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CNC CHARLESTON
5090.3a

MONITORING REPORT FOR ZONE G SITE 19 ABOVE GROUND STORAGE TANK 3909 (AST 3909) CNC CHARLESTON SC

06/01/2006

CH2M HILL

D H E C

PROMOTE PROTECT PROSPER

12 August 2006

Dudley Patrick
BRAC PMO SE
PO Box 190010
North Charleston, SC 29419-9010

Re: CNB – AST 3909
Site Identification # 01093
Remediation Monitoring Report received 28 July 2006
Charleston County

Dear Mr. Patrick:

The Department has completed technical review of the referenced document. Interpretation of the analytical data provided in the referenced report indicates that chemicals of concern remain above established Risk-Based Screening Levels and MCLs. The Department concurs with the conclusions as presented in the report; routine groundwater monitoring and reporting should continue in conjunction with passive free product recovery.

Please submit the next remediation monitoring report no later than 29 December 2006. Should you have any questions, please contact me at 803-898-3553 (office phone), 803-898-2893 (fax) or bishopma@dhec.sc.gov.

Sincerely,

Michael A. Bishop, Hydrogeologist
Groundwater Quality Section
Bureau of Water

cc: Region 7 District EQC
Jerry Stamps, BLWM
Andrew O'Connor, CH2MHILL, 1330 Kilo Street, N. Charleston, SC 29405
Technical File

Monitoring Report
Site 19 (Zone G, AST 3909)
Charleston Naval Complex
North Charleston, South Carolina
SCDHEC Site ID # 01093

Prepared by:

CH2MHILL
Charleston Naval Complex
1330 Kilo St.
North Charleston, South Carolina 29405

Prepared for:

Southern Division Naval Facilities Engineering Command
P.O. Box 190010
North Charleston, South Carolina 29419-9010

June 2006

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1.0 Introduction

1.1 Background

In 1993, Naval Base (NAVBASE) Charleston was added to the list of bases scheduled for closure as part of the Defense Base Realignment and Closure Act, which regulates closure and transition of property to the community. The Charleston Naval Complex (CNC) was formed as a result of the dis-establishment of the Charleston Naval Shipyard and NAVBASE on April 1, 1996. Corrective Action (CA) activities for Site 19, Aboveground Storage Tank (AST) 3909, Zone G are being conducted in accordance with the Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) and UST Permit # 01093.

1.2 General Site Description

The CNC is located in the City of North Charleston, on the east and west bank of the Cooper River in Charleston County and Berkley County, South Carolina as shown in **Figure 1**. This installation consists of two major areas: an undeveloped dredge materials area on the east bank of the Cooper River on Daniel Island in Berkley County, and a developed area on the west bank of the Cooper River. The developed portion of the base is on the peninsula bounded on the west by the Ashley River and on the east by the Cooper River. Site 19, AST 3909, is located approximately 60 feet east of building 123 within the developed portion of the base **(Figure 2)**.

Building 123, a former boiler house, supplied steam to different parts of the base. The AST 3909 was installed in 1964 on a concrete foundation, and stored the fuel oil supply for the boiler systems located in building 123.

2.0 Previous Investigations and Corrective Actions

From April 1999, through April 2000, TTNUS completed a Rapid Assessment (RA) for Site 19, AST 3909. Following the RA, CH2M-Jones prepared a Corrective Action Plan (CAP), dated April 2001, which proposed free product removal followed by groundwater monitoring. The plan was approved by SCDHEC on July 19, 2001. On March 26, 2001, free product recovery from monitoring wells CNC19-MW01 and FDSGW01A was implemented

using manual bailing. Once the product within each well was reduced to a sheen, groundwater samples were collected on September 14, 2001, and analyzed for Volatile Organic Compounds (VOC) and Semi Volatile Organic Compounds (SVOC). Results of the groundwater sampling showed that CNC19-MW01 and FDSGW01A had contaminants of concern (COC) exceeding their Risk Based Screening Levels (RBSLs). CH2M-Jones prepared and submitted a monitoring report in October, 2001, which quantified free product recovery and detailed the results of groundwater sampling.

