10 feet	<0.01 feet	NA	<0.01 feet	<0.01 feet
Removal Amount	5 gallons	0 gallons	0 gallons	0 gallons	0 gallons

NOTES:

⁽¹⁾ Apparent thickness is measured or estimated thickness of

⁽²⁾ Removal amount is the approximate amount of free product and groundwater mixture removed from a monitoring well during free product recovery.

NA = not applicable

TABLE 1 (Continued)
FREE PHASE PETROLEUM MEASUREMENTS
Site 189, Truman Annex
Naval Air Station, Key West, Florida

Field Data	B189-MW02				
	Oct 23, 1998	Dec 2, 1998	Dec 29, 1998	Feb 23, 1999	Mar 15, 1999
Depth to Product	Unobtainable	5.65 feet	NA	NA	Unobtainable
Depth to Groundwater	5.62 feet	5.67 feet	6.02 feet	5.87 feet	5.32 feet
Appearance	sticky globules	dark and sticky	Sheen	sheen	Sticky globules
Apparent Thickness ⁽²⁾	0.10 feet	0.02 feet	<0.01 feet	<0.01 feet	<0.01 feet
Removal Amount ⁽³⁾	5 gallons	8 gallons	0 gallons	0 gallons	0 gallons

Field Data	B189-MW03				
	Oct 23, 1998	Dec 2, 1998	Dec 29, 1998	Feb 23, 1999	Mar 15, 1999
Depth to Product	No product	No product	No product	No product	
Depth to Groundwater					
Appearance					
Apparent Thickness					
Removal Amount					

NOTES:

(1) Apparent thickness is measured or estimated thickness of

(2) Removal amount is the approximate amount of free product and groundwater mixture removed from a monitoring well during free product recovery.

NA = not applicable

TABLE 1 (Continued)
FREE PHASE PETROLEUM MEASUREMENTS
Site 189, Truman Annex
Naval Air Station, Key West, Florida

Field Data	B189-MW02				
	Apr 3, 1999	May 29, 1999	June 15, 1999		
Depth to Product	Unobtainable	5.65 feet	Unobtainable		
Depth to Groundwater	5.62 feet	5.65 feet	5.32 feet		
Appearance	sticky globules	dark and sticky	dark and sticky		
Apparent Thickness ⁽²⁾	<0.01 feet	<0.01 feet	<0.01 feet		
Removal Amount ⁽³⁾	0 gallons	0 gallons	0 gallons		

Field Data	B189-MW03				
	Apr 3, 1999	May 29, 1999	June 15, 1999		
Depth to Product	No product	No product	No product		
Depth to Groundwater					
Appearance					
Apparent Thickness					
Removal Amount					

NOTES:

⁽¹⁾ Apparent thickness is measured or estimated thickness of

⁽²⁾ Removal amount is the approximate amount of free product and groundwater mixture removed from a monitoring well during free product recovery.

NA = not applicable

TABLE 2
TOP OF CASING ELEVATIONS, WATER TABLE ELEVATIONS, AND TOTAL DEPTHS
Site 189, Truman Annex
Naval Air Station, Key West, Florida

Well ID	Total Depth	Top of Casing Elevation ⁽¹⁾	June 27, 1998		October 2, 1998		December 2, 1998	
			Groundwater Level	Groundwater Elevation	Groundwater Elevation	Groundwater Elevation	Groundwater Level	Groundwater Elevation
B189-MW01	12.88	10.00	5.34	4.66	4.95	5.05	5.48	4.52
B189-MW02 ⁽²⁾	13.00	10.74	5.62	5.12	5.87	4.87	6.29	4.45
B189-MW03 ⁽²⁾	12.45	10.52	5.85	4.67	5.95	4.57	6.11	4.41
B189-MW04	12.97	10.91	6.15	4.76	4.39	6.52	6.11	4.80
B189-MW05	12.47	11.04	NM	NM	4.12	6.92	6.06	4.98
B189-MW06R	12.52	9.38	NM	NM	4.79	4.59	4.91	4.47
B189-MW07	12.61	9.08	4.41	4.67	4.08	5.00	4.48	4.60
B189-MW08	NM	10.62	NM	NM	5.72	4.90	NM	NM
B189-MW09	12.88	10.86	NM	NM	5.02	5.84	6.44	4.42
B189-MW10	12.95	10.22	5.21	5.01	5.73	4.49	5.49	4.73
B189-MW11	NM	10.45	NM	NM	5.95	4.50	6.03	4.42
B189-MW12	12.95	10.57	5.88	4.69	6.09	4.48	6.12	4.45
B189-MW13D	36.00	10.52	5.81	4.71	5.35	5.17	6.07	4.45

TABLE 2 (continued)
TOP OF CASING ELEVATIONS, WATER TABLE ELEVATIONS, AND TOTAL DEPTHS
Site 189, Truman Annex
Naval Air Station, Key West, Florida

Well ID	Total Depth	Top of Casing Elevation ⁽¹⁾	February 24, 1999		June 15, 1999	
			Groundwater Level	Groundwater Elevation	Groundwater Level	Groundwater Elevation
B189-MW01	12.88	10.00	5.42	4.58	4.98	5.02
B189-MW02 ⁽²⁾	13.00	10.74	NM	NM	5.42	5.32
B189-MW03 ⁽²⁾	12.45	10.52	5.72	4.67	5.23	5.29
B189-MW04	12.97	10.91	5.95	4.96	5.80	5.11
B189-MW05	12.47	11.04	NM	NM	NM	NM
B189-MW06R	12.52	9.38	4.61	4.77	4.45	4.93
B189-MW07	12.61	9.08	4.11	4.97	4.08	5.00
B189-MW08	NM	10.62	NM	NM	NM	NM
B189-MW09	12.88	10.86	NM	NM	NM	NM
B189-MW10	12.95	10.22	4.35	5.87	4.40	5.82
B189-MW11	NM	10.45	NM	NM	NM	NM
B189-MW12	12.95	10.57	5.51	5.06	5.12	5.45
B189-MW13D	36.00	10.52	5.85	4.67	4.15	6.37

NOTES:

⁽¹⁾ Top of casing and groundwater elevations are relative to an arbitrary site reference elevation of 10 feet.

