CATLIN
Engineers and Scientists

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www.catlinusa.com

December 31, 2008

NAVFAC Mid-Atlantic
Marine Corps North Carolina IPT
Environmental Business Line
Code: OPCEV3MA
Attn: Mr. Melvin Acree
6506 Hampton Boulevard
Building C, Room 314
Norfolk, VA 23508-1278

Re: **Site BB-9**
Groundwater Sampling
Marine Corps Base
Camp Lejeune, North Carolina
Navy Contract No. N62470-05-D-6200
Delivery Order No. 0016
CATLIN Project No. 205-077

Dear Mr. Acree:

In September of 2006 a Report of Findings concerning this site was submitted to the Wilmington Regional Office (WiRO) of the North Carolina Department of Environment and Natural Resource (NCDENR) detailing recent soil sampling results and requesting the site be considered for No Further Action (NFA). In an e-mail dated November 1, 2006, Mr. Bruce Reed of the WiRO requested that a groundwater sample be collected from monitoring well BB9-3 in order to justify the No Further Action request. Based on this request CATLIN installed a temporary well (BB9 TW01) on November 20, 2006, because the monitoring well BB9-3 could not be located. A groundwater sample was obtained and analyzed per Environmental Protection Agency (EPA) Method 625 and Massachusetts Department of Environmental Protection (MADEP) VPH and EPH. Results of the laboratory analysis are summarized in Tables 1 through 3. Laboratory results indicated three Method 625 compounds, Benzo[k]fluoranthene, Chrysene, and 1,4-Dichlorobenzene and one MADEP VPH/EPH hydrocarbon fraction, C9-C22 Aromatics above North Carolina Administrative Code (NCAC) 2L Groundwater Quality Standards (GWQS) or Gross Contaminant Levels (GCLs) that prevented the site from being considered for NFA. It was recommended that the groundwater be allowed to naturally attenuate and the site be re-sampled in two years.

CATLIN mobilized to the site on November 14, 2008 to install a permanent monitoring well to replace previously destroyed BB9-3 and collect a representative groundwater sample. Using a trailer mounted Diedrich D-50 drilling rig, CATLIN installed a boring and set a new monitoring well (USTBB9-MW03R). The monitoring well was developed on the same day and later sampled on November 17, 2008. A Well Construction Record and Well Log were submitted to the State on November 24, 2008 and have also been

included with this letter. Monitoring well USTBB9-MW03R was installed in the location of previous well BB9-3 (see attached Figure 1). The groundwater sample was placed in appropriate laboratory provided glassware and transported under proper Chain-of-Custody to SGS Environmental Services, Inc. of Wilmington, North Carolina for analysis by EPA Method 625 and MADEP VPH and EPH. Results of the November 17, 2008 laboratory analyses are summarized in Tables 1-3 and as follows:

EPA METHOD 625

Several EPA Method 625 constituents were detected at low concentrations in excess of laboratory method detection limits. However only Benzo[a]anthracene (23.4 ug/L), Benzo[a]pyrene (14.4 ug/L), Benzo[b]fluoranthene (20.6 ug/L), Benzo[k]fluoranthene (9.5 ug/L), and Chrysene (24.0 ug/L) were above applicable 2L GWQSs and Benzo[a]anthracene, Benzo[b]fluoranthene, and Benzo[k]fluoranthene were above the GCLs. See attached laboratory summary on Table 1. Table 1 also includes laboratory results from the groundwater sample collected from temporary monitoring well BB-9 TW01 in December 2006.

MADEP VPH/EPH

Massachusetts Department of Environmental Protection (MADEP) VPH and EPH fractions were also detected in the USTBB9-MW03R groundwater sample. Only the C9-C22 Aromatic concentration of <4,610 ug/L was in excess of the 2L GWQS of 210 ug/L. There are no established GCLs for the MADEP fractions. See attached laboratory summary on Tables 2 and 3. Tables 2 and 3 also include laboratory results from the groundwater sample collected from temporary monitoring well BB-9 TW01 in December 2006.

Laboratory reports from both sampling events have been attached for your reference along with Chain of Custody documentation.

Based on a review of the laboratory results, there are contaminant concentrations in excess of the GCLs that prevent the site from being considered for No Further Action at this time. It is recommended that the groundwater at the site be allowed to naturally attenuate and the site be re-sampled in two years to determine if the contaminant concentrations have been reduced to below acceptable levels.

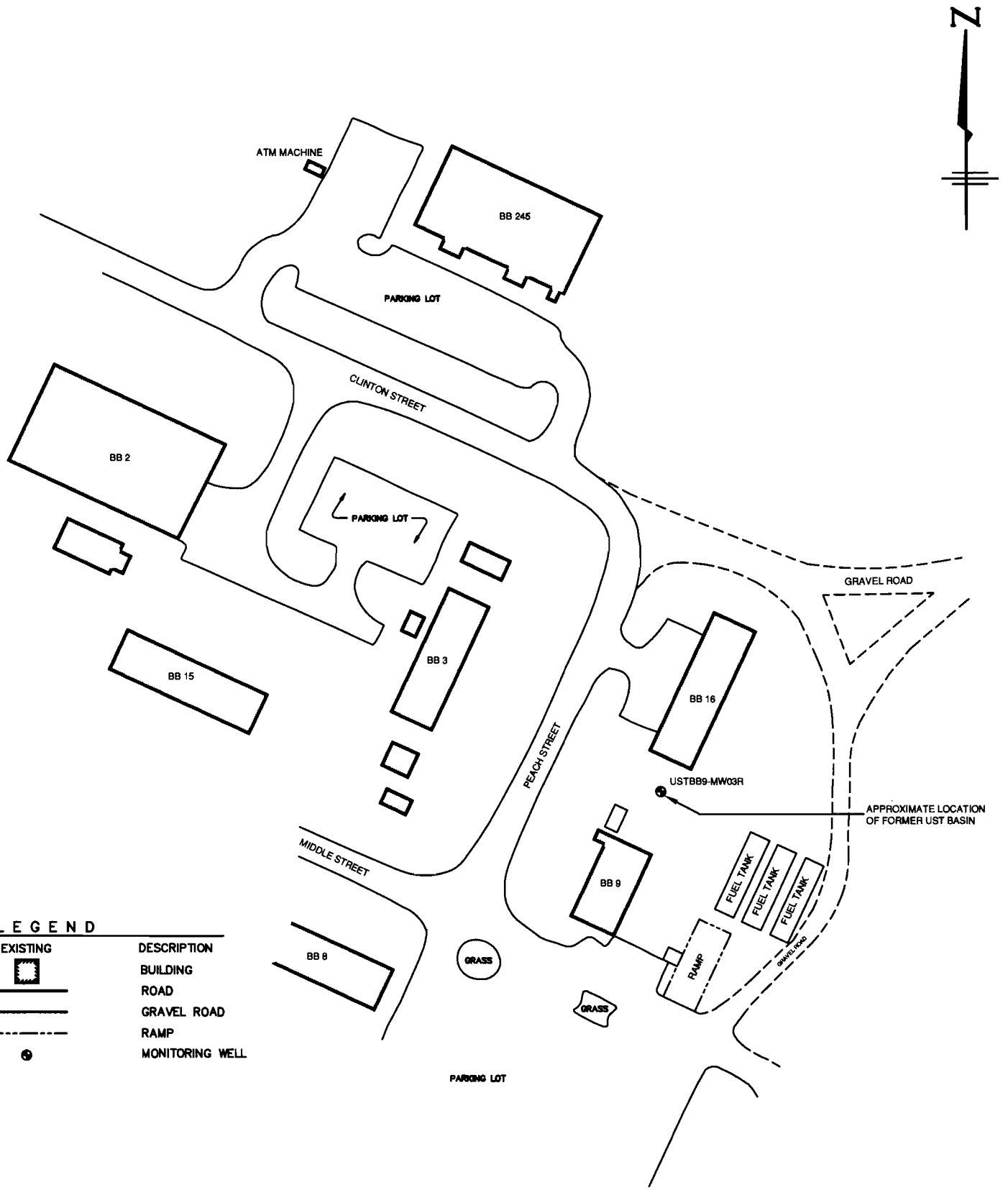
CATLIN Engineers and Scientists appreciate the opportunity to continue to provide services to NAVFAC Mid-Atlantic and the MCB on your environmental projects.