On October 31, 2002, site activities were put on hold by the SCDHEC until January 2003, due to on-site construction activities by the Palmetto Bridge Company (PBC). On February 24, 2003, CH2M-Jones resumed site assessment activities and installed monitoring wells U19GW009 and U19GW010 down gradient of CNC19-MW01 and FDSGW01A to delineate the extent of dissolved hydrocarbons (**Figure 2**). Once again due to PBC construction activities, groundwater sampling was put on hold indefinitely until site access could be regained; however, monitoring wells CNC19-MW01 and FDSGW01A were gauged periodically for the presence of free product which eventually re-accumulated within each well.

On July 28, 2003, CH2M-Jones performed an aggressive fluid-vapor recovery (AFVR) event on monitoring wells CNC19MW01 and FDSGW01A, and in August, 2004, submitted a remediation monitoring report to SCDHEC detailing free product removal quantities. Free product recovery efforts were continued using oil-only absorbent socks which were replaced periodically within each well. In December, 2004, a second remediation monitoring report was submitted quantifying free product recovery.

On May 12, 2005, CH2M-Jones installed three additional monitoring wells. CNC18-MW04 was installed as a replacement well for CNC18-MW01, which had been damaged beyond repair by PBC construction activities. CNC18-MW06 was installed downgradient of CNC-MW02, which was overlain by sheet piles rendering the well inaccessible, and CNC18-MW05 was installed upgradient of CNC19-MW01 to define the upgradient hydrocarbon plume (**Figure 2**). The wells were installed using a truck-mounted drill rig using hollow-stem augers operated by Prosonic Corporation - a SCDHEC licensed drilling contractor. Each well was installed to a depth of 13.0 feet bls and completed with a flush mounted bolt-

down manhole cover. Following installation, the wells were developed, surveyed, and sampled in accordance with SCDHEC guidelines. Monitoring well construction diagrams and copies of SCDHEC 1903 forms are presented in **Appendix A.**

Monitoring wells CNC18-MW04, CNC18-MW05, CNC18-MW06, FDSGW01B, FDSGW01D, FDSGW01E, CNC19-MW03, U19GW009, and U19GW010 were sampled on July 28, 2005, for VOCs by EPA Method 8260B and SVOCs by EPA Method 8270C. Monitoring wells CNC19-MW01 and FDSGW01A were not sampled due to the presence of .02 inches of free product in each well. Results of the laboratory analysis indicate that concentrations of COCs were below the RBSLs within all wells except FDSGW01B and CNC19-MW03, which displayed concentrations of Total PAHs at 26.4 and 78.4, respectively. Groundwater analytical results for the July 28, 2005, sampling event are presented in **Table 1.**

3.0 Groundwater Monitoring April 25 and 26, 2006

Monitoring wells CNC18-MW04, CNC18-MW05, CNC18-MW06, FDSGW01B, FDSGW01D, FDSGW01E, CNC19-MW03, U19GW009, and U19GW010 were sampled on April 25 and 26, 2006, for VOCs using EPA Method 8260B. Monitoring wells CNC19-MW01 and FDSGW01A were not sampled due to the presence of 0.02 feet of free product in each well. Prior to collecting groundwater samples, each well was purged using a low-flow peristaltic pump. The volume of water in each well was calculated prior to purging activities. Groundwater parameters including pH, conductivity, turbidity, temperature, dissolved oxygen, and oxygen reduction potential were measured following the purge of each well volume. Once the groundwater parameters became stable, and at least three well volumes were removed, the groundwater samples were collected, placed on ice and delivered to GEL Laboratories, Charleston, SC. Groundwater sampling field data sheets are presented in **Appendix B.**