⁽²⁾ Free phase petroleum product was present in both B189-MW02 and B189-MW03. Product measurements were not taken because the product was viscous and adhered to the probe surface.

All measurements reported in feet.

NM – not measured. B189-MW06R had not yet been installed and the original well could not be found.

TABLE 3: GROUNDWATER MONITORING WELL ANALYTICAL SUMMARY

Facility Name: Building 189, Truman Annex, NAS Key West

Sample Location	Date	Benzo (k) fluoranthene	Pyrene	Fluorene	Benzo(ghi) perylene	Fluoranthene	Chrysene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Indeno (123cd) pyrene	Naphthalene	TRPHs
Cleanup Target Level(1)		5	2100	300	200	None	350	2	2	2	2	200	50
B189-GW-MW1	6/27/98	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	1.2	3.10	<0.1	3.40	<0.05	1.3
	9/2/98	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<0.2	<0.25	<0.2	<0.10	<0.05	<0.1
	12/2/98	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<0.2	<0.25	2.1	<0.10	<0.05	0.9
	2/23/99	<0.2	<1.0	<1.0	<0.2	<1.0	<0.20	<0.2	<0.25	<0.2	<0.2	3.0	<0.1
	6/15/99	<0.3	<1.0	<1.0	<0.3	<1.1	<0.20	<0.2	<0.25	<0.2	<0.2	<0.05	<0.1
B189-GW-MW2	6/27/98	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/2/98	<0.2	<1.0	<1.0	<1.0	<1.0	<5.0	<0.2	<0.25	<0.2	<0.10	<0.05	<0.1
	12/2/98	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.25	<0.2	<0.10	<0.05	6.1
	2/23/99	<0.2	<1.0	<1.0	6.2	3.1	3.84	<0.2	3.04	<0.2	1.4	<0.05	<0.1
	6/15/99	<0.2	1.1	<1.0	<1.0	2.3	<1.0	<0.2	<0.25	<0.2	<0.10	<0.05	<0.1
B189-GW-MW3	6/27/98	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/1/98	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.25	<0.2	<0.10	<0.05	<0.1
	12/2/98	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.25	<0.2	<0.10	<0.05	<0.1
	2/23/99	0.35	5.4	1.5	<0.2	<1.0	<0.20	<0.2	<0.25	<0.2	<0.2	16.4	<0.1
	6/15/99	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.25	<0.2	<0.2	<0.05	<0.1
B189-GW-MW4	6/27/98	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/2/98	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<0.2	<0.25	<0.2	<0.10	<0.05	<0.1
	12/2/98	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.25	<0.2	<0.10	<0.05	<0.1
	2/23/99	<0.2	<1.0	1.3	<0.2	<1.0	<0.20	<0.2	<0.25	<0.2	<0.2	1.6	<0.1
	6/15/99	<0.2	<1.0	1.3	<0.2	<1.0	<0.20	<0.2	<0.25	<0.2	<0.2	1.3	<0.1
B189-GW-MW6R	6/27/98	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/1/98	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<0.2	<0.25	<0.2	<0.10	0.30	<0.1
	12/2/98	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.25	<0.2	<0.10	<0.05	<0.1
	2/23/99	<0.2	<1.0	<1.0	<0.2	<1.0	<0.20	<0.2	<0.25	<0.2	<0.2	<1.0	<0.1
	6/15/99	<0.2	<1.0	<1.0	<0.2	<1.0	<0.20	<0.2	<0.25	<0.2	<0.2	1.6	<0.1
B189-GW-MW7	6/27/98	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<1.0	<0.25	<0.2	<0.05	<0.05	<0.1
	9/2/98	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<0.2	<0.25	<0.2	<0.10	<0.05	<0.1
	12/2/98	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<0.2	<0.25	<0.2	<0.10	<0.05	<0.1
	2/23/99	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<0.2	<0.25	<0.2	<0.2	<1.0	<0.1
	6/15/99	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<0.2	<0.25	<0.2	<0.2	6.7	<0.1

TABLE 3: GROUNDWATER MONITORING WELL ANALYTICAL SUMMARY

Facility Name: Building 189, Truman Annex, NAS Key West

Sample Location	Date	Benzo (k) fluoranthene	Pyrene	Fluorene	Benzo(ghi) perylene	Fluoranthene	Chrysene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Indeno (123cd) pyrene	Naphthalene	TRPHs
B189-GW-MW10	6/27/98	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<0.2	<0.25	<0.1	<0.05	<0.05	1.3
	9/1/98	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<0.2	<0.25	<0.2	<0.10	<0.05	<0.1
	12/2/98	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<0.2	3.60	<0.2	<0.10	<0.05	1.3
	2/23/99	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<0.2	<0.25	<0.2	<0.2	9.2	<0.1
	6/15/99	<0.2	2.3	<1.0	<0.2	<1.0	<0.2	<0.2	<0.25	<0.2	<0.2	3.7	<0.1
B189-GW-MW12	6/27/98	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<1.0	<0.25	<0.1	<0.05	<0.05	<0.1
	9/2/98	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<0.2	<0.25	<0.2	<0.10	<0.05	<0.1
	12/2/98	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<0.2	<0.25	<0.2	<0.10	<0.05	<0.1
	2/23/99	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<0.2	<0.25	<0.2	<0.2	3.7	<0.1
	6/15/99	<0.2	2.8	<1.0	<0.2	<1.0	<0.2	<0.2	<0.25	<0.2	<0.2	<0.05	<0.1
B189-GW-MW13D	6/27/98	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<1.0	<0.25	<0.1	<0.05	<0.05	<0.1
	9/1/98	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<0.2	<0.25	<0.2	<0.10	<0.05	<0.1
	12/2/98	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<0.2	<0.25	<0.2	<0.10	<0.05	<0.1
	2/23/99	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<0.2	<0.25	<0.2	<0.2	<1.0	<0.1
	6/15/99	<0.2	<1.0	<1.0	<0.2	<1.0	<0.2	<0.2	<0.25	<0.2	<0.2	<1.0	<0.1

NOTES:

(1)Groundwater cleanup target levels as specified in Table VIII of Chapter 62-770, Florida Administrative Code.

TRPH = total recoverable petroleum hydrocarbons.