Sincerely,

Michael E. Mason, P.E.
Program Manager

Michael D. Mason
Project Engineer

Attachments



NOTE:
1). FIGURE MODIFIED FROM BAKER ENVIRONMENTAL INC. SITE PLAN
2). GROUNDWATER MONITORING WELL LOCATION IS APPROXIMATE.

100 50 0 100
SCALE IN FEET

CATLIN
Engineers and Scientists
220 Old Dairy Road
Wilmington, NC 28405

PROJECT	TITLE	FIGURE
BB-9 GROUNDWATER SAMPLING MARINE CORP. BASE CAMP LEJEUNE, NC	BB-9 SITE PLAN WITH MONITORING WELL LOCATION	1

JOB NO:	DATE:	SCALE:	DRAWN BY:	CHECKED BY:
205-077	DEC 2008	1" = 100'	MDM	MEM

205-077-03A-BB-9-DEC08-FIG1

TABLE 1
SUMMARY OF GROUNDWATER LABORATORY RESULTS
EPA METHOD 625

Incident Name and No.: Site BB-9

Well ID	Contaminant of Concern →		Acenaphthene	Anthracene	Benzo[a]anthracene	Benzo[a]pyrene	Benzo[b]fluoranthene	Benzo[g,h,i]perylene	Benzo[k]fluoranthene	Chrysene
	Sample ID	Date Collected								
GCL **2L GWQS**			2,120 80	2,100 2,100	22 0.0479	15 0.00479	0.6 0.0479	210 210	0.47 0.479	0.8 4.79
BB-9 TW01	BB-9 TW01	12/8/2006	<1.22	<1.75	<1.36	<1.27	<1.43	<4.57	**1.30 J**	**1.50 J**
USTBB9-MW03R	USTBB9-MW03R	11/17/2008	38.6	21.2	**23.4**	**14.4**	**20.6**	9.23	**9.5**	**24.0**

BQL = Below Quantitation Limit

All results in micrograms per Liter (ug/L).

NE = Not Established

Bold results indicate concentrations above 2L GWQS or GCL.

< = less than method detection limit

J = Estimated concentration, below calibration range and above Method Detection Limit

NA = Not Analyzed

TABLE 1
SUMMARY OF GROUNDWATER LABORATORY RESI
EPA METHOD 625

Incident Name and No.: Site BB-9

Well ID	Contaminant of Concern →		1,2-Dichlorobenzene	1,4-Dichlorobenzene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	All Other 625 Compounds
	Sample ID	Date Collected							
GCL **2L GWQS**			24,000 24	39,500 1.4	280 280	950 280	410 210	210 210	Varies Varies
BB-9 TW01	BB-9 TW01	12/8/2006	4.40 J	**4.20 J**	1.70 J	<1.22	1.80 J	2.90 J	BMDL
USTBB9-MW03R	USTBB9-MW03R	11/17/2008	NA	NA	75.2	12.3	12.1	64.7	BMDL

BQL = Below Quantitation Limit

All results in micrograms per Liter (ug/L).

NE = Not Established

Bold results indicate concentrations above 2L GWQS or GCL.

< = less than method detection limit

J = Estimated concentration, below calibration range and above Metho

NA = Not Analyzed

TABLE 2
SUMMARY OF GROUNDWATER LABORATORY RESULTS
MADEP METHOD VPH/EPH

Incident Name and No.: Site BB-9

Well ID	Hydrocarbon Fraction		VPH			EPH		
	Sample ID	Date Collected	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics	C9-C18 Aliphatics	C19-C36 Aliphatics	C11-C22 Aromatics
BB-9 TW01	BB-9 TW01	12/8/2006	<100	<100	<100	420	1,500	240
USTBB9-MW03R	USTBB9-MW03R	11/17/2008	<100	<100	<100	833	2,870	4,510

All results in micrograms per Liter (ug/L).

TABLE 3
SUMMARY OF GROUNDWATER LABORATORY RESULTS
MADEP METHOD VPH/EPH AS COMPARED TO NCDENR 2L GWQS

Incident Name and No.: Site BB-9

Well ID	Hydrocarbon Fraction of Concern →		C5-C8 Aliphatics	C9-C18 Aliphatics	C19-C36 Aliphatics	C9-C22 Aromatics
	Sample ID	Date Collected				
GCL 2L GWQS			NE 420	NE 4,200	NE 42,000	NE 210
BB-9 TW01	BB-9 TW01	12/8/2006	<100	**<520**	1,500	**<340***
USTBB9-MW03R	USTBB9-MW03R	11/17/2008	<100	<933*	2,870	**<4,610***

All results in micrograms per Liter (ug/L).

NE = Not Established

Bold results indicate concentrations above 2L GWQS or GCL.

* = The value represents the sum of the reported practical quantitation limit of one fraction and the detected concentration of the other fraction.