Groundwater collected during purging activities was placed in a 55-gallon drum, labeled, and transported to the less than 90-day storage area until final disposition. A copy of the disposal manifest is presented in **Appendix C.**

Results of the laboratory analysis indicate that concentrations of VOCs including naphthalene were below the detection limits of the laboratory, with exception of monitoring

18-MW04, which displayed an estimated concentration of naphthalene of 0.78µg/l. Due to an elevated concentration of total PAHs (78.4 µg/l) detected at monitoring well CNC19-MW03 during the July 2005, sampling event, the well was re-sampled for total PAHs during the April 2006, sampling event. A concentration of 72.2 µg/l was detected which exceeds the RBSL. Groundwater analytical results for the April 25 and 26, 2006, sampling event are presented in **Table 1** and graphically depicted in **Figures 3**. Analytical laboratory data sheets are presented in **Appendix D**.

5.0 Potentiometric Surface

The groundwater flow direction was interpreted from water level information from site monitoring wells prior to the collection of groundwater samples on April 25, 2006. The water level data were applied to a scaled site plan with surveyed well locations and casing elevations. These data were used to produce groundwater contours across the site. **Table 2** depicts the water level measurements, casing elevations, and calculated groundwater elevations across the site. **Figure 4** is the potentiometric surface map of the site based on the data presented in **Table 2**. The map shows that groundwater flow beneath the site toward the north northwest.

6.0 Conclusions and Recommendations

Free product recovery continues within monitoring wells CNC19-MW01 and FDSGW01A. To date, approximately 5.5 gallons of free product have been removed from both wells utilizing oil-only absorbent socks. The product thickness has been reduced to <0.01 feet in each well. The analytical results from the April 24 and 25, 2006, sampling event indicate that BTEX and MTBE compounds were below the RBSLs in all wells. Monitoring well CNC19-MW03 displayed a total PAH concentration of 72.2µg/l, which continues to decline.

With the exception of total PAHs detected within CNC19-MW03, the hydrocarbon plume appears to be isolated in the vicinity of monitoring wells CNC19-MW01 and FDSGW01A. The volume of free product in each well continues to recede and may be abated prior to the next scheduled sampling date. If free product abatement occurs, monitoring wells CNC19-MW01 and FDSGW01A will be sampled during the scheduled January sampling event.

CH2M-Jones recommends that free product recovery continue and that the site be sampled on a semi-annual basis. The next sampling event will be scheduled for October, 2006.

Tables

Table 1
Groundwater Analytical Data

Parameter	MTBE	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	Total PAH
SCDHEC Risk-based screening level (µg/l)	40	5	1,000	700	10,000	25	25
Collected 9/14/2001							
CNC18-MW01	NA	<1.0	<1.0	<1.0	<3.0	<1.0	0.55 J
FDSGW01A	NA	<1.0	<1.0	<1.0	<3.0	<1.0	208.8
FDSGW01B	NA	<1.0	<1.0	<1.0	.38 J	3.3	23.3
FDSGW01C	NA	<1.0	<1.0	<1.0	<3.0	<1.0	0.7 J
FDSGW01D	NA	<1.0	<1.0	<1.0	<3.0	<1.0	16.2
CNC19-MW01	NA	8.3	<1.0	0.24 J	1.7 J	1.9	160.6
Collected 7/28/2005							
CNC18-MW04	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.66 J
CNC18-MW05	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
CNC18-MW06	<1.0	<1.0	<1.0	<1.0	<1.0	0.30 J	7.1
FDSGW01A (free product)	ns	ns	ns	ns	ns	ns	ns
FDSGW01B	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	26.4
FDSGW01D	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	11.9
FDSGW01E	13.3	<1.0	<1.0	<1.0	<1.0	<1.0	0.74 J
CNC19-MW01 (free product)	ns	ns	ns	ns	ns	ns	ns
CNC19-MW03	<1.0	<1.0	<1.0	<1.0	<1.0	10.2	78.4
U19GW009	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
U19GW010	<1.0	<1.0	<1.0	<1.0	0.28 J	0.30 J	12.9
Collected 4/25 & 26/2006							
CNC18-MW04	<1.0	<1.0	<1.0	<1.0	<1.0	.78 J	ns
CNC18-MW05	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	ns
CNC18-MW06	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	ns
FDSGW01A (free product)	ns	ns	ns	ns	ns	ns	ns
FDSGW01B	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	ns
FDSGW01D	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	ns
FDSGW01E	9.3	<1.0	<1.0	<1.0	<3.0	<1.0	ns
CNC19-MW01 (free product)	ns	ns	ns	ns	ns	ns	ns