Concentrations reported in micrograms per liter for all chemicals except TRPH. TRPH is reported in milligrams per liter.

NA = not analyzed.

Mr. Jorge R. Caspary, P.G.
FDEP

ATTACHMENT C



Petroleum or Petroleum Products Water Sampling Log

FDEP FACILITY NO.:	WELL NO.: MW2	SAMPLE ID: B-189-MW02	DATE: 6/15/99
SITE NAME: NAS Key West		SITE LOCATION: Human Track	

PURGE DATA									
WELL DIAMETER (in): 2"		TOTAL WELL DEPTH (ft): 13.00			DEPTH TO WATER (ft): 5.42		WELL CAPACITY (gal/ft): 0.820-10		
I WELL VOLUME (gal) = (TOTAL WELL DEPTH - DEPTH TO WATER) x WELL CAPACITY = = (13.00 - 5.42) x 0.820 = 6.25 gal									
PURGE METHOD: Peristaltic pump				PURGING INITIATED AT: 14:20			PURGING ENDED AT: 15:00		
WELL VOLS. PURGED		CUMUL. VOLUME PURGED (gal)	pH	TEMP. (°C)	COND. (µmhos)	PURGE RATE (gpm): 0.5	TOTAL VOLUME PURGED (gal): ≈ 5 gal.		
						COLOR	ODOR	APPEARANCE	OTHER
0.25	1.25	7.45	25.4	9.42	clear	none	clear	N/A	
0.50	2.75	7.45	25.3	9.40	↓	↓	↓	↓	
0.70	4.00	7.46	25.4	9.61	↓	↓	↓	↓	
0.80	5.00	7.46	25.4	9.40	↓	↓	↓	↓	

SAMPLING DATA									
SAMPLED BY / AFFILIATION: GARY BRAGANZA / TETRA TECH					SAMPLER(S) SIGNATURE(S): Gary Braganza				
SAMPLING METHOD(S): Peristaltic Pump					SAMPLING INITIATED AT: 15:00			SAMPLING ENDED AT: 15:12	
FIELD DECONTAMINATION: Y N				FIELD-FILTERED: Y N			DUPLICATE: Y N		
SAMPLE CONTAINER SPECIFICATIONS			SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD		
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (ml)		FINAL pH			
	AG	1L	none	N/A			8310		
		1L	none	N/A			FL-PRO		

REMARKS:

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; HDP = HIGH DENSITY POLYETHYLENE; O = OTHER (SPECIFY)
 WELL CAPACITY: 1.25" = 0.06 gal/ft; 2" = 0.16 gal/ft; 4" = 0.65 gal/ft; 6" = 1.47 gal/ft; 8" = 2.61 gal/ft; 12" = 5.88 gal/ft

NOTE: this does not constitute all the information required by Chapter 62-160, F.A.C.



DEP Form # 62-770-200(3)
 Form Title: Petroleum or Petroleum Products
 Water Sampling Log
 Effective Date: September 23, 1997

Petroleum or Petroleum Products Water Sampling Log

FDEP FACILITY NO.:	WELL NO.: MW-1	SAMPLE ID: 9187-MW01-6W	DATE: 6/15/99
SITE NAME: NAS Key West		SITE LOCATION: Truman Annex	

PURGE DATA								
WELL DIAMETER (in): 2 ⁴	TOTAL WELL DEPTH (ft): 12.88	DEPTH TO WATER (ft): 4.98				WELL CAPACITY (gal/ft): 0.16		
$1 \text{ WELL VOLUME (gal)} = (\text{TOTAL WELL DEPTH} - \text{DEPTH TO WATER}) \times \text{WELL CAPACITY} =$ $= (12.88 - 4.98) \times 0.16 = 1.26$								
PURGE METHOD: Peristaltic				PURGING INITIATED AT: 13:40		PURGING ENDED AT: 14:15		
				PURGE RATE (gpm): 0.5		TOTAL VOLUME PURGED (gal): 5 gal.		
WELL VOLS. PURGED	CUMUL. VOLUME PURGED (gal)	pH	TEMP. (°C)	COND. (µmhos)	COLOR	ODOR	APPEARANCE	OTHER
1	1	7.62	25.4	10.21	clear	none	w/A →	
1	2	7.60	25.6	10.20	↓	↓		
1	3	7.62	25.6	10.15				
1	4	7.62	25.6	10.15				
1	5	7.62	25.9	10.15				

SAMPLING DATA						
SAMPLED BY/AFFILIATION: GB/TT NUS				SAMPLER(S) SIGNATURE(S): Gary Bongiorno		
SAMPLING METHOD(S): Peristaltic pump.				SAMPLING INITIATED AT: 14:25		SAMPLING ENDED AT: 14:25
FIELD DECONTAMINATION: Y (N)			FIELD-FILTERED: Y (N)		DUPLICATE: Y (N)	
SAMPLE CONTAINER SPECIFICATIONS			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (ml)	FINAL pH	
	AG	1L	none			8310 FL-PRO.
	↓	↓	↓			

REMARKS:
 MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; HDP = HIGH DENSITY POLYETHYLENE; O = OTHER (SPECIFY)
 WELL CAPACITY: 1.25" = 0.06 gal/ft; 2" = 0.16 gal/ft; 4" = 0.65 gal/ft; 6" = 1.47 gal/ft; 8" = 2.61 gal/ft; 12" = 5.88 gal/ft

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Petroleum or Petroleum Products Water Sampling Log

FDEP FACILITY NO.:	WELL NO.: <u>MW-3</u>	SAMPLE ID: <u>0189-MW03-GW</u>	DATE: <u>6/15/99</u>
SITE NAME: <u>NAS Key West</u>	SITE LOCATION: <u>Tanner Annex</u>		

