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NAS PENSACOLA
5090.3a

CONTAMINATION ASSESSMENT REPORT ADDENDUM FOR SITE 1101 OUTLYING
LANDING FIELD BRONSON NAS PENSACOLA FL
03/01/1999
NAVY PUBLIC WORKS CENTER

CONTAMINATION ASSESSMENT REPORT ADDENDUM

**U.S. NAVY OUTLYING LANDING FIELD (OLF) BRONSON
SITE 1101, PENSACOLA, FLORIDA**

FDEP # 179300938

PREPARED BY:

**NAVY PUBLIC WORKS CENTER
NAS ENVIRONMENTAL, BLDG 1754
PENSACOLA, FLORIDA 32508-6500**

AUTHOR:

GREGORY ALLEN CAMPBELL, P. E.

MARCH 1999

PREPARED FOR:

**SOUTHERN DIVISION NAVAL FACILITIES
ENGINEERING COMMAND
2155 EAGLE DR. P.O. BOX 190010
NORTH CHARLESTON, SOUTH CAROLINA 29418**

BYAS GLOVER, CODE 18410, ENGINEER-IN-CHARGE



Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

October 8, 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 Landing Field (OLF) Bronson, Site 1101,
Pensacola, Florida, DEP Facility # 179300938

Dear Mr. Glover:

I have completed the technical review of the above referenced document dated March 1999 (received April 8, 1999). Please excuse the late review of this report. I have only a few comments regarding the recommendations (Page 4) presented in this document.

I do not believe a soil sample is appropriate from this depth if the soils collected at 15 feet below land surface (BLS) are located below the water table. The slightly elevated Organic Vapor Analyzer (OVA) data collected from this depth may reflect groundwater conditions.

I recommend that groundwater samples be collected from monitoring wells MW-1, MW-5, and MW-7 quarterly for two quarters, and analyzed for TRPH. In addition, water level measurements should be collected for each sampling event as stated in the report. An Addendum to the report should be submitted presenting the data from both sampling events and a recommendation for the site.

Based on my review of the data, only MW-1 currently exceeds the Groundwater Cleanup Target Level (GCTL) for TRPH and that the concentration is decreasing over time. Upon review of the additional data, I believe a No Further Action (NFA) recommendation may be appropriate for the site.

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

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

Mr. Byas Glover
Page Two
October 8, 1999

Sincerely,

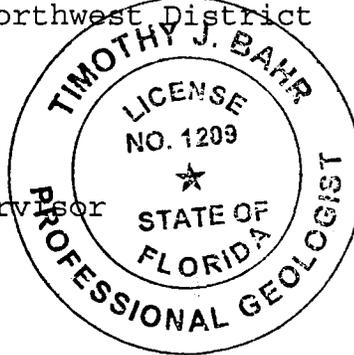
Joseph F. Fugitt

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

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

Reviewed by:

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



10/8/99
Date

JJC *JJC*

ESN *ESN*

CONTAMINATION ASSESSMENT REPORT ADDENDUM

**U.S. NAVY OUTLYING LANDING FIELD (OLF) BRONSON
SITE 1101, PENSACOLA, FLORIDA**

FDEP # 179300938

PREPARED BY:

**NAVY PUBLIC WORKS CENTER
NAS ENVIRONMENTAL, BLDG 1754
PENSACOLA, FLORIDA 32508-6500**

AUTHOR:

GREGORY ALLEN CAMPBELL, P. E.

MARCH 1999

PREPARED FOR:

**SOUTHERN DIVISION NAVAL FACILITIES
ENGINEERING COMMAND
2155 EAGLE DR. P.O. BOX 190010
NORTH CHARLESTON, SOUTH CAROLINA 29418**

BYAS GLOVER, CODE 18410, ENGINEER-IN-CHARGE

PROFESSIONAL REVIEW CERTIFICATION

The Contamination Assessment Report Addendum contained in this report was prepared using sound, hydrogeologic principles and judgement. This assessment is based on the geologic investigation and associated information detailed in the text and appended to this report. If conditions are determined to exist that differ from those described, the undersigned engineer should be notified to evaluate the effects of any additional information on the assessment described in this report. This Contamination Assessment Report Addendum was developed for the U.S. Navy Outlying Landing Field (OLF) Bronson, Site 1101, Pensacola, Florida, and should not be construed to apply to any other site.


Gregory Allen Campbell
Professional Engineer
P.E. No. 38572

3/30/99
Date



DEPARTMENT OF THE NAVY
NAVY PUBLIC WORKS CENTER
310 JOHN TOWER ROAD
PENSACOLA, FLORIDA 32508-5303

5090
Ser 00500/0063
29 MAR 1999

IN REPLY REFER TO

Mr. John Mitchell, Remedial Project Manager
Florida Department of Environmental Protection
Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: CONTAMINATION ASSESSMENT REPORT ADDENDUM (CARA),
U.S. NAVY OUTLYING FIELD (OLF) BRONSON, SITE 1101, PENSACOLA,
FLORIDA

Dear Mr. Mitchell:

This letter is in reference to your March 6, 1997, letter addressing comments to the Contamination Assessment Report (CAR) and Monitoring Only Plan (MOP), dated January 1997, for the U.S. Navy Outlying Field (OLF), Bronson, Site 1101, Pensacola, Florida (Appendix A). Per your request, this CAR Addendum is in response to your comments as summarized below:

COMMENT 1: Based on water level elevations in the monitoring wells, groundwater flow direction to the east-northeast indicated on Figure 2-3 needs to be corrected to show groundwater flow to the west-southwest.

RESPONSE: A corrected Groundwater Flow Direction Map, which indicates the groundwater flow at Site 1101 to be to the west-southwest, is included in Appendix B, Figure 1, and a corrected copy has been included in the CAR dated January 1997.

COMMENT 2: All monitoring wells need to be resampled for lead using EPA Method 7421 as stated in Chapter 62-770, F.A.C. The analytical method used (SW6010) has a detection limit of 50 ug/L, the Florida Primary Drinking Water Standard for lead is 15 ug/L. An analytical method with a lower detection limit is required. You should also be aware that Chapter 62-770 is being revised and will reflect the drinking water standards.

RESPONSE: The Navy Public Works Center (PWC) Laboratory collected groundwater samples from monitoring wells MW-1 through MW-7 and DMW-6 using the quiescent sampling technique on October 22, 1998. Groundwater samples were analyzed for lead using EPA Method 239.2, which has a detection limit of 0.003 ppm (3 ppb). The detection limit for lead using EPA Method 239.2 is lower than the new Florida Primary Drinking Water Standard of 15 ppb for lead. A summary table of the analytical results for lead is shown in Appendix C, Table I. The summary table shows past and present analytical results of groundwater samples collected from monitoring wells MW-1 through MW-7 and DMW-6 to aid in comparing

increases and decreases in contaminant concentrations. The analytical laboratory results of the groundwater samples are found in Appendix D.

No lead was detected in the groundwater samples collected from monitoring wells MW-1 through MW-7 and DMW-6 on October 22, 1998.

COMMENT 3: An additional monitoring well should be placed downgradient (west-southwest) of monitoring well MW-5 to adequately determine the furthest extent of TRPH contamination above 5 ppm. Analysis can be for TRPH and lead only.

RESPONSE: An additional monitoring well, MW-7, was constructed 15 feet downgradient (west-southwest) of monitoring well MW-5 on May 1, 1998. Monitoring well MW-7 was installed approximately 20 feet BLS using a hollow stem auger with an inside diameter of approximately 4.0 inches. Groundwater was located at approximately 13 feet BLS. The monitoring well consists of a 2-inch diameter by 10 feet of 0.010-inch slotted schedule 40 PVC screen, threaded to 10 feet of solid schedule 40 PVC riser casing. The filter sand pack, consisting of coarse silica sand (sand pack mesh size 20-30), was extended approximately one foot above the top of the well screen. A one foot bentonite seal (Wyoming Bentonite) was placed above the sand pack with the remaining annular space filled with neat cement grout. The PVC casing was brought up to 0.2 feet below ground level. A steel manhole casing (8-inch diameter x 4-inch deep) was placed in borehole around the PVC riser and set with neat cement. An 8-inch diameter steel manhole cover was placed over the manhole. A 6-inch thick concrete encasement (4,000 psi) was installed around the outside of the manhole and flush to the land surface. A map showing the location of monitoring well MW-7 is included in Appendix E, Figure 2. A monitoring well construction diagram and lithological log for MW-7 are included in Appendix F.

Soil samples were collected at 1', 4', 7', 10', 12.5', and 15' BLS from the borehole during the installation of monitoring well MW-7. The soil samples were analyzed for volatile organic vapors by PWC personnel using an organic vapor analyzer (OVA) with a flame ionization detector. No VOC's were detected in the soil samples collected at 10' and 12.5' BLS. Volatile organic vapors were detected in the soil samples collected at depths of 1, 4, 7, and 15 feet BLS at concentrations of 4 ppm, 7.1 ppm, .4 ppm, and 55.6 ppm, respectively. The concentration of VOC's detected in the soil sample collected at 15' BLS exceeded the FDEP regulatory level of 50 ppm for excessively contaminated soil by a kerosene product. A summary table of the OVA results is included in Appendix G, Table II.

The Navy Public Works Center (PWC) Laboratory collected groundwater samples from the newly constructed monitoring well MW-7 on October 22, 1998. Groundwater samples were analyzed for TRPH and lead using FLPRO and EPA Method 239.2, respectively. EPA Method 239.2 has a detection limit of 0.003 ppm (3 ppb) for lead which is lower than the new Florida Primary Drinking Water Standard of 15 ppb for lead. A summary table of the TRPH and lead analytical results for monitoring well MW-7 is shown in Appendix C, Table I. The summary table shows past and present analytical results of groundwater samples collected from monitoring wells MW-1 through MW-7 and DMW-6 to aid in comparing increases and decreases in contaminant concentrations. The analytical laboratory results of the groundwater samples are found in Appendix D.

No lead was detected in the groundwater samples collected and analyzed from monitoring well MW-7 on October 22, 1998. TRPH was detected in the groundwater sample collected from MW-7 on October 22, 1998, at a concentration of 2.8 ppm, which is below the FDEP groundwater target cleanup level of 5 ppm for TRPH. The contamination levels of TRPH detected in the groundwater collected from monitoring well MW-7 indicate the TRPH contamination at Site 1101 extends to monitoring well MW-7, but at levels which do not exceed the FDEP groundwater target cleanup levels for TRPH of 5 ppm.

COMMENT 4: The only contamination above action levels was TRPH in wells MW-1 and MW-5. This residual contamination is likely due to the age of the product. We recommend over-developing wells MW-1 and MW-5, and resampling (after a minimum of 24 hours) and analyze for TRPH and lead only.

RESPONSE: Navy Public Works personnel over-developed monitoring wells MW-1 and MW-5 on October 21, 1998. A Randolph Vacuum Pump was used to extract approximately 2 gallons of groundwater from monitoring wells MW-1 and MW-5. No free product or petroleum product was noticed on intake line or water extracted into 55-gallon drums.