NON RESIDENTIAL WELL CONSTRUCTION RECORD

North Carolina Department of Environment and Natural Resources - Division of Water Quality

WELL CONTRACTOR CERTIFICATION #: 2869

1. WELL CONTRACTOR:

Bobbie D. Fowler
Well Contractor (Individual) Name

CATLIN Engineers and Scientists
Well Contractor Company Name

STREET ADDRESS 220 Old Dairy Road

Wilmington | North Carolina | 28405
City or Town | State | Zip Code

(910) - 452-5861
Area code - Phone number

2. WELL INFORMATION

SITE WELL ID #(if applicable): USTBB9- MW03R
STATE WELL PERMIT #(if applicable): N/A
DWQ or OTHER PERMIT # (if applicable): N/A
WELL USE (Check Applicable Box): Monitoring ☒ Municipal/Public ☐
Industrial/Commercial ☐ Agricultural ☐ Recovery ☐ Injection ☐
Irrigation ☐ Other ☐ (list use): _____
DATE DRILLED: 11/14/2008
TIME COMPLETED: **AM** ☐ **PM** ☐

3. WELL LOCATION:

CITY: Camp Lejeune COUNTY: Onslow

(Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)

TOPOGRAPHIC / LAND SETTING
Slope ☒ Valley ☐ Flat ☐ Ridge ☐ Other: _____

NORTHING: _____
EASTING: _____
May be in degrees, minutes, seconds, or in a decimal format

Latitude/longitude source: ☐ GPS ☐ Topo. map
(Location of well must be shown on a USGS topo map and attached to this form if not using a GPS.)

4. FACILITY - is the name of the business where the well is located.

FACILITY ID #(if applicable) N/A
NAME OF FACILITY:
STREET ADDRESS:

Camp Lejeune | NC
City or Town | State | Zip Code

CONTACT PERSON: Dr. Johanna Arnold
STREET ADDRESS: Attn: I&E/ EMD/ EQB/ PSC Box 20004

Camp Lejeune | NC | 28542-0004
City or Town | State | Zip Code

(910)- 451-9017
Area code - Phone number

5. WELL DETAILS:

a. TOTAL DEPTH: 9
b. DOES WELL REPLACE EXISTING WELL? YES ☒ NO ☐
c. WATER LEVEL Below Top of Casing: 5.34 FT.
(Use "+" if Above Top of Casing)

d. TOP OF CASING IS 0 FT. Above Land Surface*
* Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118

e. YIELD (gpm): N/A **METHOD OF TEST:** N/A
f. DISINFECTION: Type N/A **Amount:** N/A
g. WATER ZONES(depth):
From _____ To _____ From _____ To _____
From _____ To _____ From _____ To _____
From _____ To _____ From _____ To _____

6. CASING:

	Depth		Diameter	Thickness/ Weight	Material
From	0	To 4 ft.	2"	Sch. 40	PVC
From		To ft.	"		
From		To ft.	"		

7. GROUT:

	Depth		Material	Method
From	0	To 1 Ft.	Portland Cement	Surface Pour
From	1	To 2 Ft.	Bent. Pellets	Surface Pour
From		To Ft.		

8. SCREEN:

	Depth		Diameter	Slot Size	Material
From	4	To 9 Ft.	2 in.	Slot .010 in.	PVC
From		To Ft.	in.	in.	
From		To Ft.	in.	in.	

9. SAND/GRAVEL PACK:

	Depth		Size	Material
From	2	To 9 Ft.	#2 Medium	Torpedo Sand
From		To Ft.		
From		To Ft.		

10. DRILLING LOG

From	To	Formation Description
		SEE ATTACHED

11. REMARKS:

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

Bobbie D. Fowler
PRINTED NAME OF PERSON CONSTRUCTING THE WELL

Submit the original to the Division of Water Quality within 30 days, Attn: Information Management, 1617 Mail Service Center - Raleigh, NC 27699167, Phone No. (919) 733-7015 ext 568.

Modified from Form GW-1b Rev. 7/05

WELL LOG

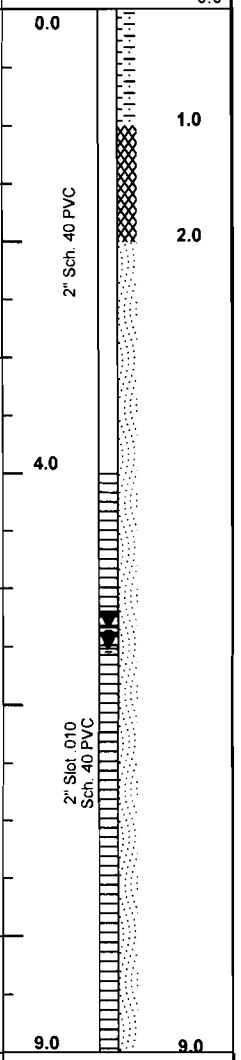
CATLIN ENGINEERS and SCIENTISTS
205-077
Wilmington, NC

SHEET 1 OF 1

PROJECT NO.: 205-077	**STATE:** NC	**COUNTY:** Onslow	**LOCATION:** Camp Lejeune
PROJECT NAME: BB-9		**LOGGED BY:** Tom Stetler	**WELL ID:** USTBB9-MW03R
		DRILLER: Bobbie D. Fowler	
NORTHING:	**EASTING:**	**CREW:** John Wood	
SYSTEM:	**BORING LOCATION:** Proximity of former well BB9-3.		**T.O.C. ELEV.:**
DRILL MACHINE: Diedrich D-50	**METHOD:** HSA	**0 HOUR DTW:** 5.5	**TOTAL DEPTH:** 9.0
START DATE: 11/14/08	**FINISH DATE:** 11/14/08	**24 HOUR DTW:** 5.3	**WELL DEPTH:** 9.0

DEPTH	BLOW COUNT 6in	6in	6in	6in	OVA (ppm)	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION
									0.0	LAND SURFACE
									1.5	White limestone gravel in auger cuttings
3.0	1	1	1	4	0.0		SM		3.0	Dark brown, SILTY vf. SAND. Moist. Wet at base of interval. Tr. mod. rounded limestone gravel. Fill.
									5.0	
									8.0	
8.0	6	50/5"			1884		SM		9.0	Same as above. Refusal at 9.0' BLS on concrete. Dark brown, SILTY vf. SAND w/ tr. gravel. Strong HCO and petroleum sheen on sample. Saturated.
										Boring Terminated at Depth 9.0 ft on concrete.

WELL DETAIL



Portland Cement | Bentonite Pellets | #2 Medium Sand

CATLIN BORING LOG 205-077 BB-9.GPJ CATLIN.GDT 12/16/08

SGS

Mr. Mike E. Mason
Richard Catlin & Associates
P.O. Box 10279
Wilmington NC 28404-0279

Report Number: G128-1872

Client Project: 205-077 (BB-9)

Dear Mr. Mason:

Enclosed are the results of the analytical services performed under the referenced project. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call SGS/Paradigm at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS/Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,
SGS/Paradigm Analytical Laboratories, Inc.