PURGE DATA								
WELL DIAMETER (in): <u>2"</u>		TOTAL WELL DEPTH (ft): <u>12.45</u>		DEPTH TO WATER (ft): <u>5.23</u>		WELL CAPACITY (gal/ft): <u>0.16</u>		
$1 \text{ WELL VOLUME (gal)} = (\text{TOTAL WELL DEPTH} - \text{DEPTH TO WATER}) \times \text{WELL CAPACITY} =$ $= (12.45 - 5.23) \times 0.16 = 1.15$								
PURGE METHOD: <u>Peristaltic pump</u>				PURGING INITIATED AT: <u>10:15</u>		PURGING ENDED AT: <u>10:40</u>		
WELL VOLS. PURGED		CUMUL. VOLUME PURGED (gal)	pH	TEMP. (°C)	COND. (µmhos)	PURGE RATE (gpm): <u>0.5</u>	TOTAL VOLUME PURGED (gal): <u>5 gal.</u>	
						COLOR	ODOR	APPEARANCE
<u>1</u>	<u>1</u>	<u>8.05</u>	<u>25.8</u>	<u>10.21</u>	<u>clear</u>	<u>none</u>		
<u>1</u>	<u>2</u>	<u>8.08</u>	<u>25.8</u>	<u>10.10</u>	↓	↓		
<u>1</u>	<u>3</u>	<u>8.06</u>	<u>25.6</u>	<u>10.12</u>	↓	↓		
<u>1</u>	<u>4</u>	<u>8.06</u>	<u>25.6</u>	<u>10.12</u>	↓	↓		
<u>1</u>	<u>5</u>	<u>8.06</u>	<u>25.6</u>	<u>10.12</u>	↓	↓		

SAMPLING DATA						
SAMPLED BY / AFFILIATION: <u>GB/TINUS</u>				SAMPLER(S) SIGNATURE(S): <u>Gay Duggan</u>		
SAMPLING METHOD(S): <u>Peristaltic pump</u>				SAMPLING INITIATED AT: <u>10:40</u>		SAMPLING ENDED AT: <u>10:50</u>
FIELD DECONTAMINATION: <u>Y</u> <input checked="" type="radio"/> <u>N</u>			FIELD-FILTERED: <u>Y</u> <input checked="" type="radio"/> <u>N</u>		DUPLICATE: <input checked="" type="radio"/> <u>Y</u> <input type="radio"/> <u>N</u>	
SAMPLE CONTAINER SPECIFICATIONS			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (ml)	FINAL pH	
	<u>AG</u>	<u>1L</u>	<u>none</u>			<u>8310</u> <u>FL+PRO</u>
	↓	↓	↓			

REMARKS:

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; HDP = HIGH DENSITY POLYETHYLENE; O = OTHER (SPECIFY)

WELL CAPACITY: 1.25" = 0.06 gal/ft; 2" = 0.16 gal/ft; 4" = 0.65 gal/ft; 6" = 1.47 gal/ft; 8" = 2.61 gal/ft; 12" = 5.88 gal/ft

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Petroleum or Petroleum Products Water Sampling Log

FDEP FACILITY NO.:	WELL NO.: 4	SAMPLE ID: 0189 MW04-4-P	DATE: 5/16/99
SITE NAME: NAS Key West		SITE LOCATION: Town Annex	

PURGE DATA								
WELL DIAMETER (in): 2 ^{1/2}		TOTAL WELL DEPTH (ft): 12.97		DEPTH TO WATER (ft): 5.80		WELL CAPACITY (gal/ft): 0.16		
1 WELL VOLUME (gal) = (TOTAL WELL DEPTH - DEPTH TO WATER) x WELL CAPACITY = $= (12.97 - 5.80) \times 0.16 = 1.147$								
PURGE METHOD: Peristaltic Pump				PURGING INITIATED AT: 7:10		PURGING ENDED AT: 7:45		
				PURGE RATE (gpm): 0.5		TOTAL VOLUME PURGED (gal): 5		
WELL VOLS. PURGED	CUMUL. VOLUME PURGED (gal)	pH	TEMP. (°C)	COND. (µmhos)	COLOR	ODOR	APPEARANCE	OTHER
1	1	7.56	25.8	12.2	clear	none		
1	2	7.50	25.6	12.8	↓	↓		
1	3	7.54	25.8	12.6				
1	4	7.54	25.8	12.6				
1	5	7.54	25.8	12.6				

SAMPLING DATA						
SAMPLED BY/ AFFILIATION: Gary Buganza / TINS				SAMPLER(S) SIGNATURE(S): <i>[Signature]</i>		
SAMPLING METHOD(S): Peristaltic				SAMPLING INITIATED AT: 7:45		SAMPLING ENDED AT: 7:50
FIELD DECONTAMINATION: Y (N)		FIELD-FILTERED: Y (N)		DUPLICATE: Y (N)		
SAMPLE CONTAINER SPECIFICATIONS			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (ml)	FINAL pH	
	AG	1L	none			8310 FL PRO
	↓	↓	↓			
REMARKS:						
MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; HDP = HIGH DENSITY POLYETHYLENE; O = OTHER (SPECIFY)						
WELL CAPACITY: 1.25" = 0.06 gal/ft; 2" = 0.16 gal/ft; 4" = 0.65 gal/ft; 6" = 1.47 gal/ft; 8" = 2.61 gal/ft; 12" = 5.88 gal/ft						

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Petroleum or Petroleum Products Water Sampling Log

FDEP FACILITY NO.:	WELL NO.: <u>UW-6</u>	SAMPLE ID: <u>019-uu06 G</u>	DATE: <u>6/15/99</u>
SITE NAME: <u>NAS Key West</u>	SITE LOCATION: <u>Truman Annex</u>		

PURGE DATA								
WELL DIAMETER (in):	<u>2"</u>	TOTAL WELL DEPTH (ft):	<u>12.52</u>	DEPTH TO WATER (ft):	<u>4.45</u>	WELL CAPACITY (gal/ft):	<u>0.16</u>	
1 WELL VOLUME (gal) = (TOTAL WELL DEPTH - DEPTH TO WATER) x WELL CAPACITY =								
$= (12.52 - 4.45) \times 0.16 = 1.29$								
PURGE METHOD:	<u>Peristaltic pump</u>			PURGING INITIATED AT:	<u>8:20</u>	PURGING ENDED AT:	<u>8:55</u>	
WELL VOLS. PURGED	CUMUL. VOLUME PURGED (gal)	pH	TEMP. (°C)	COND. (µmhos)	PURGE RATE (gpm):	TOTAL VOLUME PURGED (gal):		<u>5'</u>
					<u>0.5</u>	COLOR	ODOR	APPEARANCE
<u>1</u>	<u>1</u>	<u>25.2</u>	<u>7.72</u>	<u>8.51</u>		<u>clear</u>	<u>none</u>	
<u>1</u>	<u>2</u>	<u>25.1</u>	<u>7.70</u>	<u>8.44</u>		↓		
<u>1</u>	<u>3</u>	<u>25.0</u>	<u>7.65</u>	<u>8.40</u>		↓		
<u>1</u>	<u>4</u>	<u>25.0</u>	<u>7.65</u>	<u>8.41</u>		↓		
<u>1</u>	<u>5</u>	<u>25.0</u>	<u>7.15</u>	<u>8.41</u>		↓		