The Navy Public Works Center (PWC) Laboratory collected groundwater samples from monitoring wells MW-1 (27 hours after over-developing) and MW-5 (28 hours after over-developing) on October 22, 1998. Groundwater samples were analyzed for TRPH and lead using FLPRO and EPA Method 239.2, respectively. A summary table of the analytical results for TRPH and lead detected in monitoring wells MW-1 and MW-5 is included in Appendix C, Table I. The summary table shows past and present analytical results of groundwater samples collected from monitoring wells MW-1 and MW-5 to aid in comparing increases and decreases in contaminant concentrations. The analytical laboratory results of the groundwater samples are found in Appendix D.

No lead was detected in the groundwater samples collected and analyzed from monitoring wells MW-1 and MW-5 on October 22, 1998. TRPH was detected in the groundwater sample collected from MW-1 at a concentration of 13 ppm which exceeds the FDEP groundwater cleanup target levels of 5 ppm for TRPH. TRPH was detected in the groundwater sample collected from monitoring well MW-5 at a concentration of 3.3 ppm, which is below the FDEP groundwater cleanup target level of 5 ppm for TRPH.

In summary, no lead was detected in the groundwater samples collected from monitoring wells MW-1, MW-5, and MW-7 on October 22, 1998, (using EPA Method 239.2). A comparison of previous groundwater analytical results indicates TRPH levels have decreased in monitoring wells MW-1 (from 24 ppm to 13 ppm) and in MW-5 (from 21 ppm to 3.3 ppm). TRPH contamination levels in monitoring well MW-1 remain above the FDEP groundwater cleanup target level of 5 ppm; however, TRPH levels in monitoring well MW-5 decreased to below FDEP groundwater cleanup target levels. TRPH levels detected in downgradient monitoring well MW-7 (2.3 ppm) were below FDEP groundwater target cleanup level of 5 ppm for TRPH.

COMMENT 5: Also, please indicate the FDEP Facility Number 179300938 on all future correspondence related to Bronson Field.

RESPONSE: Historical files related to Bronson Field, including Site Assessment Reports (SAR's) and Site Assessment Report Addendums (SARA's), have been reviewed and identified using FDEP Facility Number 179300938. All future correspondence related to Bronson Field will be identified using FDEP Facility Number 179300938.

Recommend a soil sample be collected adjacent to monitoring well MW-7 at a depth of 15' BLS and analyzed for the constituents in Table I of FDEP Rule 62-770. If the analytical results indicate the levels are below the FDEP selected soil cleanup target levels then the site qualifies for monitoring of natural attenuation in accordance with FDEP Rule 62-770.690(1). Therefore, PWC Pensacola recommends the following Monitoring Only Plan (MOP) be approved if the soil sample meets FDEP soil cleanup target levels:

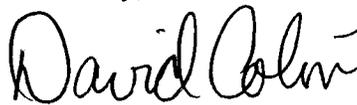
(1) Groundwater samples be collected from monitoring wells MW-1, MW-5, and MW-7 semiannually for a year, and analyzed for TRPH.

(2) Water level measurements shall be obtained at each monitoring well located at the site immediately prior to each sampling event.

(3) A report containing the analytical results, chain of custody, table summarizing the analytical results, site map illustrating the analytical results, and the water level elevation information (summary table and flow map) shall be submitted to FDEP within 60 days of sample collection.

If you have any questions concerning this CAR addendum, please contact Mr. Greg Campbell at (850) 452-4611, ext. 113.

Sincerely,



DAVID COLON
ENS, CEC, USNR
By direction of
the Commanding Officer

Enclosure: (2 copies)

Copy to:
SOUTHNAVFACENGCOM
(Code 18410, Byas Glover)

APPENDIX

APPENDIX A

FDEP Letter Dated March 6, 1997

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

March 6, 1997

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: U.S. Navy Outlying Field (OLF) Bronson Site 1101
Pensacola, Florida
FDEP #179300938

Dear Mr. Glover:

I have completed the technical review of the Contamination Assessment Report (CAR) and Monitoring Only Proposal (MOP) dated January 1997 (received January 14, 1997), submitted for this site 1101 OLF Bronson. Please submit a CAR Addendum which addresses the following:

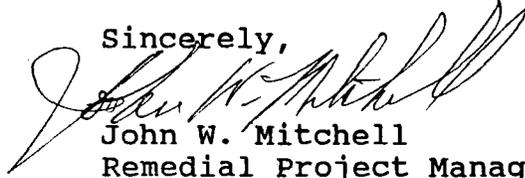
1. Based on water level elevations in the monitoring wells, groundwater flow direction to the east-northeast indicated on Figure 2-3 needs to be corrected to show groundwater flow to the west-southwest.
2. All monitoring wells need to be resampled for lead using EPA Method 7421 as stated in Chapter 62-770, F.A.C. The analytical method used (SW6010) has a detection limit of 50 $\mu\text{g/L}$. Although Chapter 62-770, F.A.C. has a target level of 50 $\mu\text{g/L}$, the Florida Primary Drinking Water Standard for lead is 15 $\mu\text{g/L}$. An analytical method with a lower detection limit is required. You should also be aware that Chapter 62-770 is being revised and will reflect the drinking water standards.
3. An additional monitoring well should be placed downgradient (west-southwest) of monitoring well MW-5 to adequately determine the furthest extent of TRPH contamination above 5 ppm. Analysis can be for TRPH and lead only.
4. The only contamination above action levels was TRPH in wells MW-1 and MW-5. This residual contamination is likely due to the age of the product. We recommend over-developing wells MW-1 and MW-5, and resampling (after a minimum of 24 hours) and analyze for TRPH and lead only.

Mr. Byas Glover
March 6, 1997
Site 1101, Bronson Field
Page 2

5. Also, please indicate the FDEP Facility Number 179300938 on all future correspondence related to Bronson Field.

If I can be of any further assistance with this matter, please contact me at (904) 921-9989.

Sincerely,



John W. Mitchell
Remedial Project Manager

cc: Dean Spencer, NAS Pensacola
Greg Campbell, NAS Pensacola
Tom Moody, FDEP Northwest District

TJB



JJC

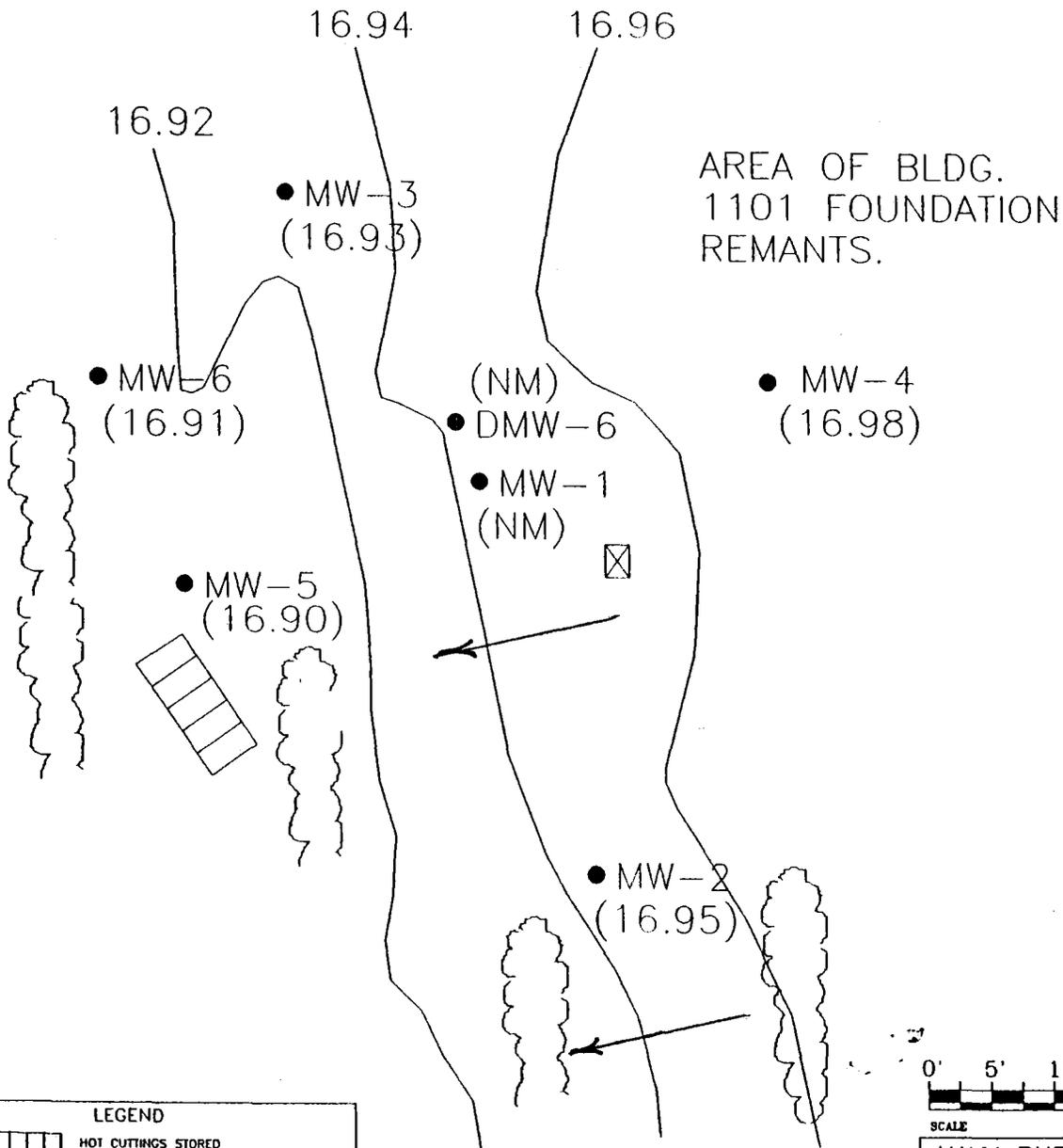
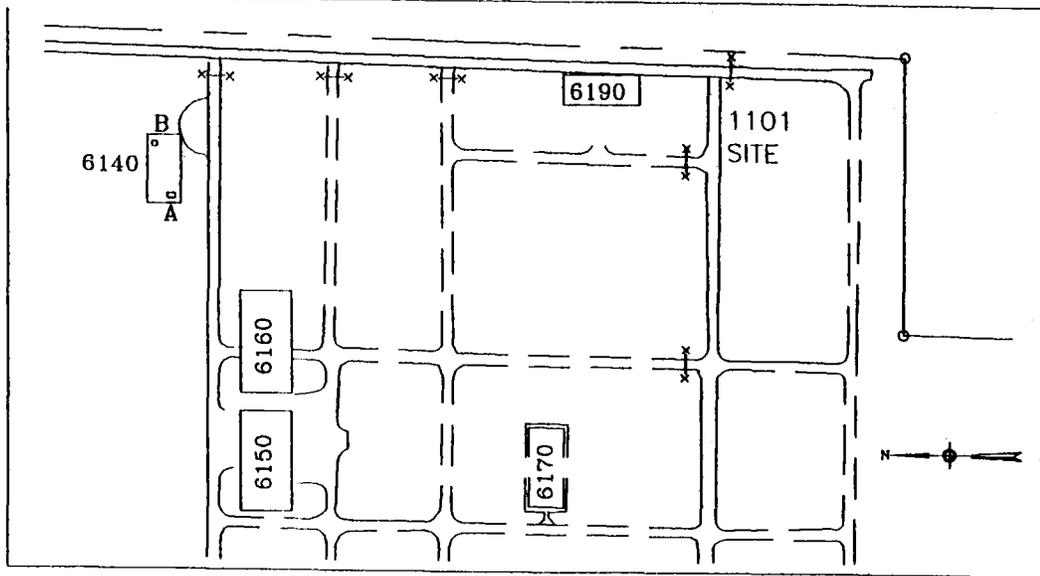