Laboratory Director
J. Patrick Weaver

12/21/2006
Date

SGS

Results for Semivolatiles by GCMS 625

Client Sample ID: BB-9 TW01
Client Project ID: 205-077 (BB-9)
Lab Sample ID: G128-1872-1E
Lab Project ID: G128-1872

Analyzed By: EAW
Date Collected: 12/8/2006 12:00
Date Received: 12/11/2006
Date Extracted: 12/12/2006
Matrix: Water

Compound	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	BQL	10.0	1.22	1	12/13/2006	
Acenaphthylene	BQL	10.0	1.12	1	12/13/2006	
Anthracene	BQL	10.0	1.75	1	12/13/2006	
Benzo[a]anthracene	BQL	10.0	1.36	1	12/13/2006	
Benzo[a]pyrene	BQL	10.0	1.27	1	12/13/2006	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	12/13/2006	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	12/13/2006	
Benzo[k]fluoranthene	**1.30**	10.0	1.09	1	12/13/2006	J
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	12/13/2006	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	12/13/2006	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	12/13/2006	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	12/13/2006	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	12/13/2006	
Butylbenzylphthalate	BQL	10.0	1.53	1	12/13/2006	
2-Chloronaphthalene	BQL	10.0	1.25	1	12/13/2006	
2-Chlorophenol	BQL	10.0	4.22	1	12/13/2006	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	12/13/2006	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	12/13/2006	
Chrysene	**1.50**	10.0	1.11	1	12/13/2006	J
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	12/13/2006	
Di-n-Butylphthalate	BQL	10.0	1.65	1	12/13/2006	
1,2-Dichlorobenzene	**4.40**	10.0	1.25	1	12/13/2006	J
1,3-Dichlorobenzene	BQL	10.0	1.24	1	12/13/2006	
1,4-Dichlorobenzene	**4.20**	10.0	1.20	1	12/13/2006	J
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	12/13/2006	
2,4-Dichlorophenol	BQL	10.0	3.75	1	12/13/2006	
Diethylphthalate	BQL	10.0	1.48	1	12/13/2006	
Dimethylphthalate	BQL	10.0	1.04	1	12/13/2006	
2,4-Dimethylphenol	BQL	10.0	9.25	1	12/13/2006	
Di-n-octylphthalate	BQL	10.0	1.16	1	12/13/2006	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	12/13/2006	
2,4-Dinitrophenol	BQL	50.0	4.20	1	12/13/2006	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	12/13/2006	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	12/13/2006	
Diphenylamine *	BQL	10.0	1.53	1	12/13/2006	
Fluoranthene	**1.70**	10.0	1.41	1	12/13/2006	J
Fluorene	BQL	10.0	1.22	1	12/13/2006	
Hexachlorobenzene	BQL	10.0	1.22	1	12/13/2006	
Hexachlorobutadiene	BQL	10.0	1.58	1	12/13/2006	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	12/13/2006	
Hexachloroethane	BQL	10.0	1.58	1	12/13/2006	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	12/13/2006	
Isophorone	BQL	10.0	1.27	1	12/13/2006	
Naphthalene	BQL	10.0	1.08	1	12/13/2006	
Nitrobenzene	BQL	10.0	1.32	1	12/13/2006	
2-Nitrophenol	BQL	10.0	3.52	1	12/13/2006	
4-Nitrophenol	BQL	50.0	3.17	1	12/13/2006	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	12/13/2006	
Pentachlorophenol	BQL	50.0	2.83	1	12/13/2006	
Phenanthrene	**1.80**	10.0	1.38	1	12/13/2006	J

SGS

Results for Semivolatiles by GCMS 625

Client Sample ID: BB-9 TW01
Client Project ID: 205-077 (BB-9)
Lab Sample ID: G128-1872-1E
Lab Project ID: G128-1872

Analyzed By: EAW
Date Collected: 12/8/2006 12:00
Date Received: 12/11/2006
Date Extracted: 12/12/2006
Matrix: Water

Compound	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Phenol	BQL	10.0	3.38	1	12/13/2006	
Pyrene	**2.90**	10.0	2.08	1	12/13/2006	J
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	12/13/2006	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	12/13/2006	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.6	66
2-Fluorophenol	10	8.7	87
Nitrobenzene-d5	10	8.9	89
Phenol-d6	10	9	90
2,4,6-Tribromophenol	10	8.8	88
4-Terphenyl-d14	10	5.4	54

Comments:

* N-Nitrosodiphenylamine is reported as the breakdown product Diphenylamine.

Flags:

BQL = Below Quantitation Limits.
J = Detected below the quantitation limit.

Reviewed By: _____

SGS

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Richard Catlin & Associates

Project Name: 205-077 (BB-9)

Sample Information and Analytical Results	
Sample Identification	BB-9 TW01
Sample Matrix	Water
Collection Option (for Soil)*	
Date Collected	12/08/06
Date Received	12/11/06
Date Extracted	12/11/06
Date Analyzed	12/11/06
Dry Weight	
Dilution Factor	1
C_5-C_8 Aliphatics**	< 100 (µg/L)
C_9-C_{12} Aliphatics**	< 100 (µg/L)
C_9-C_{10} Aromatics**	< 100 (µg/L)
Surrogate % Recovery - PID	110
Surrogate % Recovery - FID	100

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil.

** = Excludes any surrogates or internal standards.

Lab Info: g128-1872-1b

Reviewed By: JWL

SGS

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

FID Initial Calibration Date: 11/21/06 PID Initial Calibration Date: 11/21/06

Calibration Ranges and Limits

Range	MDL (07/15/2004) (µg/L)	ML (µg/L)	RL (µg/L)	RL (mg/Kg)
C_5-C_8 Aliphatics	4.4	14	100	10
C_9-C_{12} Aliphatics	3.4	11	100	10
C_9-C_{10} Aromatics	0.13	0.41	100	10

Calibration Concentration Levels

Range	Levels (µg/L)	%RSD or CCC	Method of Quantitation
C_5-C_8 Aliphatics	40	21.8	Calibration Factor
	1000		
	2000		
	3000		
	4000		
C_9-C_{12} Aliphatics	10	24.00	Calibration Factor
	250		
	500		
	750		
	1000		
C_9-C_{10} Aromatics	10	0.99	Linear Regression
	250		
	500		
	750		
	1000		

Calibration Check Date: 12/11/06

Calibration Check

Range	Levels (µg/L)	(mg/Kg)	RPD
C_5-C_8 Aliphatics	2000	200	17.6
C_9-C_{12} Aliphatics	500	50	1.1
C_9-C_{10} Aromatics	500	50	-12.1

MDL = Method Detection Limit
ML = Minimum Limit
RL = Reportable Limit
RPD = Relative Percent Difference
%RSD = Percent Relative Standard Deviation
CCC = Correlation Coefficient of Curve

SGS

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Richard Catlin & Associates

Project Name: 205-077 (BB-9)

Sample Information and Analytical Results	
Sample Identification	BB-9 TW01
Sample Matrix	Water
Date Collected	12/08/06
Date Received	12/11/06
Date Extracted	12/14/06
Date Analyzed	12/18/06
Dry Weight	
Dilution Factor	1:1
C_9-C_{18} Aliphatics*	420 (ug/L)
C_{19}-C_{36} Aliphatics*	1500 (ug/L)
C_{11}-C_{22} Aromatics*	240 (ug/L)
Aliphatic Surrogate % Recovery	46
Aromatic Surrogate % Recovery	40
Fractionation Surrogate 1 % Recovery	85

Comments:

* = Excludes any surrogates or internal standards.