SAMPLING DATA						
SAMPLED BY / AFFILIATION: <u>GB / TTNU</u>			SAMPLER(S) SIGNATURE(S): <u>Gregory</u>			
SAMPLING METHOD(S): <u>Peristaltic pump</u>			SAMPLING INITIATED AT: <u>8:55</u>		SAMPLING ENDED AT: <u>9:05</u>	
FIELD DECONTAMINATION: <u>Y</u> <input checked="" type="checkbox"/>		FIELD-FILTERED: <u>Y</u> <input checked="" type="checkbox"/>		DUPLICATE: <u>Y</u> <input checked="" type="checkbox"/>		
SAMPLE CONTAINER SPECIFICATIONS			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (ml)	FINAL pH	
	<u>AG</u>	<u>1L</u>	<u>none</u>			<u>8310</u>
	↓	↓	↓			<u>PL-PRO.</u>
REMARKS:						
MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; HDP = HIGH DENSITY POLYETHYLENE; O = OTHER (SPECIFY)						
WELL CAPACITY: 1.25" = 0.06 gal/ft; 2" = 0.16 gal/ft; 4" = 0.65 gal/ft; 6" = 1.47 gal/ft; 8" = 2.61 gal/ft; 12" = 5.88 gal/ft						

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Petroleum or Petroleum Products Water Sampling Log

FDEP FACILITY NO.: *	WELL NO.: <u>MW-7</u>	SAMPLE ID: <u>B189-01107-50</u>	DATE: <u>6/15/99</u>
SITE NAME: <u>NAS Key West</u>		SITE LOCATION: <u>Tanner Annex</u>	

PURGE DATA								
WELL DIAMETER (in): <u>2"</u>		TOTAL WELL DEPTH (ft): <u>12.61</u>		DEPTH TO WATER (ft): <u>4.08</u>		WELL CAPACITY (gal/ft): <u>0.16</u>		
$1 \text{ WELL VOLUME (gal)} = (\text{TOTAL WELL DEPTH} - \text{DEPTH TO WATER}) \times \text{WELL CAPACITY} =$ $= (12.61 - 4.08) \times 0.16 = 1.36$								
PURGE METHOD: <u>Peristaltic pump</u>				PURGING INITIATED AT: <u>7:47</u>		PURGING ENDED AT: <u>8:20</u>		
				PURGE RATE (gpm): <u>0.5</u>		TOTAL VOLUME PURGED (gal): <u>5 gal.</u>		
WELL VOLS. PURGED	CUMUL. VOLUME PURGED (gal)	pH	TEMP. (°C)	COND. (µmhos)	COLOR	ODOR	APPEARANCE	OTHER
1	1	7.87	25.8	10.21	clear	none		
1	2	7.75	25.6	10.41	↓	↓		
1	3	7.74	25.8	10.40	↓	↓		
1	4	7.74	25.7	10.38	↓	↓		
1	5	7.74	25.7	10.38	↓	↓		

SAMPLING DATA						
SAMPLED BY / AFFILIATION: <u>GB / TT NUS</u>			SAMPLER(S) SIGNATURE(S): <u>[Signature]</u>			
SAMPLING METHOD(S): <u>Peristaltic pump</u>			SAMPLING INITIATED AT: <u>8:20</u>		SAMPLING ENDED AT: <u>8:40</u>	
FIELD DECONTAMINATION: Y <input checked="" type="checkbox"/> N		FIELD-FILTERED: Y <input checked="" type="checkbox"/> N		DUPLICATE: Y <input checked="" type="checkbox"/> N		
SAMPLE CONTAINER SPECIFICATIONS			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (ml)	FINAL pH	
	<u>AG</u> ↓	<u>1L</u> ↓	<u>none</u> ↓			<u>8310</u> <u>PL-PRO.</u>
REMARKS:						
MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; HDP = HIGH DENSITY POLYETHYLENE; O = OTHER (SPECIFY)						
WELL CAPACITY: 1.25" = 0.06 gal/ft; 2" = 0.16 gal/ft; 4" = 0.65 gal/ft; 6" = 1.47 gal/ft; 8" = 2.61 gal/ft; 12" = 5.88 gal/ft						

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Petroleum or Petroleum Products Water Sampling Log

FDEP FACILITY NO.:	WELL NO.: <u>WU-10</u>	SAMPLE ID: <u>8189-WU10-GW</u>	DATE: <u>6/15/98</u>
SITE NAME: <u>NAS Key West</u>	SITE LOCATION: <u>Truman Annex</u>		

PURGE DATA								
WELL DIAMETER (in):	<u>2"</u>	TOTAL WELL DEPTH (ft):	<u>12.95</u>	DEPTH TO WATER (ft):	<u>4.40</u>	WELL CAPACITY (gal/ft):	<u>0.16</u>	
1 WELL VOLUME (gal) = (TOTAL WELL DEPTH - DEPTH TO WATER) x WELL CAPACITY = $= (12.95 - 4.40) \times 0.16 = 1.3$								
PURGE METHOD: <u>Peristaltic pump</u>				PURGING INITIATED AT: <u>10:55</u>		PURGING ENDED AT: <u>11:25</u>		
				PURGE RATE (gpm): <u>0.5</u>		TOTAL VOLUME PURGED (gal): <u>0.5</u>		
WELL VOLS. PURGED	CUMUL. VOLUME PURGED (gal)	pH	TEMP. (°C)	COND. (µmhos)	COLOR	ODOR	APPEARANCE	OTHER
1	1	7.62	25.8	13.21	<u>clear</u>	<u>none</u>		
1	2	7.60	25.9	13.10	↓	↓		
1	3	7.60	25.9	13.10	↓	↓		
1	4	7.60	25.9	13.10	↓	↓		
1	5	7.61	25.9	13.10	↓	↓		