Table 1 cont.
Groundwater Analytical Data

Parameter	MTBE	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	Total PAH
SCDHEC Risk-based screening level (µg/l)	40	5	1,000	700	10,000	25	25
Collected 4/25 & 26/2006							
CNC19-MW03	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	72.2
U19GW009	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	ns
U19GW010	<1.0	<1.0	<1.0	<1.0	.81 J	.92 J	ns

(J) Estimated value

(<) Below value at detection limit shown

(µg/l) Micrograms per Liter

(ns) No sample

Table 2

Groundwater and Monitoring Well Elevation Data 4-25-2006

Monitoring Well ID	TOC Elevation (ft MSL)	Depth to Water (ft btoc)	Water Table Elevation (ft MSL)	Top of Screen Elevation (ft MSL)	Bottom of Screen Elevation (ft MSL)	Screen Length (ft)	Total (ft.)
CNC18-MW04	7.21	4.35	2.86	4.21	-5.79	10	13
CNC18-MW05	7.59	4.65	2.94	5.59	-4.41	10	12
CNC18-MW06	6.73	4.35	2.38	4.73	-5.27	10	12
FDSGW01A	9.75	FP		6.75	-3.25	10	13
FDSGW01B	7.69	4.4	3.29	7.49	-2.51	10	10.2
FDSGW01D	9.46	6.51	2.95	6.96	-3.04	10	12.5
FDSGW01E	6.84	4.01	2.83	6.64	-3.36	10	10.2
CNC19-MW01	8.92	FP		5.42	-4.58	10	13.5
CNC19-MW03	6.81	3.6	3.21	4.81	-5.19	10	12
U19GW009	7.59	4.65	2.94	4.59	-5.41	10	13
U19GW010	7.12	4.3	2.82	2.12	-7.88	10	15

(ft) - Feet

(fbtoc) - Feet below top of casing

(ft MSL) - Feet mean sea level

(FP) Free product

Figures

Figure 1
Site Location Map
Site 19 (AST 3909) Zone G
Charleston Naval Complex

File Path: C:\18gis\CNC\cnc-egis.apr, Date: 29 Aug 2005 10:17, User: AOCONOR, EGIS: Charleston Naval Complex - Figure 1 Site Location Map