Lab info: G128-1872-1F

Reviewed By: RW

SGS

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 12/11/06

Calibration Ranges and Limits

Range	MDL (2/2004) (µg/L)	ML (µg/L)	RL (µg/L)	RL (mg/Kg)
C_9-C_{18} Aliphatics	3.84	12.2	100	10
C_{19}-C_{36} Aliphatics	0.57	1.8	100	10
C_{11}-C_{22} Aromatics	4.54	14.4	100	10

Calibration Concentration Levels

Range	Levels (µg/mL)	%RSD or CCC	Method of Quantitation
C_9-C_{18} Aliphatics	6	1.00	Linear Regression
	30		
	60		
	120		
	240		
C_{19}-C_{36} Aliphatics	8	1.0	Linear Regression
	40		
	80		
	160		
	320		
C_{11}-C_{22} Aromatics	17	1	Linear Regression
	85		
	170		
	340		
	680		

Calibration Check Date: 12/18/06

Calibration Check

Range	Levels (µg/mL)	RPD
C_9-C_{18} Aliphatics	120	-17.5
C_{19}-C_{36} Aliphatics	160	-15.8
C_{11}-C_{22} Aromatics	340	-0.2

MDL = Method Detection Limit
ML = Minimum Limit
RL = Reportable Limit
RPD = Relative Percent Difference
%RSD = Percent Relative Standard Deviation
CCC = Correlation Coefficient of Curve

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List of Reporting Abbreviations and Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantitation Limit (RL or MDL)

DF = Dilution Factor

Dup = Duplicate

D = Detected, but RPD is > 40% between results in dual column method.

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL = Reporting Limit

RPD = Relative Percent Difference

mg/kg = milligram per kilogram, ppm, parts per million

ug/kg = micrograms per kilogram, ppb, parts per billion

mg/L = milligram per liter, ppm, parts per million

ug/L = micrograms per liter, ppb, parts per billion

% Rec = Percent Recovery

% soilds = Percent Solids

Special Notes:

1) Metals and mercury samples are digested with a hot block, see the standard operating procedure document for details.

2) Uncertainty for all reported data is less than or equal to 30 percent.

SGS

CHAIN OF CUSTODY RECORD
SGS Environmental Services Inc.

Locations Nationwide
- Alaska
- Hawaii
- Louisiana
- Maryland
- New Jersey
- North Carolina
- West Virginia

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0668 SGS

CLIENT: DoD Lejeune

CONTACT: Mike E. Mason PHONE NO: (910) 352-7741

PROJECT: 205-077 (BB-9) SITE/PWSID#

REPORTS TO: Mike E. Mason E-MAIL: FAX NO.: (910) 452-7563

INVOICE TO: Catlin QUOTE # P.O. NUMBER 261211-3

SGS Reference: G128-1872

PAGE ____ OF ____

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP, G=GRAB)	Preservatives Used	—	HCL	HCL							REMARKS
							Analysis Required (3)	625	EPH	VPH							
	BB-9 TW01	12/8/06	1200	G/W	4	G		1**	1**	2							

(4)

Collected/Relinquished By: (1)	Date	Time	Received By:
Justin Hatter	12/11	10:55	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature °C: 5.8°C

Special Deliverable Requirements:

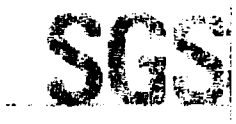
Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Requested Turnaround Time and Special Instructions:

Standard

W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301
Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557
1270 Greenbrier Street **Charleston, WV 25311** Tel: (304) 346-0725 Fax: (304) 346-0761

White - Retained by Lab
Yellow - Returned with Report



Mike D. Mason
Richard Catlin & Associates
220 Old Dairy Rd.
Wilmington, NC 28405

Report Number: G128-2277

Client Project: Site BB-9 Groundwater Sampling

Dear Mike D. Mason,

Enclosed are the results of the analytical services performed under the referenced project. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call SGS Environmental Services at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS Environmental Services for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,
SGS Environmental Services, Inc.

12/1/08

Project Manager Date
Ashley Nifong

Case Narrative
SGS Project: **G128-2277**
Project Name: **Site BB-9 GW Sampling**

For Method: EPH

- The submitted sample was accepted into the lab on November 18th, 2008 and analyzed on November 19th and 23rd, 2008 by method EPH.
- The LCS/LCSD associated with batch 12995 had reported recoveries for the C_9-C_{18} aliphatic that are outside of the method's QC limits. The sample was reextracted in batch 13033. The LCS/LCSD from this batch also has reported recoveries for the C_9-C_{18} aliphatic that are outside of the method's QC limits. Both sets of data are reported in this SDG.

Craig R. Tronzo
Data Validation

List of Reporting Abbreviations
And Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantification Limit (RL or MDL)

DF = Dilution Factor

Dup = Duplicate

P/D = Detected, but RPD is > 25/40% between results in dual column method.

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL/CL = Reporting Limit / Control Limit

RPD = Relative Percent Difference

mg/kg = milligram per kilogram, ppm, parts per million

ug/kg = micrograms per kilogram, ppb, parts per billion

mg/L = milligram per liter, ppm, parts per million

ug/L = micrograms per liter, ppb, parts per billion

% Rec = Percent Recovery

% soilds = Percent Solids

Special Notes:
1) Metals and mercury samples are digested with a hot block, see the standard operating procedure document for details.
2) Uncertainty for all reported data is less than or equal to 30 percent.