SAMPLING DATA						
SAMPLED BY / AFFILIATION: <u>GB/TINUS</u>				SAMPLER(S) SIGNATURE(S): <u>[Signature]</u>		
SAMPLING METHOD(S): <u>Peristaltic pump</u>				SAMPLING INITIATED AT: <u>11:25</u>		SAMPLING ENDED AT: <u>11:35</u>
FIELD DECONTAMINATION: Y <input checked="" type="checkbox"/> N			FIELD-FILTERED: Y <input checked="" type="checkbox"/> N		DUPLICATE: Y <input checked="" type="checkbox"/> N	
SAMPLE CONTAINER SPECIFICATIONS			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (ml)	FINAL pH	
	<u>AG</u>	<u>1L</u>	<u>none</u>			<u>8310</u> <u>FL-PRO</u>
	↓	↓	↓			

REMARKS:

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; HDP = HIGH DENSITY POLYETHYLENE; O = OTHER (SPECIFY)

WELL CAPACITY: 1.25" = 0.06 gal/ft; 2" = 0.16 gal/ft; 4" = 0.65 gal/ft; 6" = 1.47 gal/ft; 8" = 2.61 gal/ft; 12" = 5.88 gal/ft

NOTE: this does not constitute all the information required by Chapter 62-160, F.A.C.



Form # 62-770-900(1)
 Form Title: Petroleum or Petroleum Products
 Water Sampling Log
 Effective Date: September 23, 1997

Petroleum or Petroleum Products Water Sampling Log

FDEP FACILITY NO.:	WELL NO.: MW-12	SAMPLE ID:	DATE: 6/15/99
SITE NAME: NAS Key West		SITE LOCATION: Truman Annex	

PURGE DATA								
WELL DIAMETER (in): 2"		TOTAL WELL DEPTH (ft): 12.95		DEPTH TO WATER (ft): 5.12		WELL CAPACITY (gal/ft): 0.16		
1 WELL VOLUME (gal) = (TOTAL WELL DEPTH - DEPTH TO WATER) x WELL CAPACITY = $= (12.95 - 5.12) \times 0.16 = 1.25$								
PURGE METHOD: Perizalatin pump				PURGING INITIATED AT: 8:50		PURGING ENDED AT: 9:35		
				PURGE RATE (gpm): 0.5		TOTAL VOLUME PURGED (gal): 5 gal.		
WELL VOLS. PURGED	CUMUL. VOLUME PURGED (gal)	pH	TEMP. (°C)	COND. (µmhos)	COLOR	ODOR	APPEARANCE	OTHER
1.0		8.10	25.6	12.2	clear	none	N/A	
2.0		8.12	25.5	12.6	↓	↓	↓	
3.0		8.10	25.6	12.6	↓	↓	↓	
4.0		8.10	25.6	12.7	↓	↓	↓	
5.0		8.10	25.6	12.6	↓	↓	↓	

SAMPLING DATA						
SAMPLED BY / AFFILIATION				SAMPLER(S) SIGNATURE(S)		
SAMPLING METHOD(S):				SAMPLING INITIATED AT:		SAMPLING ENDED AT:
FIELD DECONTAMINATION: Y N			FIELD-FILTERED: Y N			DUPLICATE: Y N
SAMPLE CONTAINER SPECIFICATIONS			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (ml)	FINAL pH	
	AG	1L				8310 FL-PRO

REMARKS:
 MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; HDP = HIGH DENSITY POLYETHYLENE; O = OTHER (SPECIFY)
 WELL CAPACITY: 1.25" = 0.06 gal/ft; 2" = 0.16 gal/ft; 4" = 0.65 gal/ft; 6" = 1.47 gal/ft; 8" = 2.61 gal/ft; 12" = 5.88 gal/ft

NOTE: this does not constitute all the information required by Chapter 62-160, F.A.C.



FDEP Form # 62-770-200(3)
 Form Title: Petroleum or Petroleum Products
 Water Sampling Log
 Effective Date: September 23, 1997

Petroleum or Petroleum Products Water Sampling Log

FDEP FACILITY NO.:	WELL NO.: 13 D	SAMPLE ID: B139-MW13D-GW	DATE: 6/15/99
SITE NAME: NAS Key West		SITE LOCATION: Truman Annex	

PURGE DATA								
WELL DIAMETER (in): 2"		TOTAL WELL DEPTH (ft): 36		DEPTH TO WATER (ft): 4.15		WELL CAPACITY (gal/ft): 0.16		
$1 \text{ WELL VOLUME (gal)} = (\text{TOTAL WELL DEPTH} - \text{DEPTH TO WATER}) \times \text{WELL CAPACITY} =$ $= (36 - 4.15) \times 0.16 = 5.09$								
PURGE METHOD: Peristaltic pump				PURGING INITIATED AT: 13:00		PURGING ENDED AT: 13:30		
				PURGE RATE (gpm): 0.5		TOTAL VOLUME PURGED (gal): ≈ 5		
WELL VOLS. PURGED	CUMUL. VOLUME PURGED (gal)	pH	TEMP. (°C)	COND. (µmhos)	COLOR	ODOR	APPEARANCE	OTHER
1	1	8.16	25.5	13.21	clear	none →		
1	2	8.12	25.6	13.20	↓			
1	3	8.12	25.7	13.41				
1	4	8.12	25.7	13.40				
1	5	8.12	25.7	13.40				

SAMPLING DATA							
SAMPLED BY / AFFILIATION: GB / TINUS				SAMPLER(S) SIGNATURE(S): <i>Gregory B...</i>			
SAMPLING METHOD(S): Peristaltic pump				SAMPLING INITIATED AT: 13:30		SAMPLING ENDED AT: 13:40	
FIELD DECONTAMINATION: Y <input checked="" type="checkbox"/>			FIELD-FILTERED: Y <input checked="" type="checkbox"/>			DUPLICATE: Y <input checked="" type="checkbox"/>	
SAMPLE CONTAINER SPECIFICATIONS			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (ml)	FINAL pH		
	AG	↓	none			8310 FL-PRO	
	↓	↓	↓				

REMARKS:
 MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; HDP = HIGH DENSITY POLYETHYLENE; O = OTHER (SPECIFY)
 WELL CAPACITY: 1.25" = 0.06 gal/ft; 2" = 0.16 gal/ft; 4" = 0.65 gal/ft; 6" = 1.47 gal/ft; 8" = 2.61 gal/ft; 12" = 5.88 gal/ft

NOTE: this does not constitute all the information required by Chapter 62-160, F.A.C.