ESN

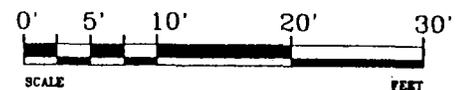


APPENDIX B

Figure 1, Corrected Groundwater Flow Direction Map



LEGEND	
	HOT CUTTINGS STORED ON PLASTIC SHEETING
	MW-6 MONITORING WELL
	GW FLOW DIRECTION
(16.91)	GW ELEV.
(NM)	NOT MEASURED
	16.92 G.W. CONTOUR



NAVY PUBLIC WORKS CENTER PENSACOLA, FLORIDA		
SCALE:	FIGURE 1	DRAWN BY: DWG. NO: REVISED BY:
GROUNDWATER FLOW DIRECTION MAP SITE 1101, BRONSON FIELD		
CLIENT: NAS ENVIRONMENTAL DEPARTMENT, NAS PENSACOLA		

APPENDIX C

Table I, Summary of TRPH and Lead
Analytical Results for Groundwater Collected from MW-1
thru MW-7 and DMW-6

TABLE I
SUMMARY OF TRPH AND LEAD
ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES
COLLECTED FROM MONITORING WELLS MW-1 THRU MW-7
U.S. NAVY OUTLYING LANDING FIELD BRONSON, SITE 1101

PARAMETER	MONITORING WELL NUMBERS							
	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	DMW-6	MW-7
TRPH 10/22/98	13	NS	NS	NS	3.3	NS	NS	2.8
TRPH (1)	24	.67	1.80	.93	21	4.30	BDL	NS
LEAD 10/22/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
LEAD (2)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS

NOTES: All results reported in parts per million (ppm) unless otherwise noted.
Groundwater monitoring analyses performed on monitoring wells on dates indicated above and as noted in (1) and (2) below.
BDL = Below detection limits
NS = Not sampled
TRPH = Total Recoverable Petroleum Hydrocarbons

(1) Groundwater samples for TRPH analysis were collected from MW-1 on May 20, 1996, MW-2 thru MW-6 on April 5, 1996, and from DMW-6 on June 3, 1996.

(2) Groundwater samples for lead analysis were collected from MW-1 thru MW-6 on May 17, 1996 and from DMW-6 on June 3, 1996.

APPENDIX D

Groundwater Analytical Results

**Navy Public Works Center
Environmental Laboratory**

Analytical Report

Total Lead by Method 239.2

Bldg. 3887, Code 690
 NAS Pensacola, FL 32508
 Phone (850) 452-3180/3642
 DSN 922-3180/3642
 FAX (850) 452-2799/2387

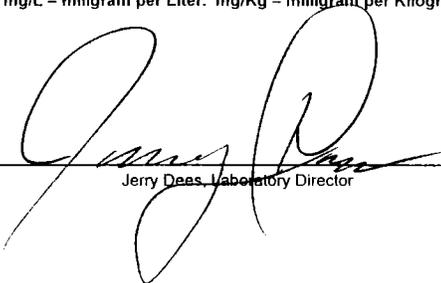
Client: **NAS Environmental**
 Address: Bldg. 1754
 NAS Pensacola, FL 32508
 Phone #: 452-3100
 Contact: Greg Campbell

Lab Report Number: 83943
 Sample Date: 22 Oct 98
 Received Date: 22 Oct 98
 Sample Site: Bronson Field
 Job Order No.: 130 5001

LAB Sample ID#	1- 83943			
Sample Name / Location	Site 1101 MW #1			
Collector's Name	P. Keane/B. Hagendorfer			
Date & Time Collected	22 Oct 98 @ 1600			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	23 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83943	units	Det. Limit	Flags
Lead	BDL	mg/L	0.003	

COMMENTS : _____

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : 
 Jerry Dees, Laboratory Director

Date: 11/6/98
 Report Generated

Navy Public Works Center Environmental Laboratory

Bldg. 3887, Code 690
 NAS Pensacola, FL 32508
 Phone (850) 452-3180/3642
 DSN 922-3180/3642
 FAX (850) 452-2799/2387

Client: NAS Environmental
 Address: Bldg. 1754
 NAS Pensacola, FL 32508
 Phone #: 452-3100
 Contact: Greg Campbell

Analytical Report

Petroleum Range Organics by FLPRO

Lab Report Number: 83943
 Sample Date: 22 Oct 98
 Received Date: 22 Oct 98
 Sample Site: Bronson Field
 Job Order No.: 130 5001

LAB Sample ID#	1- 83943			
Sample Name / Location	Site 1101 MW #1			
Collector's Name	P. Keane/B. Hagendorfer			
Date & Time Collected	22 Oct 98 @ 1600			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 Oct 98 JJ			
Date of Analysis	3 & 5 Nov 98			
Sample Matrix	Groundwater			
Dilution	x 10			
Parameter	1- 83943	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	13	mg/L	2.5	

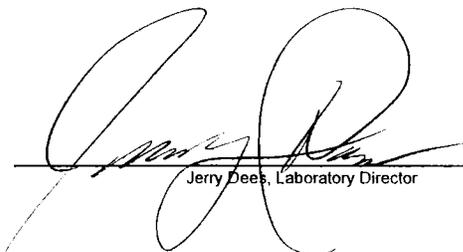
SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	103
Nonatriacontane (C-39)	42-193 *	103

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by :



Jerry Dees, Laboratory Director

Date: 11/9/98

**Navy Public Works Center
Environmental Laboratory**

Bldg. 3887, Code 690
 NAS Pensacola, FL 32508
 Phone (850) 452-3180/3642
 DSN 922-3180/3642
 FAX (850) 452-2799/2387

Client: NAS Environmental
 Address: Bldg. 1754
 NAS Pensacola, FL 32508
 Phone #: 452-3100
 Contact: Greg Campbell

Analytical Report

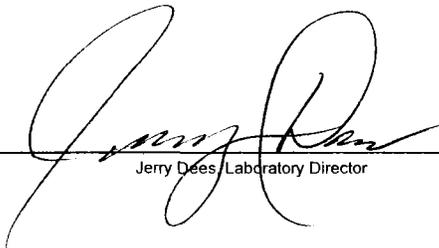
Total Lead by Method 239.2

Lab Report Number: 83951
 Sample Date: 22 Oct 98
 Received Date: 22 Oct 98
 Sample Site: Bronson Field
 Job Order No.: 130 5001

LAB Sample ID#	1- 83951			
Sample Name / Location	Site 1101 MW #2			
Collector's Name	P. Keane/B. Hagendorfer			
Date & Time Collected	22 Oct 98 @ 1815			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	23 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83951	units	Det. Limit	Flags
Lead	BDL	mg/L	0.003	

COMMENTS : _____

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : 
 Jerry Dees, Laboratory Director

Date: 11/6/98
 Report Generated

Navy Public Works Center Environmental Laboratory

Bldg. 3887, Code 690
 NAS Pensacola, FL 32508
 Phone (850) 452-3180/3642
 DSN 922-3180/3642
 FAX (850) 452-2799/2387

Client: NAS Environmental
 Address: Bldg. 1754
 NAS Pensacola, FL 32508
 Phone #: 452-3100
 Contact: Greg Campbell

Analytical Report

Total Lead by Method 239.2

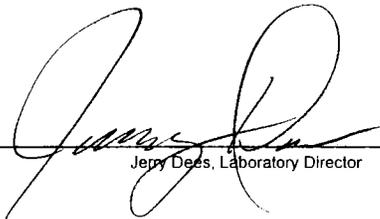
Lab Report Number: 83946
 Sample Date: 22 Oct 98
 Received Date: 22 Oct 98
 Sample Site: Bronson Field
 Job Order No.: 130 5001

LAB Sample ID#	1- 83946			
Sample Name / Location	Site 1101 MW #3			
Collector's Name	P. Keane/B. Hagendorfer			
Date & Time Collected	22 Oct 98 @ 1624			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	23 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83946	units	Det. Limit	Flags
Lead	BDL	mg/L	0.003	

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by :


 Jerry Dees, Laboratory Director

Date:

11/6/98

Report Generated

Navy Public Works Center

Environmental Laboratory

Bldg. 3887, Code 690
 NAS Pensacola, FL 32508
 Phone (850) 452-3180/3642
 DSN 922-3180/3642
 FAX (850) 452-2799/2387

Client: NAS Environmental
 Address: Bldg. 1754
 NAS Pensacola, FL 32508
 Phone #: 452-3100
 Contact: Greg Campbell

Analytical Report

Total Lead by Method 239.2

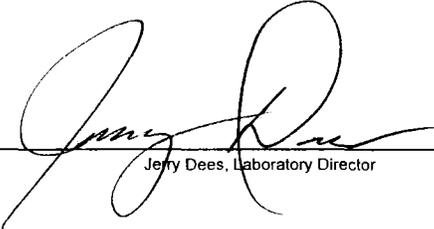
Lab Report Number: 83952
 Sample Date: 22 Oct 98
 Received Date: 22 Oct 98
 Sample Site: Bronson Field
 Job Order No.: 130 5001

LAB Sample ID#	1- 83952			
Sample Name / Location	Site 1101 MW #4			
Collector's Name	P. Keane/B. Hagendorfer			
Date & Time Collected	22 Oct 98 @ 1835			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	23 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83952	units	Det. Limit	Flags
Lead	BDL	mg/L	0.003	

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by :



Jerry Dees, Laboratory Director

Date: 11/6/98
 Report Generated

Navy Public Works Center

Environmental Laboratory

Bldg. 3887, Code 690
 NAS Pensacola, FL 32508
 Phone (850) 452-3180/3642
 DSN 922-3180/3642
 FAX (850) 452-2799/2387

Client: NAS Environmental
 Address: Bldg. 1754
 NAS Pensacola, FL 32508
 Phone #: 452-3100
 Contact: Greg Campbell

Analytical Report

Total Lead by Method 239.2

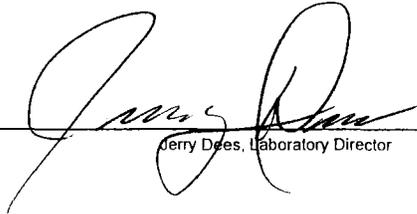
Lab Report Number: 83948
 Sample Date: 22 Oct 98
 Received Date: 22 Oct 98
 Sample Site: Bronson Field
 Job Order No.: 130 5001

LAB Sample ID#	1- 83948			
Sample Name / Location	Site 1101 MW #5			
Collector's Name	P. Keane/B. Hagendorfer			
Date & Time Collected	22 Oct 98 @ 1703			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	23 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83948	units	Det. Limit	Flags
Lead	BDL	mg/L	0.003	

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by :