Results for Semivolatiles
by GCMS 625

Client Sample ID: USTBB9-MW03R
Client Project ID: Site BB-9 Groundwater Sampling
Lab Sample ID: G128-2277-1I
Lab Project ID: G128-2277

Initial/Final Amt: 905 mL / 5.0 mL

Analyzed By: DES
Date Collected: 11/17/2008 11:00
Date Received: 11/18/2008
Date Extracted: 11/21/2008
Matrix: Water

Compound	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	**38.6**	5.52	0.823	1	11/26/2008	
Acenaphthylene	BQL	5.52	0.823	1	11/26/2008	
Anthracene	**21.2**	5.52	0.967	1	11/26/2008	
Benzo[a]anthracene	**23.4**	5.52	0.751	1	11/26/2008	
Benzo[a]pyrene	**14.4**	5.52	0.702	1	11/26/2008	
Benzo[b]fluoranthene	**20.6**	5.52	0.790	1	11/26/2008	
Benzo[g,h,i]perylene	**9.23**	5.52	0.680	1	11/26/2008	
Benzo[k]fluoranthene	**9.50**	5.52	0.608	1	11/26/2008	
Bis(2-chloroethoxy)methane	BQL	5.52	1.14	1	11/26/2008	
Bis(2-chloroethyl)ether	BQL	5.52	1.15	1	11/26/2008	
Bis(2-chloroisopropyl)ether	BQL	5.52	1.08	1	11/26/2008	
Bis(2-ethylhexyl)phthalate	BQL	5.52	0.453	1	11/26/2008	
4-bromophenyl phenyl ether	BQL	5.52	0.862	1	11/26/2008	
Butylbenzylphthalate	BQL	5.52	0.492	1	11/26/2008	
2-Chloronaphthalene	BQL	5.52	0.956	1	11/26/2008	
2-Chlorophenol	BQL	5.52	1.29	1	11/26/2008	
4-Chloro-3-methylphenol	BQL	5.52	0.878	1	11/26/2008	
4-Chlorophenyl phenyl ether	BQL	5.52	3.60	1	11/26/2008	
Chrysene	**24.0**	5.52	0.613	1	11/26/2008	
Dibenzo[a,h]anthracene	BQL	5.52	0.486	1	11/26/2008	
Di-n-Butylphthalate	BQL	5.52	0.912	1	11/26/2008	
3,3'-Dichlorobenzidine	BQL	11.0	1.35	1	11/26/2008	
2,4-Dichlorophenol	BQL	5.52	1.24	1	11/26/2008	
Diethylphthalate	BQL	5.52	0.818	1	11/26/2008	
Dimethylphthalate	BQL	5.52	0.613	1	11/26/2008	
2,4-Dimethylphenol	BQL	5.52	1.79	1	11/26/2008	
Di-n-octylphthalate	BQL	5.52	0.641	1	11/26/2008	
4,6-Dinitro-2-methylphenol	BQL	27.6	0.608	1	11/26/2008	
2,4-Dinitrophenol	BQL	27.6	0.707	1	11/26/2008	
2,4-Dinitrotoluene	BQL	5.52	0.591	1	11/26/2008	
2,6-Dinitrotoluene	BQL	5.52	0.718	1	11/26/2008	
Diphenylamine *	BQL	5.52	0.630	1	11/26/2008	
Fluoranthene	**75.2**	5.52	0.779	1	11/26/2008	
Fluorene	**12.3**	5.52	0.801	1	11/26/2008	
Hexachlorobenzene	BQL	5.52	0.558	1	11/26/2008	
Hexachlorobutadiene	BQL	5.52	0.840	1	11/26/2008	
Hexachlorocyclopentadiene	BQL	11.0	11.0	1	11/26/2008	
Hexachloroethane	BQL	5.52	0.823	1	11/26/2008	
Indeno(1,2,3-c,d)pyrene	BQL	5.52	2.52	1	11/26/2008	
Isophorone	BQL	5.52	0.978	1	11/26/2008	
Naphthalene	BQL	5.52	1.01	1	11/26/2008	
Nitrobenzene	BQL	5.52	1.16	1	11/26/2008	
2-Nitrophenol	BQL	5.52	1.36	1	11/26/2008	
4-Nitrophenol	BQL	27.6	1.19	1	11/26/2008	
N-Nitrosodi-n-propylamine	BQL	5.52	1.66	1	11/26/2008	
Pentachlorophenol	BQL	27.6	1.56	1	11/26/2008	
Phenanthrene	**12.1**	5.52	0.492	1	11/26/2008	

Results for Semivolatiles
by GCMS 625

Client Sample ID: USTBB9-MW03R
Client Project ID: Site BB-9 Groundwater Sampling
Lab Sample ID: G128-2277-1I
Lab Project ID: G128-2277

Initial/Final Amt: 905 mL / 5.0 mL

Analyzed By: DES
Date Collected: 11/17/2008 11:00
Date Received: 11/18/2008
Date Extracted: 11/21/2008
Matrix: Water

Compound	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Phenol	BQL	5.52	1.17	1	11/26/2008	
Pyrene	**64.7**	5.52	2.28	1	11/26/2008	
1,2,4-Trichlorobenzene	BQL	5.52	0.796	1	11/26/2008	
2,4,6-Trichlorophenol	BQL	5.52	1.02	1	11/26/2008	

	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.3	63
2-Fluorophenol	10	8.2	82
Nitrobenzene-d5	10	9.8	98
Phenol-d6	10	9	90
2,4,6-Tribromophenol	10	7.5	75
4-Terphenyl-d14	10	3	30

Comments:

Flags:
BQL = Below Quantitation Limits.
J = Detected below the quantitation limit.

Reviewed By: _____

Results of Library Search for Semivolatile Compounds

by GCMS

Client Sample ID: USTBB9-MW03R
Client Project ID: Site BB-9 Groundwater Sampling
Lab Sample ID: G128-2277-1I
Lab Project ID: G128-2277
Sample Wt/Vol: 905 ML
Dilution: 1

Analyzed By: DES
Date Collected: 11/17/2008 11:00
Date Received: 11/18/2008
Date Extracted: 11/21/2008
Date Analyzed: 11/26/2008
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	Unknown	9.56			23.6
2	Unknown	5.24			17.3
3	Naphthalene, 2,6-dimethyl-	6.89	000581-42-0	96	12.8
4	9H-Fluoren-9-ol	8.68	001689-64-1	91	12.6
5	Naphthalene, 2,6-dimethyl-	6.96	000581-42-0	98	11.4
6	Unknown	8.29			8.97
7	Naphthalene, 1,6-dimethyl-	6.99	000575-43-9	96	7.81
8	Unknown	8.81			7.71
9	Pentadecane, 2,6,10,14-tetramethyl-	8.32	001921-70-6	72	7.44
10					

Comment:

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak area of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak area is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by:

EPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Richard Catlin & Associates

Project Name: Site BB-9 Groundwater Sampling

Sample Information	
Sample Identification	USTBB9-MW03R
Sample Matrix	WATER
Date Collected	11/17/08
Date Received	11/18/08
Date Extracted	11/19/08
Date Analyzed	11/21/08 00:26 - 11/21/08 00:54
Dry Weight	NA
Dilution Factor	1 - 1
Initial Volume (mL)	903
Final Volume (mL)	5.0

Analytical Results			
Analytes**	Result µg/L	Report Limit µg/L	Flags
C9-C18 Aliphatics	833	100	
C19-C36 Aliphatics	2870	100	
C11-C22 Aromatics	4510	100	