Mr. Jorge R. Caspary, P.G.
FDEP

ATTACHMENT D



PC&B Environmental Laboratories, Inc.

210 Park Road, Oviedo, Florida 32765
Phone: 407-359-7194 Fax: 407-359-7197

Client : Tetra Tech NUS, Inc.
794 S. Military Trail
Deerfield Beach, FL 32732-

Contact : Rick Ofsanko
Phone : (954) 570-5885

Laboratory Reference Number : 99060132

Project Name : 189 Monitoring
Project Number : 7846

Chain of Custody : 16795

Laboratory ID	Matrix	Client ID	Status	Date/Time Sampled
99060132-1	Water	B189-MW01-GW-01	RUN	06/15/1999 14:15
99060132-2	Water	B189-MW02-GW-01	RUN	06/15/1999 15:00
99060132-3	Water	B189-MW03-GW-01	RUN	06/15/1999 10:40
99060132-4	Water	B189-MW04-GW-01	RUN	06/15/1999 07:45
99060132-5	Water	B189-MW06-GW-01	RUN	06/15/1999 08:55
99060132-6	Water	B189-MW07-GW-01	RUN	06/15/1999 08:20
99060132-7	Water	B189-MW10-GW-01	RUN	06/15/1999 11:25
99060132-8	Water	B189-MW12-GW-01	RUN	06/15/1999 09:35
99060132-9	Water	B189-MW13D-GW-01	RUN	06/15/1999 13:30
99060132-10	Water	B189-DUP1-GW-01	RUN	06/15/1999

Number	Parameter	Description
10	EPA 8310	PAH's by HPLC
10	FL-PRO	Petroleum Hydrocarbons

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 210 Park Road
 Oviedo, FL 32765
 PHONE: 407-359-7194
 FAX: 359-7197

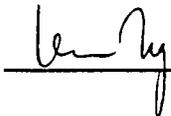
PAH's by HPLC

CLIENT NAME: Tetra Tech NUS, Inc.
 PROJECT NAME: 189 Monitoring
 PROJECT NUMBER: 7846
 DATE RECEIVED: 06/17/1999
 ANALYTICAL PROTOCOL: EPA 8310

Lab Reference Number	99060132-1	99060132-2	99060132-3	99060132-4	99060132-5
Client Sample ID	B189-MW01-GW-0	B189-MW02-GW-0	B189-MW03-GW-0	B189-MW04-GW-0	B189-MW06-GW-0
Date Sampled	06/15/1999	06/15/1999	06/15/1999	06/15/1999	06/15/1999
Date Extracted	06/18/1999	06/18/1999	06/18/1999	06/18/1999	06/18/1999
Date Analyzed	06/18/1999	06/18/1999	06/18/1999	06/18/1999	06/18/1999
Sample Matrix (as Received)	Water	Water	Water	Water	Water
Analysis Confirmed	No	No	No	No	No
Dilution Factor	1	1	1	1	1
Result Units	ug/l	ug/l	ug/l	ug/l	ug/l
Acenaphthene	5 U	5 U	5 U	5 U	5 U
Acenaphthylene	5 U	5 U	5 U	5 U	5 U
Anthracene	5 U	5 U	5 U	5 U	5 U
Benzo(a)anthracene	0.2 U				
Benzo(a)pyrene	0.25 U				
Benzo(b)fluoranthene	0.2 U				
Benzo(ghi)perylene	0.2 U				
Benzo(k)fluoranthene	0.25 U				
Chrysene	0.2 U				
dibenzo(ah)anthracene	0.2 U				
Fluoranthene	1.0 U	2.3	1.0 U	1.0 U	1.0 U
Fluorene	1.0 U				
Indeno(123cd)pyrene	0.2 U				
Naphthalene	1.0 U	1.0 U	1.0 U	1.3	1.6
1-Methyl naphthalene	1.0 U	1.0 U	1.0 U	1.2	1.0 U
2-Methyl naphthalene	1.0 U				
Phenanthrene	1.0 U				
Pyrene	1.0 U	1.1	1.0 U	1.0 U	1.0 U

U = Undetected. The value preceding the 'U' is the MDL for the analyte, based on dilution. Results reported on a Wet Weight basis.

FDEP CompQAPP # 900134G - FHRs Certification # E83239/83353

Reviewed by: 

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 210 Park Road
 Oviedo, FL 32765
 PHONE: 407-359-7194
 FAX: 359-7197

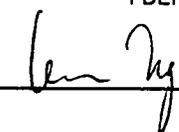
PAH's by HPLC

CLIENT NAME: Tetra Tech NUS, Inc.
 PROJECT NAME: 189 Monitoring
 PROJECT NUMBER: 7846
 DATE RECEIVED: 06/17/1999
 ANALYTICAL PROTOCOL: EPA 8310

Lab Reference Number	99060132-6	99060132-7	99060132-8	99060132-9	99060132-10
Client Sample ID	B189-MW07-GW-0	B189-MW10-GW-0	B189-MW12-GW-0	B189-MW13D-GW-01	B189-DUP1-GW-01
Date Sampled	06/15/1999	06/15/1999	06/15/1999	06/15/1999	06/15/1999
Date Extracted	06/18/1999	06/18/1999	06/18/1999	06/18/1999	06/18/1999
Date Analyzed	06/18/1999	06/18/1999	06/18/1999	06/18/1999	06/18/1999
Sample Matrix (as Received)	Water	Water	Water	Water	Water
Analysis Confirmed	No	No	No	No	No
Dilution Factor	1	1	1	1	1
Result Units	ug/l	ug/l	ug/l	ug/l	ug/l
Acenaphthene	5 U	5 U	5 U	5 U	5 U
Acenaphthylene	5 U	5 U	5 U	5 U	5 U
Anthracene	5 U	5 U	5 U	5 U	5 U
Benzo(a)anthracene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Benzo(a)pyrene	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Benzo(b)fluoranthene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Benzo(ghi)perylene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Benzo(k)fluoranthene	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Chrysene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
dibenzo(ah)anthracene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Fluoranthene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Indeno(123cd)pyrene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Naphthalene	6.7	3.7	1.0 U	1.0 U	3.9
1-Methyl naphthalene	3.6	1.0 U	1.0 U	1.0 U	1.0 U
2-Methyl naphthalene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Phenanthrene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	1.0 U	2.3	2.8	1.0 U	5.9

U = Undetected. The value preceding the 'U' is the MDL for the analyte, based on dilution. Results reported on a Wet Weight basis.