 Jerry Dees, Laboratory Director

Date: 11/6/98
 Report Generated

**Navy Public Works Center
Environmental Laboratory**

Analytical Report

Petroleum Range Organics by FLPRO

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: NAS Environmental
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-3100
Contact: Greg Campbell

Lab Report Number: 83948
Sample Date: 22 Oct 98
Received Date: 22 Oct 98
Sample Site: Bronson Field
Job Order No.: 130 5001

LAB Sample ID#	1- 83948			
Sample Name / Location	Site 1101 MW#5			
Collector's Name	P. Keane/B. Hagendorfer			
Date & Time Collected	22 Oct 98 @ 1703			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 Oct 98 JJ			
Date of Analysis	3 Nov 98			
Sample Matrix	Groundwater			
Dilution	x 1			
Parameter	1- 83948	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	3.3	mg/L	0.25	

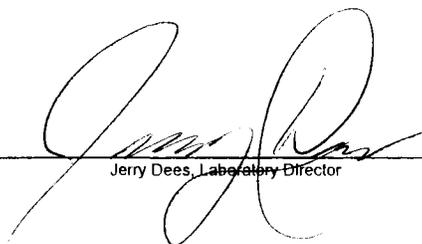
SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	105
Nonatriacontane (C-39)	42-193 *	105

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by :



Jerry Dees, Laboratory Director

Date: 11/9/98

Navy Public Works Center Environmental Laboratory

Bldg. 3887, Code 690
 NAS Pensacola, FL 32508
 Phone (850) 452-3180/3642
 DSN 922-3180/3642
 FAX (850) 452-2799/2387

Client: NAS Environmental
 Address: Bldg. 1754
 NAS Pensacola, FL 32508
 Phone #: 452-3100
 Contact: Greg Campbell

Analytical Report

Total Lead by Method 239.2

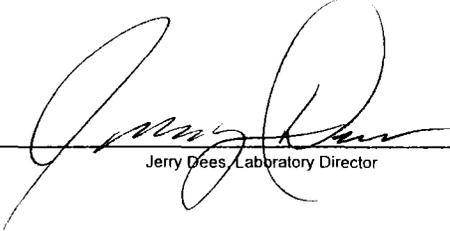
Lab Report Number: 83949
 Sample Date: 22 Oct 98
 Received Date: 22 Oct 98
 Sample Site: Bronson Field
 Job Order No.: 130 5001

LAB Sample ID#	1- 83949			
Sample Name / Location	Site 1101 Duplicate			
Collector's Name	P. Keane/B. Hagendorfer			
Date & Time Collected	22 Oct 98 @ NS			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	23 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83949	units	Det. Limit	Flags
Lead	BDL	mg/L	0.003	

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by :



 Jerry Dees, Laboratory Director

Date:

11/6/98

Report Generated

**Navy Public Works Center
Environmental Laboratory**

Bldg. 3887, Code 690
NAS Pensacola, FL 32508
Phone (850) 452-3180/3642
DSN 922-3180/3642
FAX (850) 452-2799/2387

Client: **NAS Environmental**
Address: Bldg. 1754
NAS Pensacola, FL 32508
Phone #: 452-3100
Contact: Greg Campbell

Analytical Report

Petroleum Range Organics by FLPRO

Lab Report Number: 83949
Sample Date: 22 Oct 98
Received Date: 22 Oct 98
Sample Site: Bronson Field
Job Order No.: 130 5001

LAB Sample ID#	1- 83949			
Sample Name / Location	Site 1101 Duplicate			
Collector's Name	P. Keane/B. Hagendorfer			
Date & Time Collected	22 Oct 98 @ NS			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 Oct 98 JJ			
Date of Analysis	3 Nov 98			
Sample Matrix	Groundwater			
Dilution	x 1			
Parameter	1- 83949	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	2.5	mg/L	0.25	

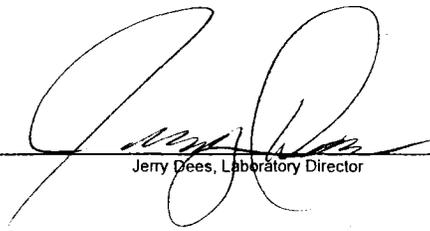
SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	101
Nonatriacontane (C-39)	42-193 *	99

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by :



Jerry Dees, Laboratory Director

Date: 11/9/98

Navy Public Works Center Environmental Laboratory

Analytical Report

Total Lead by Method 239.2

Bldg. 3887, Code 690
 NAS Pensacola, FL 32508
 Phone (850) 452-3180/3642
 DSN 922-3180/3642
 FAX (850) 452-2799/2387

Client: NAS Environmental
 Address: Bldg. 1754
 NAS Pensacola, FL 32508
 Phone #: 452-3100
 Contact: Greg Campbell

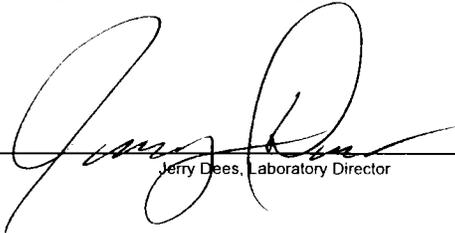
Lab Report Number: 83945
 Sample Date: 22 Oct 98
 Received Date: 22 Oct 98
 Sample Site: Bronson Field
 Job Order No.: 130 5001

LAB Sample ID#	1- 83945			
Sample Name / Location	Site 1101 MW #6			
Collector's Name	P. Keane/B. Hagendorfer			
Date & Time Collected	22 Oct 98 @ 1615			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	23 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83945	units	Det. Limit	Flags
Lead	BDL	mg/L	0.003	

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by :



Jerry Dees, Laboratory Director

Date: 11/6/98

Report Generated

Navy Public Works Center

Environmental Laboratory

Bldg. 3887, Code 690
 NAS Pensacola, FL 32508
 Phone (850) 452-3180/3642
 DSN 922-3180/3642
 FAX (850) 452-2799/2387

Client: NAS Environmental
 Address: Bldg. 1754
 NAS Pensacola, FL 32508
 Phone #: 452-3100
 Contact: Greg Campbell

Analytical Report

Total Lead by Method 239.2

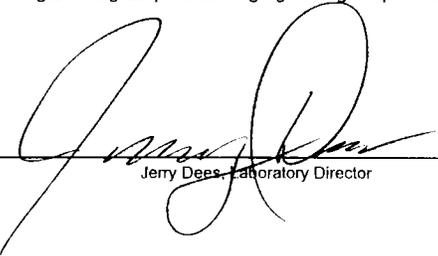
Lab Report Number: 83944
 Sample Date: 22 Oct 98
 Received Date: 22 Oct 98
 Sample Site: Bronson Field
 Job Order No.: 130 5001

LAB Sample ID#	1- 83944			
Sample Name / Location	Site 1101 DMW #6			
Collector's Name	P. Keane/B. Hagendorfer			
Date & Time Collected	22 Oct 98 @ 1610			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	23 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83944	units	Det. Limit	Flags
Lead	BDL	mg/L	0.003	

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by :



Jerry Dees, Laboratory Director

Date: 11/6/98

Report Generated

**Navy Public Works Center
Environmental Laboratory**

Bldg. 3887, Code 690
 NAS Pensacola, FL 32508
 Phone (850) 452-3180/3642
 DSN 922-3180/3642
 FAX (850) 452-2799/2387

Client: NAS Environmental
 Address: Bldg. 1754
 NAS Pensacola, FL 32508
 Phone #: 452-3100
 Contact: Greg Campbell

Analytical Report

Total Lead by Method 239.2

Lab Report Number: 83950
 Sample Date: 22 Oct 98
 Received Date: 22 Oct 98
 Sample Site: Bronson Field
 Job Order No.: 130 5001

LAB Sample ID#	1- 83950			
Sample Name / Location	Site 1101 MW #7			
Collector's Name	P. Keane/B. Hagendorfer			
Date & Time Collected	22 Oct 98 @ 1720			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	23 Oct 98			
Sample Matrix	Groundwater			
Dilution	X 1			
Element Name	1- 83950	units	Det. Limit	Flags
Lead	BDL	mg/L	0.003	

COMMENTS : _____

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by : 
 Jerry Dees, Laboratory Director

Date: 11/6/98
 Report Generated

Navy Public Works Center

Environmental Laboratory

Bldg. 3887, Code 690
 NAS Pensacola, FL 32508
 Phone (850) 452-3180/3642
 DSN 922-3180/3642
 FAX (850) 452-2799/2387

Client: NAS Environmental
 Address: Bldg. 1754
 NAS Pensacola, FL 32508
 Phone #: 452-3100
 Contact: Greg Campbell

Analytical Report

Petroleum Range Organics by FLPRO

Lab Report Number: 83950
 Sample Date: 22 Oct 98
 Received Date: 22 Oct 98
 Sample Site: Bronson Field
 Job Order No.: 130 5001

LAB Sample ID#	1- 83950			
Sample Name / Location	Site 1101 MW #7			
Collector's Name	P. Keane/B. Hagendorfer			
Date & Time Collected	22 Oct 98 @ 1720			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 Oct 98			
Date of Analysis	3 Nov 98			
Sample Matrix	Groundwater			
Dilution	x 1			
Parameter	1- 83950	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	2.8	mg/L	0.25	

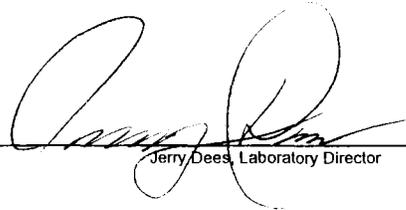
SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	110
Nonatriacontane (C-39)	42-193 *	107

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by :



Jerry Dees, Laboratory Director

Date: 11/9/98

Navy Public Works Center Environmental Laboratory

Bldg. 3887, Code 690
 NAS Pensacola, FL 32508
 Phone (850) 452-3180/3642
 DSN 922-3180/3642
 FAX (850) 452-2799/2387

Client: NAS Environmental
 Address: Bldg. 1754
 NAS Pensacola, FL 32508
 Phone #: 452-3100
 Contact: Greg Campbell

Analytical Report

Total Lead by Method 239.2

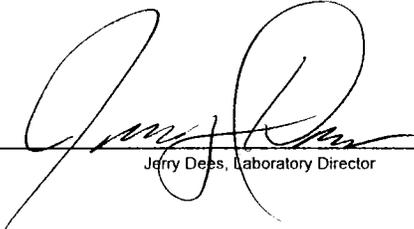
Lab Report Number: 83947
 Sample Date: 22 Oct 98
 Received Date: 22 Oct 98
 Sample Site: Bronson Field
 Job Order No.: 130 5001

LAB Sample ID#	1- 83947			
Sample Name / Location	Site 1101 Equip. Blank			
Collector's Name	P. Keane/B. Hagendorfer			
Date & Time Collected	22 Oct 98 @ 1650			
Sample Type (composite or grab)	Grab			
Analyst	B. Nelson			
Date of Analysis	23 Oct 98			
Sample Matrix	DI Water			
Dilution	X 1			
Element Name	1- 83947	units	Det. Limit	Flags
Lead	BDL	mg/L	0.003	

COMMENTS :

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by :



Jerry Dees, Laboratory Director

Date: 11/6/98

Report Generated

Navy Public Works Center Environmental Laboratory

Bldg. 3887, Code 690
 NAS Pensacola, FL 32508
 Phone (850) 452-3180/3642
 DSN 922-3180/3642
 FAX (850) 452-2799/2387