Surrogates	Percent Recovery	Flags	Limits Lower	Limits Upper
Aliphatic (tricosane)	57.1		40	140
Aromatic (ortho-terphenyl)	56.2		40	140
Fractionation 1 (2-bromonaphthalene)	115		40	140
Fractionation 2 (2-fluorobiphenyl)	103		40	140

** = Excludes any surrogates or internal standards and are unadjusted for individual analytes.

Lab Info: G128-2277-1H	Lab Info: G128-2277-1H
Aliphatic: EP112008/021F1901.D	Aromatic: EP112008/022F2001.D

Reviewed By: [signature]

EPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Richard Catlin & Associates

Project Name: Site BB-9 Groundwater Sampling

Sample Information	
Sample Identification	USTBB9-MW03R
Sample Matrix	WATER
Date Collected	11/17/08
Date Received	11/18/08
Date Extracted	11/23/08
Date Analyzed	11/27/08 00:04 - 11/27/08 00:32
Dry Weight	NA
Dilution Factor	1 - 1
Initial Volume (mL)	965
Final Volume (mL)	5.0

Analytical Results			
Analytes**	Result µg/L	Report Limit µg/L	Flags
C9-C18 Aliphatics	1050	100	
C19-C36 Aliphatics	3470	100	
C11-C22 Aromatics	5260	100	

Surrogates	Percent Recovery	Flags	Limits Lower	Limits Upper
Aliphatic (tricosane)	45.7		40	140
Aromatic (ortho-terphenyl)	49.8		40	140
Fractionation 1 (2-bromonaphthalene)	119		40	140
Fractionation 2 (2-fluorobiphenyl)	106		40	140

** = Excludes any surrogates or internal standards and are unadjusted for individual analytes.

Lab Info: G128-2277-1K	Lab Info: G128-2277-1K
Aliphatic: EP112608/028F2001.D	Aromatic: EP112608/029F2101.D

Reviewed By: CM

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 10/22/08

Calibration Ranges and Limits

Range	MDL (02/15/08) (µg/L)	MDL (02/11/08) (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (mg/Kg)
C9-C18 Aliphatics	1.66	0.274	5.28	0.871	100	10
C19-C36 Aliphatics	2.79	0.201	8.87	0.639	100	10
C11-C22 Aromatics	2.64	0.110	8.40	0.350	100	10

Calibration Concentration Levels

Range	Levels (µg/L)	Levels (mg/Kg)	%RSD if CF r if LR	Method of Quantitation
C_9-C_{18} Aliphatics	200	33.3	17.73	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{19}-C_{36} Aliphatics	200	33.3	10.65	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{11}-C_{22} Aromatics	200	33.3	10.39	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 11/20/08
11/20/08

Filenames: ep112008/001f0101.d
ep112008/002f0201.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	13.3	≤±25%
C19-C36 Aliphatics	100	16.7	8.2	≤±25%
C11-C22 Aromatics	100	16.7	3.1	≤±25%

MDL = Method Detection Limit
ML = Minimum Limit
RL = Reportable Limit
RPD = Relative Percent Difference
%RSD = Percent Relative Standard Deviation
CCC = Correlation Coefficient of Curve

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 10/22/08

Calibration Ranges and Limits

Range	MDL (02/15/08) (µg/L)	MDL (02/11/08) (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (mg/Kg)
C9-C18 Aliphatics	1.66	0.274	5.28	0.871	100	10
C19-C36 Aliphatics	2.79	0.201	8.87	0.639	100	10
C11-C22 Aromatics	2.64	0.110	8.40	0.350	100	10

Calibration Concentration Levels

Range	Levels (µg/L)	Levels (mg/Kg)	%RSD if CF r if LR	Method of Quantitation
C_9-C_{18} Aliphatics	200	33.3	17.73	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{19}-C_{36} Aliphatics	200	33.3	10.65	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{11}-C_{22} Aromatics	200	33.3	10.39	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 11/20/08, 11/21/08

Filenames: ep112008/029f2701.d, ep112008/030f2801.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	18.6	≤±25%
C19-C36 Aliphatics	100	16.7	6.3	≤±25%
C11-C22 Aromatics	100	16.7	-24.0	≤±25%

MDL = Method Detection Limit
ML = Minimum Limit
RL = Reportable Limit
RPD = Relative Percent Difference
%RSD = Percent Relative Standard Deviation
CCC = Correlation Coefficient of Curve

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 10/22/08

Calibration Ranges and Limits

Range	MDL (02/15/08) (µg/L)	MDL (02/11/08) (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (mg/Kg)
C9-C18 Aliphatics	1.66	0.274	5.28	0.871	100	10
C19-C36 Aliphatics	2.79	0.201	8.87	0.639	100	10
C11-C22 Aromatics	2.64	0.110	8.40	0.350	100	10

Calibration Concentration Levels

Range	Levels (µg/L)	Levels (mg/Kg)	%RSD if CF r if LR	Method of Quantitation
C_9-C_{18} Aliphatics	200	33.3	17.73	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{19}-C_{36} Aliphatics	200	33.3	10.65	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{11}-C_{22} Aromatics	200	33.3	10.39	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 11/26/08
11/26/08

Filenames: ep112608/022f1401.d
ep112608/023f1501.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	16.1	≤±25%
C19-C36 Aliphatics	100	16.7	11.4	≤±25%
C11-C22 Aromatics	100	16.7	4.1	≤±25%

MDL = Method Detection Limit
ML = Minimum Limit
RL = Reportable Limit
RPD = Relative Percent Difference
%RSD = Percent Relative Standard Deviation
CCC = Correlation Coefficient of Curve

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 10/22/08

Calibration Ranges and Limits

Range	MDL (02/15/08) (µg/L)	MDL (02/11/08) (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (mg/Kg)
C9-C18 Aliphatics	1.66	0.274	5.28	0.871	100	10
C19-C36 Aliphatics	2.79	0.201	8.87	0.639	100	10
C11-C22 Aromatics	2.64	0.110	8.40	0.350	100	10

Calibration Concentration Levels

Range	Levels (µg/L)	Levels (mg/Kg)	%RSD if CF r if LR	Method of Quantitation
C_9-C_{18} Aliphatics	200	33.3	17.73	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{19}-C_{36} Aliphatics	200	33.3	10.65	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		
C_{11}-C_{22} Aromatics	200	33.3	10.39	Calibration Factor
	100	16.7		
	50	8.33		
	25	4.17		
	5	0.833		

Calibration Check Date: 11/26/08, 11/27/08

Filenames: ep112608/034f2601.d, ep112608/035f2701.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C9-C18 Aliphatics	100	16.7	20.8	≤±25%
C19-C36 Aliphatics	100	16.7	16.6	≤±25%
C11-C22 Aromatics	100	16.7	11.3	≤±25%