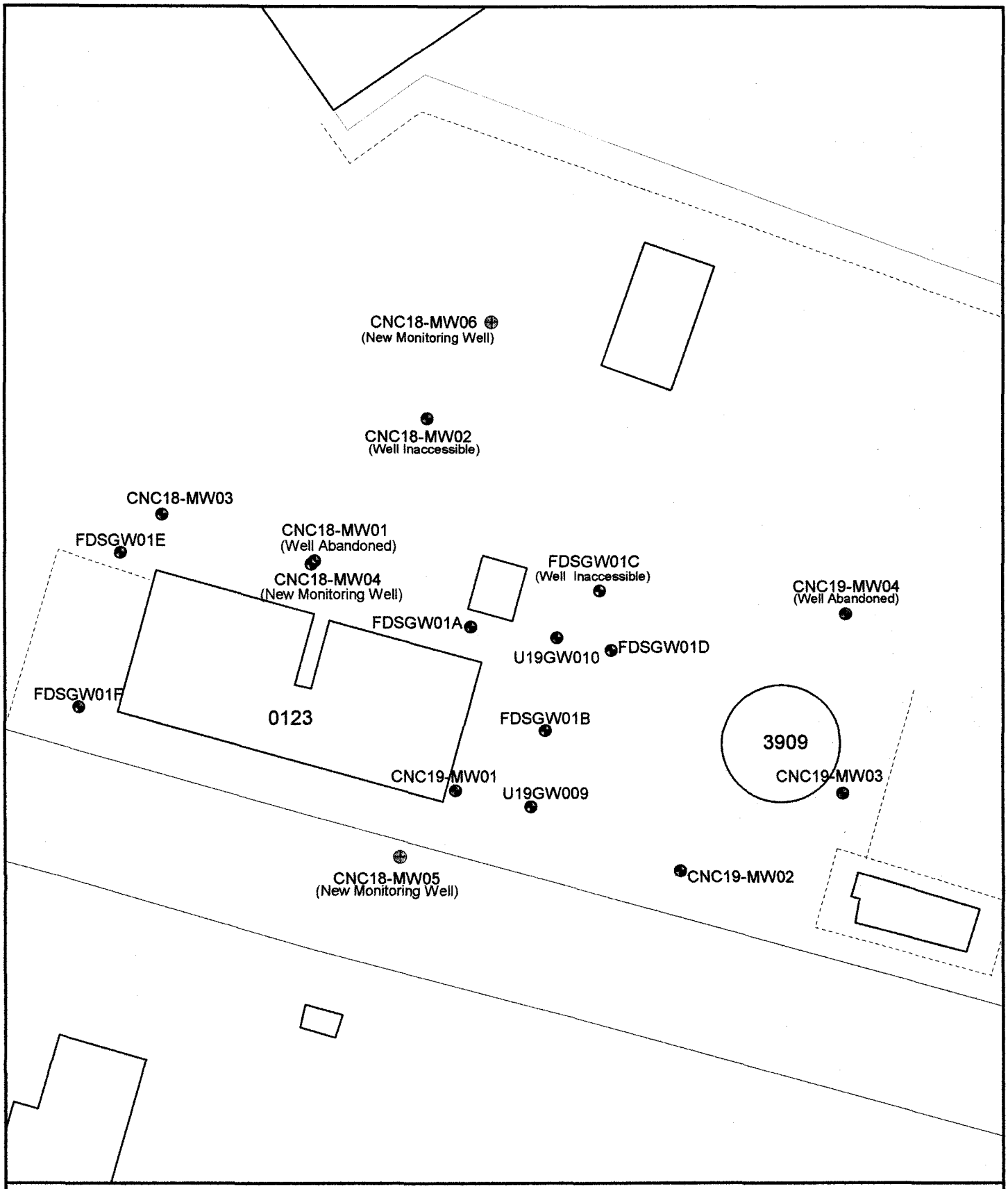

Figure 2
Site Map
Site 19 (AST3909) Zone G
Charleston Naval Complex

File Path: C:\18gis\CNC\cnc-egis.apr, Date: 26 Aug 2005 13:06, User: AOCONOR, EGIS: Charleston Naval Complex - Figure 2 Site Map