Client: NAS Environmental
 Address: Bldg. 1754
 NAS Pensacola, FL 32508
 Phone #: 452-3100
 Contact: Greg Campbell

Analytical Report

Petroleum Range Organics by FLPRO

Lab Report Number: 83947
 Sample Date: 22 Oct 98
 Received Date: 22 Oct 98
 Sample Site: Bronson Field
 Job Order No.: 130 5001

LAB Sample ID#	1- 83947			
Sample Name / Location	Site 1101 Equip. Blank			
Collector's Name	P. Keane/B. Hagendorfer			
Date & Time Collected	22 Oct 98 @ 1650			
Sample Type (composite or grab)	Grab			
Analyst	J. Moore			
Date of extraction / Initials	27 Oct 98 JJ			
Date of Analysis	3 Nov 98			
Sample Matrix	DI Water			
Dilution	x 1			
Parameter	1- 83947	units	Det. Limit	Flags
Petroleum Range Organics by FLPRO	BDL	mg/L	0.25	

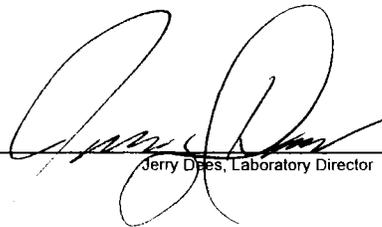
SURROGATE SPIKE RECOVERIES

	Acceptance Limits	Percent Recovery
ortho-Terphenyl	82-142 *	96
Nonatriacontane (C-39)	42-193 *	95

COMMENTS : * = Suggested surrogate recovery limits listed in the method. In-house laboratory limits are in the process of being determined.

BDL = Below Detection Limit. mg/L = milligram per Liter. mg/Kg = milligram per Kilogram.

Approved by :



Jerry Dees, Laboratory Director

Date: 11/6/98

1 of 3

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS (UST Projects)

NPWC Environmental Laboratory
 Bldg. 3887, Code 920
 NAS Pensacola, FL 32508
 Phone - (904) 452-4728/3642
 DSN 922-4728/3642
 FAX (904) 452-2799/2387

Requester: NPWC ENGINEERING
 Address: BLDG. 458 CODE 400
NAS PENSACOLA, FL 32508
 Phone #: 452-4315
 Contact: GREG CAMPBELL
 Job Order #: 130 5001

Report Required? Yes No QC Required? Yes No
 Lab ID Number: _____
 Sample Date: 10-22-98
 Received Date: 10-22-98
 Sample Site: Brownson Field
 Lab Due Date: _____

Sample ID #	Lab	018-3943	028-3944	028-3945	028-3946
Sample Name		MW1	MW DMW#6	MW#6	MW3
or Location		Site 1101			
Sampled by		BAH/PK			
Compos	Begin				
Date/Time	Frequency	10/22/98	10/22/98	10/22/98	10/22/98
Collected	End				
Grab Time		1600	1610	1615	1624
Sample Matrix		GW			

Notes:
Brownson Field
Site 1101
FLUORESCENT
SAMPLES

PARAMETER by Method Name	METHOD #	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used						
Ethylene Oxide (EDB)	EPA 504									3	120ml VOA/4 oz.	None/4° C
Purg. Halocarbons/GC	EPA 601									4	40 ml VOA Vial x 2	HCl/4° C
Purg. Aromatics/GC	EPA 602									3	40 ml VOA Vial x 2	HCl/4° C
Purg. Hets. & Ars./GC	EPA 601/602									8	40 ml VOA Vial x 2	HCl/4° C
Polynuclear Aromatics/HPLC	EPA 610									7	1L Amber x 2	4° C
Purgatives/GCMS	EPA 624									8	40 ml VOA Vial x 2	HCl/4° C
Benzonitrile & Acids/GCMS	EPA 625									15	1L Amber x 2	4° C
Gas Chromatography	EPA SW 8000									5	40ml/2/1Lx2/4 oz.	HCl/4° C/None
Hets. Vol. Org./GC	EPA SW 8010									4	40ml VOA/2/4 oz.	HCl/4° C/None
Non-Hets. Vol. Org./GC	EPA SW 8015(MOD)									4	40ml/2/1Lx2/4 oz.	HCl/4° C/None
Arom. Vol. Org./GC	EPA SW 8020									3	40ml VOA/2/4 oz.	HCl/4° C/None
Hets./Arom. Vol. Org./GC	EPA SW 8010/8020									8	40ml VOA/2/4 oz.	HCl/4° C/None
Polynuclear Aromatics/GC	EPA SW 8100									8	1Lx2/4 oz.	4° C/None
VOC/GCMS	EPA SW 8240A									8	40ml VOA/2/4 oz.	HCl/4° C/None
VOC/GCMS-Cas.	EPA SW 8280									8	40ml VOA/2/4 oz.	HCl/4° C/None
Semivol. Org./GCMS-Cas.	EPA SW 8270A									16	1Lx3/4 oz.	4° C/None
Polynuclear Aromatics (PAHs)	EPA SW 8310									9	1Lx3/4 oz.	4° C/None
PARAMETER by Group Name	METHOD SOURCE	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used						
Gasoline Analytical Group	EPA SW-848									47	Consult Lab	Consult Lab
Kerosene Analytical Group	EPA SW-848									39	Consult Lab	Consult Lab
Misc. Product Analytical Group	EPA SW-848									24	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	EPA 418.1	X	2 BTLs	X	2 BTLs					2	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	PL-PRO	X	2 BTLs							7	Consult Lab	Consult Lab
RCRA Metals (6)	EPA Vansis									8	Consult Lab	Consult Lab
TCLP Metals (6) (Restriction)	EPA SW-848									10	Consult Lab	Consult Lab
Lead (Pb) only	EPA 238.2	X	1 BTL	1	250ml/4 oz.	HNO ₃ /None						
Other:												

Comments:

Reinquined by: [Signature]
 Date/Time: 10/22/98 1845

Received by: [Signature]
 Date/Time: 10/22/98 1905

295

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS (UST Projects)

Environmental Laboratory
 3687, Code 020
 AAS Pensacola, FL 32508
 Phone - (904) 452-4728/3642
 DSN 922-4728/3642
 FAX (904) 452-2799/2387

Requester: NPWC ENGINEERING
 Address: BLDG. 458 CODE 400
NAS PENSACOLA, FL 32508
 Phone #: 452-4315
 Contact: GREG CAMPBELL
 Job Order #: 130 5001

Report Required? Yes No QC Required? Yes No
 Lab ID Number: _____
 Sample Date: 10-22-98
 Received Date: 10-22-98
 Sample Size: _____
 Job Due Date: _____

Sample ID #	Lab	18-3147	18-3148	18-3949	18-3950	Notes: Brenson Field Site 1101 Quiescent Samples
Sample Name or Location		Equip. Blk	mw #5	Dup	MW #7	
Sampled by		PK/BH				
Composite	Begin					
Date/Time Collected	Frequency	10/22/98	10/22/98	10/22/98	10/22/98	
Grab Time	End	1650	1703		1720	
Sample Matrix		DI H2O	GW			

PARAMETER by Method Name	METHOD #	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used						
Ethylene Dibromide (EDB)	EPA 504									3	120ml VOA/4 oz.	None/4° C
Purg. Halocarbons/GC	EPA 601									4	40 ml VOA Vial x 2	HCl/4° C
Purg. Aromatics/GC	EPA 602									3	40 ml VOA Vial x 2	HCl/4° C
Purg. Meta. & Ars./GC	EPA 601/602									8	40 ml VOA Vial x 2	HCl/4° C
Polynuclear Aromatics/HPLC	EPA 610									7	1L Amber x 2	4° C
Purgeables/GCMS	EPA 624									8	40 ml VOA Vial x 2	HCl/4° C
Base/Neutrals & Acids/GCMS	EPA 625									15	1L Amber x 2	4° C
Gas Chromatography	EPA SW 6000									5	40ml 2/1Lx2/4 oz.	HCl/4° C/None
Meta. Vol. Org./GC	EPA SW 6010									4	40ml VOAx2/4 oz.	HCl/4° C/None
Non-Meta. Vol. Org./GC	EPA SW 6015(MOD)									4	40ml 2/1Lx2/4 oz.	HCl/4° C/None
Arom. Vol. Org./GC	EPA SW 6020									3	40ml VOAx2/4 oz.	HCl/4° C/None
Meta./Arom. Vol. Org./GC	EPA SW 6010.6020									6	40ml VOAx2/4 oz.	HCl/4° C/None
Polynuclear Aromatics/GC	EPA SW 6100									6	1Lx2/4 oz.	4° C/None
VOC/GCMS	EPA SW 6240A									8	40ml VOAx2/4 oz.	HCl/4° C/None
VOC/GCMS - Cap.	EPA SW 6250									8	40ml VOAx2/4 oz.	HCl/4° C/None
Semivol. Org./GCMS - Cap.	EPA SW 6270A									16	1Lx3/4 oz.	4° C/None
Polynuclear Aromatics (PAHs)	EPA SW 6310									9	1Lx3/4 oz.	4° C/None

PARAMETER by Group Name	METHOD SOURCE	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used						
Gasoline Analytical Group	EPA SW-646									47	Consult Lab	Consult Lab
Kerosene Analytical Group	EPA SW-646									39	Consult Lab	Consult Lab
Mixed Product Analytical Group	EPA SW-646									24	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	EPA 418.1	X	2 BTLs	2	Consult Lab	Consult Lab						
Total Petroleum Hydrocarbons	FL-PRO	X	2 BTLs	7	Consult Lab	Consult Lab						
PCRA Metals (B)	EPA Various									6	Consult Lab	Consult Lab
TCLP Metals (B) Investigation	EPA SW-646									10	Consult Lab	Consult Lab
Lead (Pb) only	EPA 238.2	X	1 BTL	1	250ml/4 oz.	HNO ₃ /None						
Other:												

Comments:

Reinquisted by
 Date/Time

Phane
 10/22/98

Received by
 Date/Time

Phane
 10/22/98 1905

CHAIN OF CUSTODY/REQUEST FOR ANALYSIS (UST Projects)

Report Required? Yes No GC Required? Yes No

copy

Requester: NPWC ENGINEERING
 Address: BLDG. 458 CODE 400
NAS PENSACOLA, FL 32508
 Phone #: 452-4315
 Contact: GREG CAMPBELL
 Job Order #: 130 5001

Lab ID Number: _____
 Sample Date: 10-22-98
 Received Date: 10-22-98
 Sample Site: _____
 Lab Due Date: _____

32508
 452-4726/3642
 4726/3642
 452-2799/2387

Sample ID #	Lab	08-3451	08-3452	03-	04-	Notes: <i>Bronson Field</i> <i>Site 1101</i> <i>Dispersant</i> <i>Samples</i>
Sample Name	-----	<i>MU# 2</i>	<i>MU# 4</i>			
or Location	-----					
Sampled by	-----	<i>BN/PK</i> →				
Compos	Begin					
Date/Time	Frequency					
Collected	End					
Grab Time	-----	<i>1815</i>	<i>1835</i>			
Sample Matrix	-----	<i>GW</i> →				