FDEP CompQAPP # 900134G - FHRS Certification # E83239/83353

Reviewed by: 

Quality Control Report for Spike Analysis

PAH's by HPLC

Matrix: Water

Lab Sample ID: 9905185-12

QC Batch ID: 9906PAH092

Spike Units: ug/l

Analysis Date: 06/18/1999

Preparation Date: 06/18/1999

Method: EPA 8310

Analyst: ELA

Analyte	Spike Amount	Sample Result	Spike Result	Percent Recovery	Lower Control Limit	Upper Control Limit
Acenaphthene	50.0	0.0	37.0	74	45	133
Acenaphthylene	25.0	0.0	20.0	80	45	133
Anthracene	1.0	0.0	0.8	84	45	133
Benzo(a)anthracene	2.5	0.0	2.2	87	45	133
Benzo(a)pyrene	2.5	0.0	2.3	94	45	133
Benzo(b)fluoranthene	1.0	0.0	0.8	82	45	133
Benzo(ghi)perylene	4.0	0.0	3.5	89	45	133
Benzo(k)fluoranthene	1.0	0.0	1.0	99	45	133
Chrysene	2.5	0.0	2.3	91	45	133
dibenzo(ah)anthracene	10.0	0.0	8.7	87	45	160
Fluoranthene	2.5	0.0	2.0	82	45	133
Fluorene	5.0	0.0	4.0	79	45	133
Indeno(123cd)pyrene	2.5	0.0	2.4	95	45	133
Naphthalene	25.0	0.0	19.0	76	45	133
Phenanthrene	2.0	0.0	1.6	80	45	133
Pyrene	5.0	0.0	4.7	94	45	133

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 210 Park Road
 Oviedo, FL 32765
 PHONE: 407-359-7194
 FAX: 359-7197

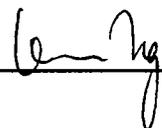
Petroleum Hydrocarbons

CLIENT NAME: Tetra Tech NUS, Inc.
 PROJECT NAME: 189 Monitoring
 PROJECT NUMBER: 7846
 DATE RECEIVED: 06/17/1999
 ANALYTICAL PROTOCOL: FL-PRO

Lab Reference Number	99060132-1	99060132-2	99060132-3	99060132-4	99060132-5
Client Sample ID	B189-MW01-GW-0	B189-MW02-GW-0	B189-MW03-GW-0	B189-MW04-GW-0	B189-MW06-GW-0
Date Sampled	06/15/1999	06/15/1999	06/15/1999	06/15/1999	06/15/1999
Date Extracted	06/17/1999	06/17/1999	06/17/1999	06/17/1999	06/17/1999
Date Analyzed	06/17/1999	06/17/1999	06/17/1999	06/17/1999	06/17/1999
Sample Matrix (as Received)	Water	Water	Water	Water	Water
Analysis Confirmed	No	No	No	No	No
Dilution Factor	1	1	1	1	1
Result Units	mg/l	mg/l	mg/l	mg/l	mg/l
Total PHS	0.1 U				
(Surr) C-39 (%)	69	72	78	71	104

U = Undetected. The value preceeding the 'U' is the MDL for the analyte, based on dilution. Results reported on a Wet Weight basis.

FDEP CompQAPP # 900134G - FHRS Certification # E83239/83353

Reviewed by : 

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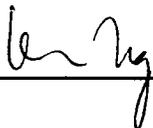
Petroleum Hydrocarbons

CLIENT NAME: Tetra Tech NUS, Inc.
 PROJECT NAME: 189 Monitoring
 PROJECT NUMBER: 7846
 DATE RECEIVED: 06/17/1999
 ANALYTICAL PROTOCOL: FL-PRO

Lab Reference Number	99060132-6	99060132-7	99060132-8	99060132-9	99060132-10
Client Sample ID	B189-MW07-GW-0	B189-MW10-GW-0	B189-MW12-GW-0	B189-MW13D-GW	B189-DUP1-GW-0
Date Sampled	06/15/1999	06/15/1999	06/15/1999	06/15/1999	06/15/1999
Date Extracted	06/17/1999	06/17/1999	06/17/1999	06/17/1999	06/17/1999
Date Analyzed	06/17/1999	06/17/1999	06/18/1999	06/18/1999	06/18/1999
Sample Matrix (as Received)	Water	Water	Water	Water	Water
Analysis Confirmed	No	No	No	No	No
Dilution Factor	1	1	1	1	1
Result Units	mg/l	mg/l	mg/l	mg/l	mg/l
Total PHS	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
(Surr) C-39 (%)	73	74	80	120	67

U = Undetected. The value preceding the 'U' is the MDL for the analyte, based on dilution. Results reported on a Wet Weight basis.

FDEP CompQAPP # 900134G - FHRS Certification # E83239/83353

Reviewed by: 

Quality Control Report for Spike/Spike Duplicate Analysis

Petroleum Hydrocarbons

Matrix: Water

Lab Sample ID: 9905185-17

QC Batch ID: 9906FLRO088

Spike Units: mg/l

Analysis Date: 06/17/1999

Preparation Date: 06/17/1999

Method: FL-PRO

Analyst: RM

Analyte	Spike Amount	Sample Result	Spike Result	Spike Percent Recovery	MSD Result	MSD Percent Recovery	RPD
(Surr) C-39	100.0	0.0	87.0	87	90.0	90	3
Total PHS	50.0	0.0	38.0	76	38.0	76	0

Quality Control Limits

Analyte	Lower Limit	Upper Limit	RPD
SS_C-39	7	139	30
Total PHS	57	110	11