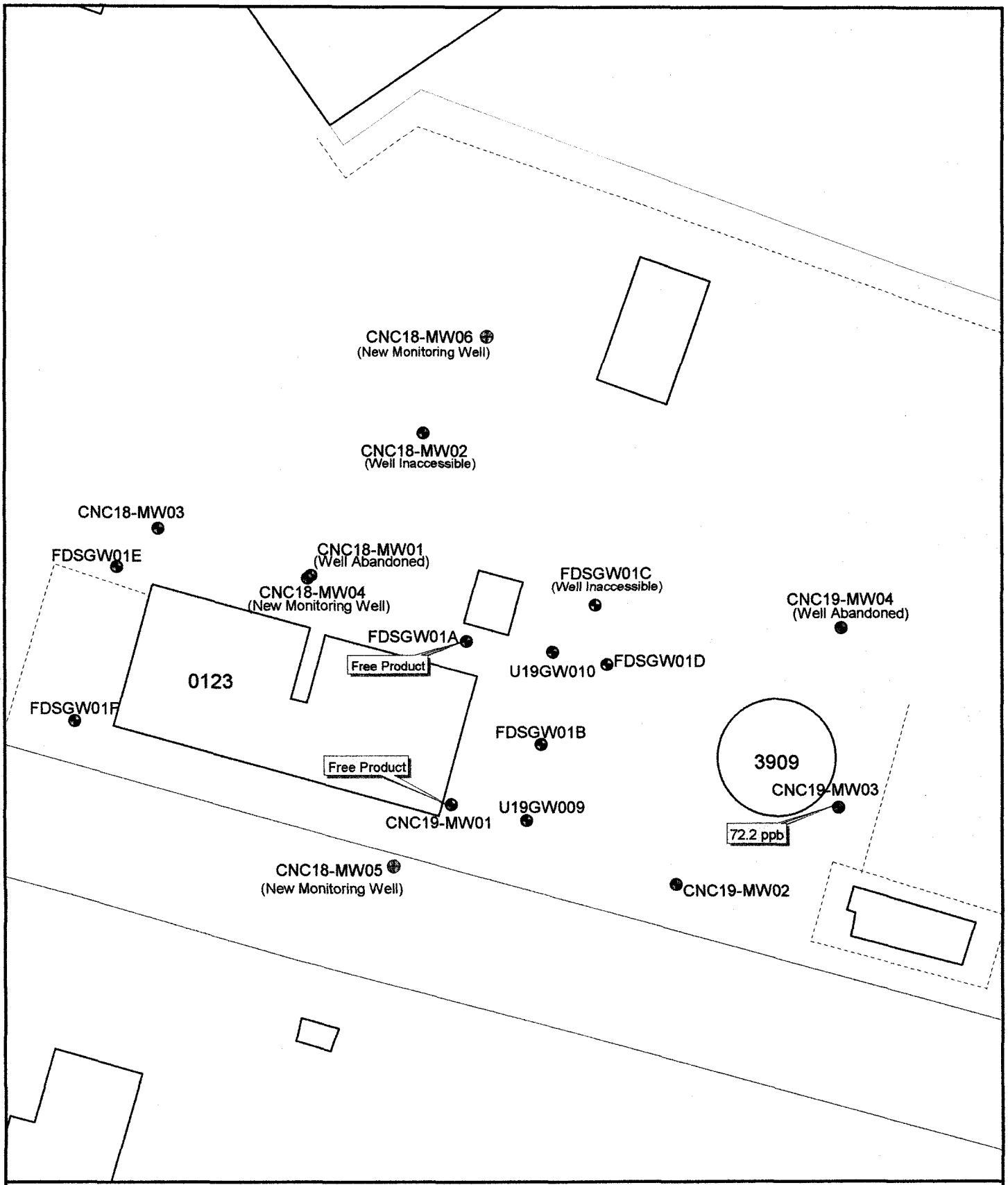

Figure 3
Total PAH Concentrations
Site 19 (AST 3909) Zone G
Charleston Naval Complex

File Path: C:\18gis\CNC\cnc-egis.apr, Date: 26 Aug 2005 13:06, User: AOCONOR, EGIS: Charleston Naval Complex - Figure 2 Site Map