PARAMETER by Method Name	METHOD #	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used						
Ethylene Dibromide (EDB)	EPA 504									3	120ml A VOA/4 oz.	None/4° C
Purg. Halocarbons/GC	EPA 801									4	40 ml VOA Vial x 2	HCl/4° C
Purg. Aromatics/GC	EPA 802									3	40 ml VOA Vial x 2	HCl/4° C
Purg. Halc. & Aro./GC	EPA 801/802									8	40 ml VOA Vial x 2	HCl/4° C
Polynuclear Aromatics/HPLC	EPA 810									7	1L Ambers x 2	4° C
Purges/GCMS	EPA 824									8	40 ml VOA Vial x 2	HCl/4° C
Base/Neutrals & Acids/GCMS	EPA 825									15	1L Ambers x 2	4° C
Gas Chromatography	EPA SW 8000									5	40ml/2/1Lx2/4 oz.	HCl/4° C/None
Halc. Vol. Org./GC	EPA SW 8010									4	40ml VOA/2/4 oz.	HCl/4° C/None
Non-Halc. Vol. Org./GC	EPA SW 8015/8001									4	40ml/2/1Lx2/4 oz.	HCl/4° C/None
Arom. Vol. Org./GC	EPA SW 8020									3	40ml VOA/2/4 oz.	HCl/4° C/None
Halc./Arom. Vol. Org./GC	EPA SW 8010/8020									8	40ml VOA/2/4 oz.	HCl/4° C/None
Polynuclear Aromatics/GC	EPA SW 8100									6	1Lx2/4 oz.	4° C/None
VOC/GCMS	EPA SW 8240A									8	40ml VOA/2/4 oz.	HCl/4° C/None
VOC/GCMS-Cap.	EPA SW 8280									8	40ml VOA/2/4 oz.	HCl/4° C/None
Semivol. Org./GCMS-Cap.	EPA SW 8270A									18	1Lx3/4 oz.	4° C/None
Polynuclear Aromatics (PAHs)	EPA SW 8310									9	1Lx3/4 oz.	4° C/None
PARAMETER by Gross Name	METHOD SOURCE	X	Bottle ID #'s	Billing Units	Containers Required	Preservative(s) Used						
Gasoline Analytical Group	EPA SW-846									47	Consult Lab	Consult Lab
Kerosene Analytical Group	EPA SW-846									38	Consult Lab	Consult Lab
Mixed Product Analytical Group	EPA SW-846									24	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	EPA 418.1									2	Consult Lab	Consult Lab
Total Petroleum Hydrocarbons	FL-PRO									7	Consult Lab	Consult Lab
RCRA Metals (8)	EPA Various									8	Consult Lab	Consult Lab
TCLP Metals (8) restriction	EPA SW-846									10	Consult Lab	Consult Lab
Lead (Pb) only	EPA 238.2		<i>X 1BTL</i>		<i>X 1BTL</i>					1	250ml/4 oz.	HNO ₃ /None
Other												

Comments

Requested by

Date/Time

[Signature]
10/22/98 *1845*

Received by

Date/Time

[Signature]
10/22/98 *1905*

MEMORANDUM

26-Oct-98

From: Phil Keane (Code 690.6)
To: Greg Campbell (Code 400)

Subj: GROUNDWATER SAMPLING, BRONSON FIELD, SITE 1101

Encl: Sampling Logs

1. Attached are groundwater sampling logs for NAS Bronson Field, Site 1101, MW's 1-7 and DMW #6. Sampling was accomplished on 22 Oct 98.
2. Groundwater elevations for MW's 1-7 and DMW #6 are as follows:

<u>MW #</u>	<u>Elevation</u>
1	13.28
2	11.59
3	12.07
4	12.07
5	11.55
6	11.89
7	11.71
DMW #6	11.85

3. If you need any further information, please call me at 2-3642/4758.



PHIL KEANE

Groundwater Sampling Log

MW# 1

NPWC Env. Lab., Bldg 3691, Code 920, NAS Pensacola, FL 32508, CompQAP #920121G

Site 1101

Sampling Event Information:

Location or name of groundwater well: NAS BRONSON FIELD
 Contact person and phone number: GREG CAMPBELL 432-4315
 Date of sampling event: 10-22-98
 Ambient conditions: Clear Skies, Windy & Cool approx 75°
 Person responsible for sampling: Phil Keane/ BK

Initial Assessment:

How is the well labeled? MW# 1 Is the well cover intact? Yes No
 Is the well cover locked? Yes No No Is the well cap in place? Yes No
 Is the well cap locked? Yes No No Is the well casing intact? Yes No
 Is there an odor when cap removed? Yes No Describe: _____
 Description of any discrepancies: None

Well Volume Information:

What is the diameter of the well? 2" 4" 6" 8" 12" other: _____
 What is the distance to the water table? (in feet): 13.28
 What is the distance to the bottom of the well casing? (in feet): 23.37
 What is the water column height? (in feet): 10.09
 Well volume in gallons is equal to the height of the water column multiplied by the following factors: 2" = H x 0.17, 4" = H x 0.66, 6" = H x 1.48, 8" = H x 2.62, 12" = H x 5.90
 What is the well volume? (show calculation): 10.09 x 0.17 = 1.715 17 MIN

Well Purging Information:

Purging equipment used: Peristaltic Material: Dygon
 Cleaning protocol: new Date cleaned: new Cleaned by: _____
 If bailer used, what is volume? _____
 If submersible pump used, what is flow rate? 0.35 L/M
 What time did purging begin? (Date/Time 24 hr): 10/22/98 1010 End?: 1102
 Describe appearance of water on initial purging: Very slight tan with foam
 Meter calibration record:
 pH meter: Time calib.: 0925 Standards: 4 7 10 Analyst: P. Keane
 Temperature: Correction factor: _____ Analyst: _____
 Conductivity meter: Standard used: 100 Analyst: B. Keane

Record stabilization criteria in table below:

Vol Evacuated in Gal	Time Analyzed	pH	Temperature	Conductivity
1.72	1027	6.2	24.3	600
1.72	1044	6.2	24.2	500
1.72	1102	6.2	24.2	600

Total volume purged from well: 5.16 Gals How many well volumes: 3
 Did well go dry? Yes No Did criteria stabilize? Yes No
 Describe appearance of water after purging complete: Slight tan color & foam
 Are there any odor not previously described? If so, what: Musty Smell
 Describe any problems or discrepancies: None

MW#2

Groundwater Sampling Log

NPWC Env. Lab., Bldg 3691, Code 920, NAS Pensacola, FL 32508, CompQAP #920121G

Site 1101

Sampling Event Information:

Location or name of groundwater well: NAS Peterson Field
 Contact person and phone number: Doug Campbell
 Date of sampling event: 10/22/98
 Ambient conditions: Clouds, Cool approx 73° light breeze
 Person responsible for sampling: P. Keane

Initial Assessment:

How is the well labeled? MW#2 Is the well cover intact? Yes No
 Is the well cover locked? Yes No No Is the well cap in place? Yes No
 Is the well cap locked? Yes No No Is the well casing intact? Yes No
 Is there an odor when cap removed? Yes No Describe: _____
 Description of any discrepancies: None

Well Volume Information:

What is the diameter of the well? 2" 4" 6" 8" 12" other: _____
 What is the distance to the water table? (in feet): 11.59
 What is the distance to the bottom of the well casing? (in feet): 20.35
 What is the water column height? (in feet): 8.76
 Well volume in gallons is equal to the height of the water column multiplied by the following factors: 2" = H x 0.17, 4" = H x 0.66, 6" = H x 1.48, 8" = H x 2.62, 12" = H x 5.90
 What is the well volume? (show calculation): 8.76 x 0.17 = 1.489 15 min

Well Purging Information:

Purging equipment used: Peristaltic Material: Tygon
 Cleaning protocol: new Date cleaned: _____ Cleared by: _____
 If bailer used, what is volume? _____
 If submersible pump used, what is flow rate? 0.37 L/min
 What time did purging begin? (Date/Time 24 hr): 10/22/98 1643 End?: 1728
 Describe appearance of water on initial purging: Clear

Meter calibration record:

pH meter: Time calib.: 0925 Standards: 4 7 10 Analyst: P. Keane
 Temperature: Correction factor: _____ Analyst: _____
 Conductivity meter: Standard used: 100 Analyst: P. Keane

Record stabilization criteria in table below:

Vol Evacuated in Gal	Time Analyzed	pH	Temperature	Conductivity
<u>1.49</u>	<u>1658</u>	<u>4.7</u>	<u>22.9</u>	<u>60</u>
<u>1.49</u>	<u>1713</u>	<u>4.8</u>	<u>22.9</u>	<u>60</u>
<u>1.49</u>	<u>1728</u>	<u>4.9</u>	<u>23.0</u>	<u>62</u>

Total volume purged from well: 4.47 Gals How many well volumes: 3
 Did well go dry? Yes No Did criteria stabilize? Yes No
 Describe appearance of water after purging complete: Clear, Clear
 Is there any odor not previously described? If so, what: NO
 Describe any problems or discrepancies: None

MW# 3

Groundwater Sampling Log

NPWC Env. Lab., Bldg 3691, Code 920, NAS Pensacola, FL 32508, CompQAP #920121G

Site 1101

Sampling Event Information:

Location or name of groundwater well: NAS Broward Field
 Contact person and phone number: Greg Campbell
 Date of sampling event: 10-22-98
 Ambient conditions: Cool, approx 75°, Windy
 Person responsible for sampling: Phil Kline/BKH

Initial Assessment:

How is the well labeled? MW# 3 Is the well cover intact? Yes No
 Is the well cover locked? Yes No No Is the well cap in place? Yes No
 Is the well cap locked? Yes No No Is the well casing intact? Yes No
 Is there an odor when cap removed? Yes No Describe: —
 Description of any discrepancies: None

Well Volume Information:

What is the diameter of the well? 2" 4" 6" 8" 12" other: —
 What is the distance to the water table? (in feet): 12.07
 What is the distance to the bottom of the well casing? (in feet): 20.45
 What is the water column height? (in feet): 8.38
 Well volume in gallons is equal to the height of the water column multiplied by the following factors: 2" = H x 0.17, 4" = H x 0.66, 6" = H x 1.48, 8" = H x 2.62, 12" = H x 5.90
 What is the well volume? (show calculation): 8.38 x 0.17 = 1.424 (14 min)

Well Purging Information:

Purging equipment used: Peristaltic Material: DuPont
 Cleaning protocol: New Date cleaned: — Cleaned by: —
 If bailer used, what is volume? —
 If submersible pump used, what is flow rate? 0.39 l/min
 What time did purging begin? (Date/Time 24 hr): 10/22/98 1405 End?: 1447
 Describe appearance of water on initial purging: Clear, Clear - NO odor
 Meter calibration record:

pH meter: Time calib.: 025 Standards: 4 7 10 Analyst: P. Kline
 Temperature: Correction factor: — Analyst: —
 Conductivity meter: Standard used: 100 Analyst: P. Kline

Record stabilization criteria in table below:

Vol Evacuated in Gal	Time Analyzed	pH	Temperature	Conductivity
1.42	1419	5.8	24.4	201
1.42	1432	5.8	24.3	220
1.42	1447	5.8	24.4	220
:	:			

Total volume purged from well: 4.26 Gal How many well volumes: 3
 Will well go dry? Yes No Did criteria stabilize? Yes No
 Describe appearance of water after purging complete: Clear
 Are there any odor not previously described? If so, what: None
 Describe any problems or discrepancies: —

Groundwater Sampling Log

NPWC Env. Lab., Bldg 3691, Code 920, NAS Pensacola, FL 32508, CompQAP #920121G

MW# 4

Site 1101

Sampling Event Information:

Location or name of groundwater well: Brown Field
 Contact person and phone number: Greg Campbell 452-4315
 Date of sampling event: 10-22-98
 Ambient conditions: Cool clouds in skies approx 70° (Temp. dropping)
 Person responsible for sampling: P. Keane / B.F.