MDL = Method Detection Limit
ML = Minimum Limit
RL = Reportable Limit
RPD = Relative Percent Difference
%RSD = Percent Relative Standard Deviation
CCC = Correlation Coefficient of Curve

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Richard Catlin & Associates

Project Name: Site BB-9 Groundwater Sampling

Sample Information	
Sample Identification	USTBB9-MW03R
Sample Matrix	Water
Collection Option (for Soil)*	NA
Date Collected	11/17/08
Date Received	11/18/08
Date Extracted	11/25/08 23:11 - 11/25/08 23:11
Date Analyzed	11/25/08 23:11 - 11/25/08 23:11
Dry Weight	NA
Dilution Factor	1 - 1

Analytical Results			
Analyte	Result µg/L	Report Limit µg/L	Flags
C_5-C_8 Aliphatics**	BQL	100	
C_9-C_{12} Aliphatics**	BQL	100	
C_9-C_{10} Aromatics**	BQL	100	

	Percent Recovery	Flags	Limits Lower	Limits Upper
Surrogate % Recovery - PID	90.0		70	130
Surrogate % Recovery - FID	95.2		70	130

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil.

** = Excludes any surrogates or internal standards and are unadjusted for individual analytes.

Lab Info: g128-2277-1a	Lab Info: g128-2277-1a
FID Info: VP112508/034F0101.D	PID Info: VP112508/034R0101.D

Reviewed By:

Attachment 2

VPH Laboratory Reporting Form

Calibration and QA/QC Information

FID Initial Calibration Date: 11/18/08 PID Initial Calibration Date: 11/18/08

Calibration Ranges and Limits

Range	MDL (µg/L)	MDL (mg/Kg)	ML (µg/L)	ML (mg/Kg)	RL (µg/L)	RL (mg/Kg)
C_5-C_8 Aliphatics	2.02	0.175	6.42	0.557	100	10
C_9-C_{12} Aliphatics	1.51	0.118	4.80	0.375	100	10
C_9-C_{10} Aromatics	0.902	0.132	2.87	0.420	100	10

Calibration Concentration Levels

Range	Levels (µg/L)	Levels (mg/Kg)	%RSD if CF r if LR	Method of Quantitation
C_5-C_8 Aliphatics	10	0.8	4.30	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		
C_9-C_{12} Aliphatics	10	0.8	1.00	Linear Regression
	50	4		
	100	8		
	200	16		
	500	40		
C_9-C_{10} Aromatics	10	0.8	14.21	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		

Calibration Check Date: 11/25/08 Filename: VP112508/002F0101.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C_5-C_8 Aliphatics	200	16	10.7 ✓	±25%
C_9-C_{12} Aliphatics	200	16	3.1 ✓	±25%
C_9-C_{10} Aromatics	200	16	4.8 ✓	±25%

MDL = Method Detection Limit
ML = Minimum Limit
RL = Reportable Limit
RPD = Relative Percent Difference
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	200	16		
	500	40		
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	50	4		
	100	8		
	200	16		
	500	40		
C_9-C_{10} Aromatics	10	0.8	14.21	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		

Calibration Check Date: 11/25/08 Filename: VP112508/011F0101.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C_5-C_8 Aliphatics	200	16	6.6 ✓	±25%
C_9-C_{12} Aliphatics	200	16	-3.6 ✓	±25%
C_9-C_{10} Aromatics	200	16	3.9 ✓	±25%

MDL = Method Detection Limit
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Calibration Concentration Levels

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	50	4		
	100	8		
	200	16		
	500	40		
C_9-C_{12} Aliphatics	10	0.8	1.00	Linear Regression
	50	4		
	100	8		
	200	16		
	500	40		
C_9-C_{10} Aromatics	10	0.8	14.21	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		

Calibration Check Date: 11/25/08 Filename: VP112508/043F0101.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C_5-C_8 Aliphatics	200	16	-3.8 ✓	±25%
C_9-C_{12} Aliphatics	200	16	-7.4 ✓	±25%
C_9-C_{10} Aromatics	200	16	1.3 ✓	±25%

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VPH Laboratory Reporting Form

Calibration and QA/QC Information

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	500	40		
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	50	4		
	100	8		
	200	16		
	500	40		
C_9-C_{10} Aromatics	10	0.8	14.21	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		

Calibration Check Date: 11/26/08 Filename: VP112608/002F0101.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C_5-C_8 Aliphatics	200	16	2.7 ✓	±25%
C_9-C_{12} Aliphatics	200	16	-7.1 ✓	±25%
C_9-C_{10} Aromatics	200	16	2.2 ✓	±25%

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C_9-C_{12} Aliphatics	1.51	0.118	4.80	0.375	100	10
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	500	40		
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	50	4		
	100	8		
	200	16		
	500	40		
C_9-C_{10} Aromatics	10	0.8	14.21	Calibration Factor
	50	4		
	100	8		
	200	16		
	500	40		

Calibration Check Date: 11/26/08 Filename: VP112608/043F0101.d

Calibration Check

Range	Levels (µg/L)	Levels (mg/Kg)	%Difference if CF %Drift if LR	Limits
C_5-C_8 Aliphatics	200	16	-2.0 ✓	±25%
C_9-C_{12} Aliphatics	200	16	-11.6 ✓	±25%
C_9-C_{10} Aromatics	200	16	0.1 ✓	±25%

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1

CLIENT: Catlin

CONTACT: Mike D. Mason PHONE NO: 910-452-5861

PROJECT: Site BB-9 Groundwater Sampling SITE/PWSID#:

REPORTS TO: EMAIL:

Mike D. Mason

INVOICE TO: QUOTE #: DOD 101

Shaila@Catlin P.O. #: 281114-2

SGS Reference #: G128-3277

page 1 of 1

2

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX/ MATRIX CODE	# CONTAINERS	SAMPLE TYPE C= COMP G= GRAB MI= Multi Incremental Samples	Preservatives Used	1	HCl	HCl								REMARKS/ LOC ID
							Analysis Required (3)	EPA 625 + TICS	MADEP EPH	MADEP VPH								
	USTBB9-MW03R	11-17-08	11:00a	GW	7	G		✓	✓	✓								
																		- Lajeuna and summary EDD format
																		- report low runs

N.C. CERTIFICATION #481

5

Collected/Relinquished By:(1)	Date	Time	Received By:
Tom Shaw	11-18-08	4:20p	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received For Laboratory By:

4

DOD Project? YES NO

Cooler ID _____

Special Deliverable Requirements:

Requested Turnaround Time and-or Special Instructions:

Standard

Samples Received Cold? (YES) NO

Cooler TB

Temperature °C: 1.5 C.

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

❑ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301
❑ 550 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557