Initial Assessment:

How is the well labeled? MW# 4 Is the well cover intact? Yes No
 Is the well cover locked? Yes No Yes Is the well cap in place? Yes No
 Is the well cap locked? Yes No Yes Is the well casing intact? Yes No
 Is there an odor when cap removed? Yes No Describe: _____
 Description of any discrepancies: None

Well Volume Information:

What is the diameter of the well? 2" 4" 6" 8" 12" other: _____
 What is the distance to the water table? (in feet): 12.07
 What is the distance to the bottom of the well casing? (in feet): 20.65
 What is the water column height? (in feet): 8.58
 Well volume in gallons is equal to the height of the water column multiplied by the following factors: 2" = H x 0.17, 4" = H x 0.66, 6" = H x 1.48, 8" = H x 2.62, 12" = H x 5.90
 What is the well volume? (show calculation): 8.58 x 0.17 = 1.458 16 min

Well Purging Information:

Purging equipment used: Peristaltic Material: Tygon
 Cleaning protocol: New Date cleaned: _____ Cleared by: _____
 If bailer used, what is volume? _____
 If submersible pump used, what is flow rate? 0.35 L/min
 What time did purging begin? (Date/Time 24 hr): 10-22-98 1735 End?: _____
 Describe appearance of water on initial purging: Clear

Meter calibration record:

pH meter: Time calib.: 0925 Standards: 4 7 10 Analyst: P. Keane
 Temperature: Correction factor: _____ Analyst: _____
 Conductivity meter: Standard used: 100 Analyst: P. Keane

Record stabilization criteria in table below:

Vol Evacuated in Gal	Time Analyzed	pH	Temperature	Conductivity
<u>1.46</u>	<u>1751</u>	<u>5.2</u>	<u>23.2</u>	<u>80</u>
<u>1.46</u>	<u>1807</u>	<u>5.3</u>	<u>23.2</u>	<u>87</u>
<u>1.46</u>	<u>1823</u>	<u>5.3</u>	<u>23.2</u>	<u>88</u>

Total volume purged from well: 4.38 Gals How many well volumes: 3
 Will well go dry? Yes No Did criteria stabilize? Yes No

Describe appearance of water after purging complete: Clear
 Is there any odor not previously described? If so, what: No
 Describe any problems or discrepancies: None

Groundwater Sampling Log

MW# 5

NPWC Env. Lab., Bldg 3691, Code 920, NAS Pensacola, FL 32508, CompQAP #920121G

Site 1101

Sampling Event Information:

Location or name of groundwater well: NAS BEVINSON FIELD
 Contact person and phone number: CREG CAMPBELL 432-4315
 Date of sampling event: 10-22-98
 Ambient conditions: Cool approx 75° Windy
 Person responsible for sampling: P. Heane/SH

Initial Assessment:

How is the well labeled? MW# 5 Is the well cover intact? Yes No
 Is the well cover locked? Yes No Is the well cap in place? Yes No
 Is the well cap locked? Yes No Is the well casing intact? Yes No
 Is there an odor when cap removed? Yes No Describe: —
 Description of any discrepancies: None

Well Volume Information:

What is the diameter of the well? 2" 4" 6" 8" 12" other: —
 What is the distance to the water table? (in feet): 11.55
 What is the distance to the bottom of the well casing? (in feet): 20.56
 What is the water column height? (in feet): 9.01
 Well volume in gallons is equal to the height of the water column multiplied by the following factors: 2" = H x 0.17, 4" = H x 0.66, 6" = H x 1.48, 8" = H x 2.62, 12" = H x 5.90
 What is the well volume? (show calculation): 9.01 x 0.17 = 1.531

Well Purging Information:

Purging equipment used: Peristaltic Material: Tygon
 Cleaning protocol: New Date cleaned: — Cleaned by: —
 If bailer used, what is volume? —
 If submersible pump used, what is flow rate? 0.39 L/min
 What time did purging begin? (Date/Time 24 hr): 10-22-98 1500 End?: 1545
 Describe appearance of water on initial purging: Clear

Meter calibration record:

pH meter: Time calib.: 0925 Standards: 4 7 10 Analyst: P. Heane
 Temperature: Correction factor: — Analyst: —
 Conductivity meter: Standard used: 100 Analyst: B. Hoyle

Record stabilization criteria in table below:

Vol Evacuated in Gal	Time Analyzed	pH	Temperature	Conductivity
1.53	1515	5.3	23.9	90
1.53	1530	5.2	24.0	85
1.53	1545	5.2	24.1	89

Total volume purged from well: 4.59 Gals How many well volumes: 3
 Did well go dry? Yes No Did criteria stabilize? Yes No
 Describe appearance of water after purging complete: Very light milky color
 Is there any odor not previously described? If so, what: no
 Describe any problems or discrepancies: None

Groundwater Sampling Log

NPWC Env. Lab., Bldg 3691, Code 920, NAS Pensacola, FL 32508, CompQAP #920121G

MW#6

Site 1101

Sampling Event Information:

Location or name of groundwater well: NAS BEGUSON FIELD
 Contact person and phone number: CREG CAMPBELL 452-4315
 Date of sampling event: 10-22-98
 Ambient conditions: Cool, approx 75°, Windy
 Person responsible for sampling: Phil Keane/PH

Initial Assessment:

How is the well labeled? MW#6 Is the well cover intact? Yes No
 Is the well cover locked? Yes Yes No Is the well cap in place? Yes No
 Is the well cap locked? Yes Yes No Is the well casing intact? Yes No
 Is there an odor when cap removed? Yes No Describe: _____
 Description of any discrepancies: None

Well Volume Information:

What is the diameter of the well? 2" 4" 6" 8" 12" other: _____
 What is the distance to the water table? (in feet): 11.89
 What is the distance to the bottom of the well casing? (in feet): 20.31
 What is the water column height? (in feet): 8.62
 Well volume in gallons is equal to the height of the water column multiplied by the following factors: 2" = H x 0.17, 4" = H x 0.66, 6" = H x 1.48, 8" = H x 2.62, 12" = H x 5.90
 What is the well volume? (show calculation): 8.62 x 0.17 = 1.465 17 min

Well Purging Information:

Purging equipment used: Peristaltic Material: Sygon
 Cleaning protocol: New Date cleaned: _____ Cleaned by: _____
 If bailer used, what is volume? _____
 If submersible pump used, what is flow rate? 0.33 L/min
 What time did purging begin? (Date/Time 24 hr): 10-22-98 1305 End?: 1356
 Describe appearance of water on initial purging: Clear

Meter calibration record:

pH meter: Time calib.: 0925 Standards: 4 7 10 Analyst: P. Keane
 Temperature: Correction factor: _____ Analyst: _____
 Conductivity meter: Standard used: 100 Analyst: P. Keane

Record stabilization criteria in table below:

Vol Evacuated in Gal	Time Analyzed	pH	Temperature	Conductivity
1.47	1322	5.6	24.6	105
1.47	1339	5.7	24.3	105
1.47	1356	5.8	24.3	105

Total volume purged from well: 4.41 Gals How many well volumes: 3
 Will well go dry? Yes Yes No Did criteria stabilize? Yes No
 Describe appearance of water after purging complete: Clear
 Is there any odor not previously described? If so, what: None
 Describe any problems or discrepancies: _____

MW# 7

Groundwater Sampling Log

NPWC Env. Lab., Bldg 3691, Code 920, NAS Pensacola, FL 32508, CompQAP #920121G

Sta 1101

Sampling Event Information:

Location or name of groundwater well: NAS Bronson Field
 Contact person and phone number: Arig Campbell
 Date of sampling event: 10-22-97
 Ambient conditions: Cool approx 75° slight wind
 Person responsible for sampling: P. Keane / BH

Initial Assessment:

How is the well labeled? MW# 7 Is the well cover intact? Yes No
 Is the well cover locked? Yes No No Is the well cap in place? Yes No
 Is the well cap locked? Yes No No Is the well casing intact? Yes No
 Is there an odor when cap removed? Yes No Describe: _____
 Description of any discrepancies: None

Well Volume Information:

What is the diameter of the well? 2" 4" 6" 8" 12" other: _____
 What is the distance to the water table? (in feet): 11.71
 What is the distance to the bottom of the well casing? (in feet): 19.25
 What is the water column height? (in feet): 7.54
 Well volume in gallons is equal to the height of the water column multiplied by the following factors: 2" = H x 0.17, 4" = H x 0.66, 6" = H x 1.48, 8" = H x 2.62, 12" = H x 5.90
 What is the well volume? (show calculation): 7.54 x 0.17 = 1.281 13 min

Well Purging Information:

Purging equipment used: Peristaltic Material: Sygon
 Cleaning protocol: None Date cleaned: _____ Cleaned by: _____
 If bailer used, what is volume? _____
 If submersible pump used, what is flow rate? 0.38 L/min
 What time did purging begin? (Date/Time 24 hr): 10/22/98 1555 End?: 1634
 Describe appearance of water on initial purging: _____

Meter calibration record:

pH meter: Time calib.: 0925 Standards: 4 7 10 Analyst: P. Keane
 Temperature: Correction factor: _____ Analyst: _____
 Conductivity meter: Standard used: 100 Analyst: P. Keane

Record stabilization criteria in table below:

Vol Evacuated in Gal	Time Analyzed	pH	Temperature	Conductivity
1.28	1608	4.8	23.5	60
1.28	1618 1621	4.9	23.5	60
1.28	1631 1634	5.0	23.3	60
:	:	:	:	:

Total volume purged from well: 3.84 Gals How many well volumes: 3
 Did well go dry? Yes No Did criteria stabilize? Yes No
 Describe appearance of water after purging complete: Clear
 Is there any odor not previously described? If so, what: NO
 Describe any problems or discrepancies: None

Groundwater Sampling Log

MW# DMW6
Site 1101

NPWC Env. Lab., Bldg 3691, Code 920, NAS Pensacola, FL 32508, CompQAP #920121G

Sampling Event Information:

Location or name of groundwater well: NAS BRONSON FIELD
 Contact person and phone number: Greg Canby 11 452-4315
 Date of sampling event: 10-22-98
 Ambient conditions: Cool, approx 78°, windy
 Person responsible for sampling: Phil Keane / BK

Initial Assessment:

How is the well labeled? MW# DMW# 6 Is the well cover intact? Yes No
 Is the well cover locked? Yes No Yes Is the well cap in place? Yes No
 Is the well cap locked? Yes No Yes Is the well casing intact? Yes No
 Is there an odor when cap removed? Yes No Describe:
 Description of any discrepancies: None

Well Volume Information:

What is the diameter of the well? 2" 4" 6" 8" 12" other:
 What is the distance to the water table? (in feet): 11.85
 What is the distance to the bottom of the well casing? (in feet): 33.26
 What is the water column height? (in feet): 21.41
 Well volume in gallons is equal to the height of the water column multiplied by the following factors: 2" = H x 0.17, 4" = H x 0.66, 6" = H x 1.48, 8" = H x 2.62, 12" = H x 5.90
 What is the well volume? (show calculation): 21.41 x 0.17 = 3.639 35 min

Well Purging Information:

Purging equipment used: Peristaltic Material: Oxygen
 Cleaning protocol: new Date cleaned: Cleaned by:
 If bailer used, what is volume?
 If submersible pump used, what is flow rate? 0.394/min
 What time did purging begin? (Date/Time 24 hr): 10/22/98 1110 End?: 1255
 Describe appearance of water on initial purging: Clear + no odor
 Meter calibration record:
 pH meter: Time calib.: 0925 Standards: 4 7 10 Analyst: P. Keane
 Temperature: Correction factor: Analyst:
 Conductivity meter: Standard used: 100 Analyst: P. Keane

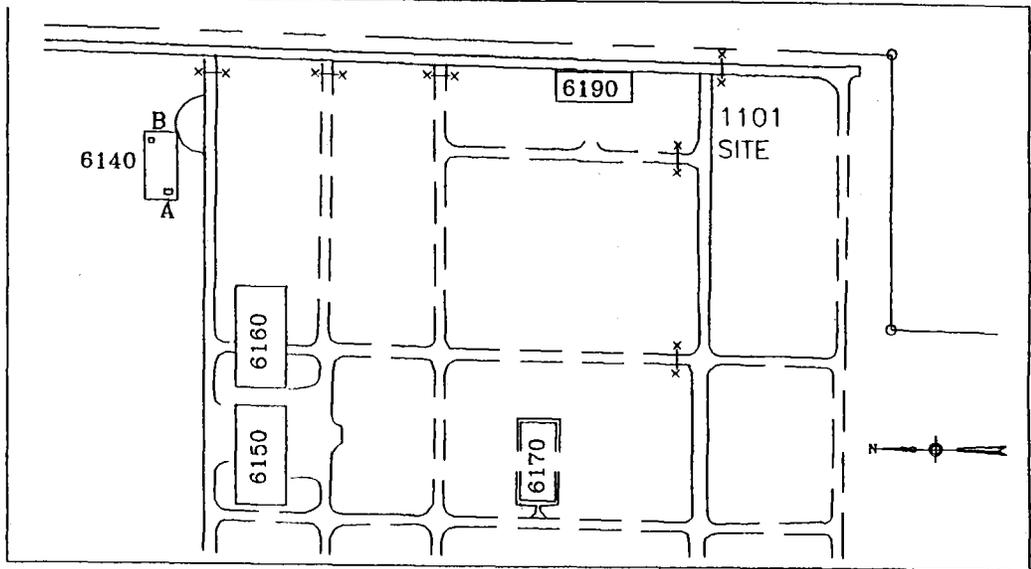
Record stabilization criteria in table below:

Vol Evacuated in Gal	Time Analyzed	pH	Temperature	Conductivity
3.64	1145	5.3	23.2	40
3.64	1220	5.0	23.2	40
3.64	1255	4.9	23.3	40

Total volume purged from well: 10.92 Gals How many well volumes: 3
 Did well go dry? Yes No Did criteria stabilize? Yes No
 Describe appearance of water after purging complete: Clear
 Is there any odor not previously described? If so, what: None
 Describe any problems or discrepancies: None

APPENDIX E

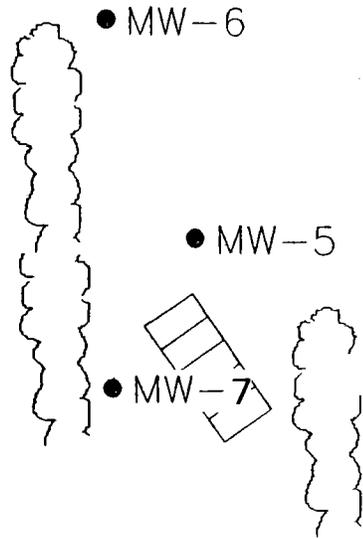
Figure 2: Monitoring Well Location Map



AREA OF BLDG.
1101 FOUNDATION
REMANTS.

● MW-3

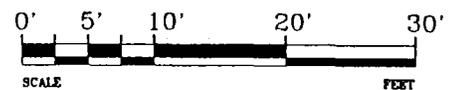
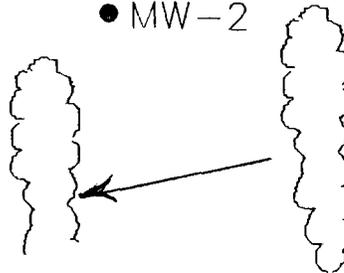
● MW-4



● DMW-6
● MW-1



● MW-2



LEGEND	
	HOT CUTTINGS STORED ON PLASTIC SHEETING
●	MW-6 MONITORING WELL
←	GW FLOW DIRECTION

NAVY PUBLIC WORKS CENTER PENSACOLA, FLORIDA		
SCALE:	FIGURE 2	DRAWN BY: DWG. NO: REVISED BY:
MONITORING WELL LOCATION MAP SITE 1101, BRONSON FIELD		
CLIENT: NAS ENVIRONMENTAL DEPARTMENT, NAS PENSACOLA		

APPENDIX F

Lithological Logs Monitoring Well Construction Diagrams

NPWC

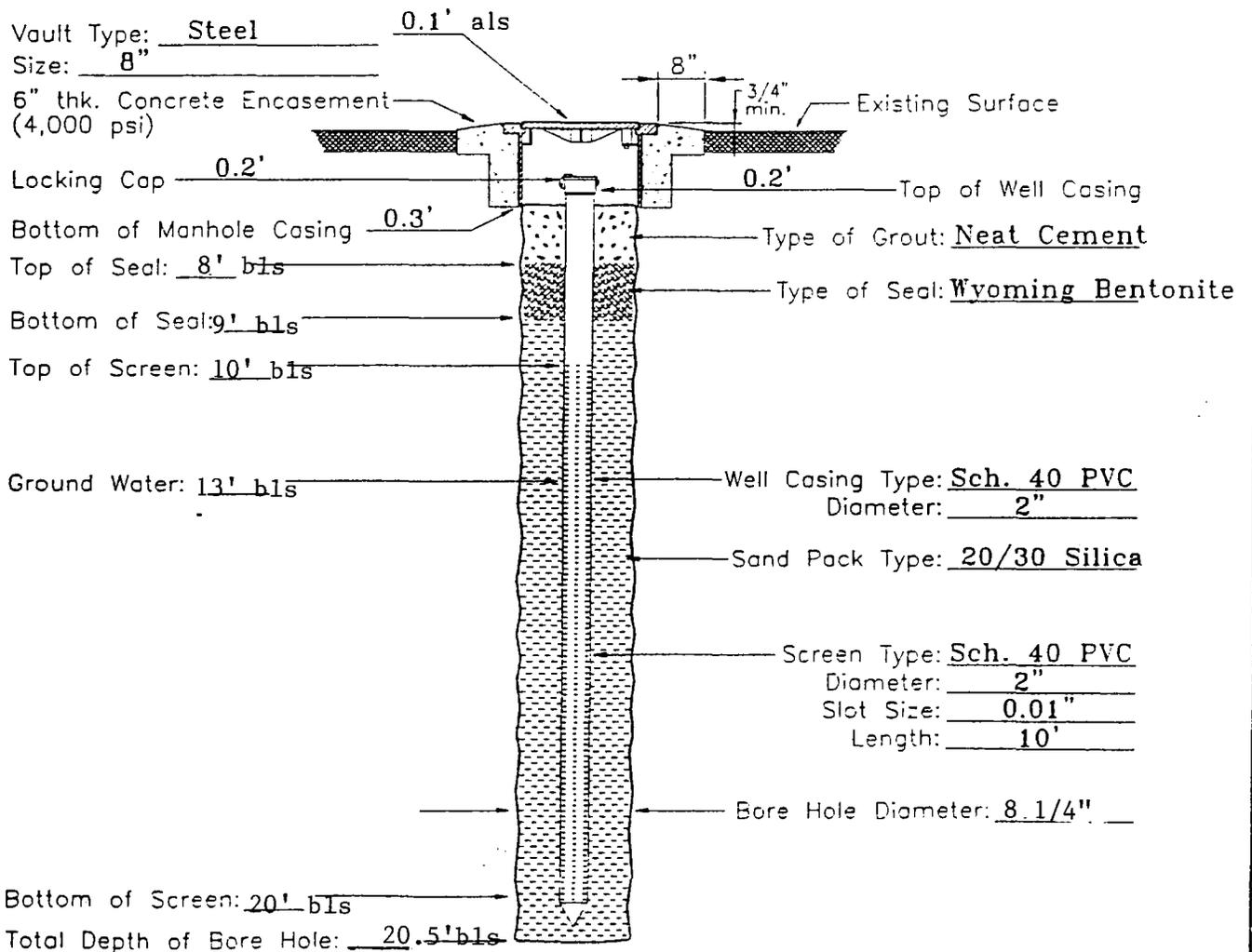


ENVIRONMENTAL

MONITOR WELL CONSTRUCTION DETAIL

310 John Tower Road
Pensacola, Florida 32508-5303
(850) 452-4315
(850) 452-2331 Fax

LOGGED BY: GREG CAMPBELL CLIENT: NAS PENSACOLA, FLORIDA
DRILLING CONTRACTOR: MWM MAINTENANCE INC LOCATION: SITE 1101 BRONSON FIELD
DRILLER'S NAME: CHUCK MALSBUY JOB NUMBER:
WELL NUMBER: MW #7 DATE Start: 5/1/98 Finish: 5/1/98
TIME Start: 0945 Finish: 1010
COMMENTS: (Lost circulation interval, Water level changes, Hole collapse interval, etc.):



NOTE: DEPTHS SHOWN ARE BELOW LAND SURFACE (B.L.S.)

DRAWING ABOVE IS NOT TO SCALE

APPENDIX G

Table II, Volatile Organic Vapor Concentration In Soil
(OVA Headspace Analysis) For MW-7
Performed May 1, 1998

TABLE II

**VOLATILE ORGANIC VAPOR CONCENTRATION IN SOIL
(OVA HEADSPACE ANALYSIS) FOR MW-7
PERFORMED MAY 1, 1998 AT
U.S. NAVY OUTLYING LANDING FIELD BRONSON, SITE 1101**

Boring Designation	Depth (Feet BLS)	VOCs Concentration (ppm)¹
MW-7	1	4
	4	7.1
	7	0.4
	10	0
	12.5	0
	15	55.6

¹ VOCs concentration assessed by organic vapor analyzer headspace techniques. Results are total VOCs less methane.

Notes: BLS = below land surface

NS = Not sampled

ppm = parts per million

Soil samples analyzed and VOC results reported by NPWC, Pensacola, FL