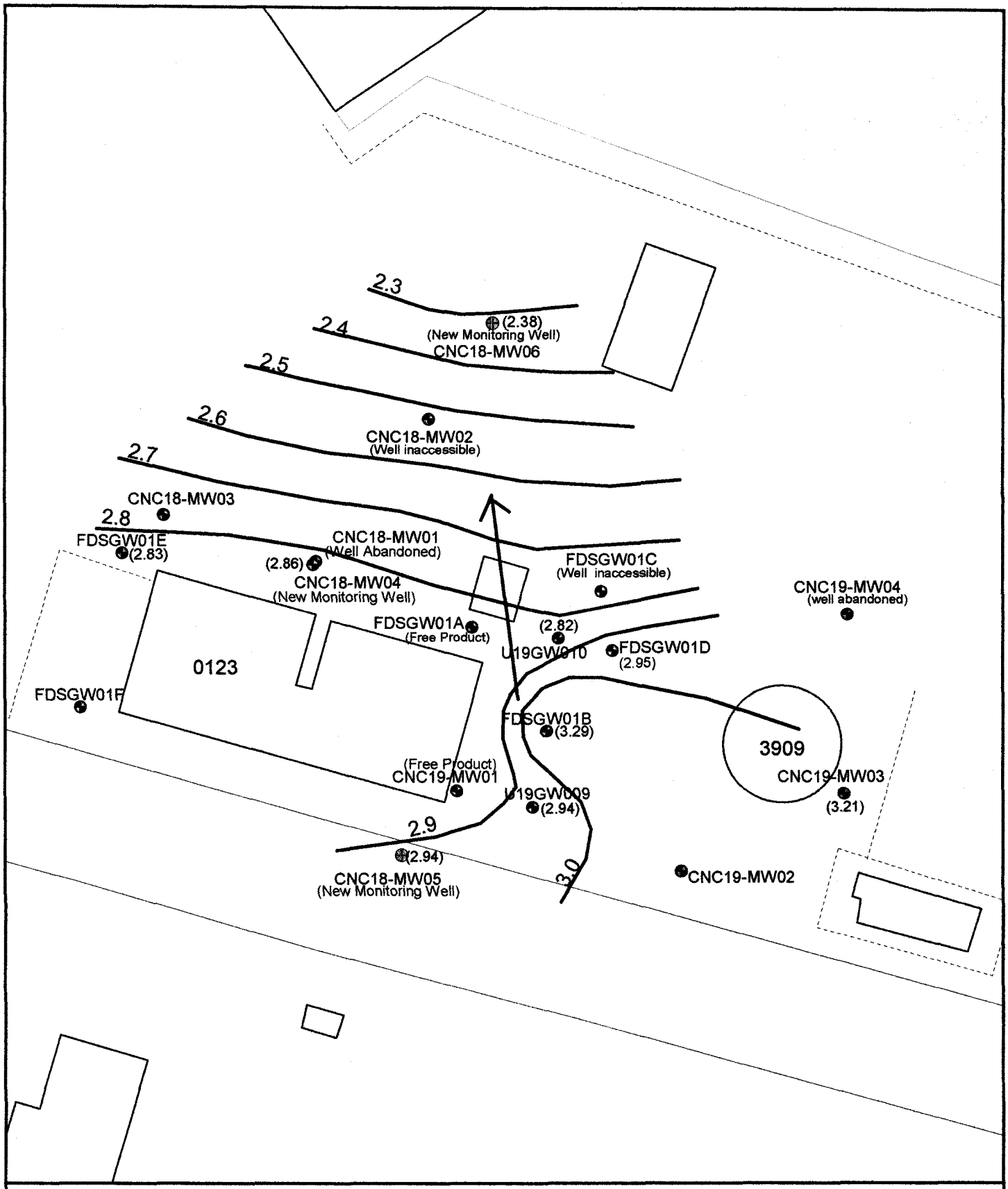

Figure 4
Goundwater Flow Map 4-25-2006
Site 19 (AST3909) Zone G
Charleston Naval Complex

File Path: C:\18gis\CNC\cnc-egis.apr, Date: 26 Aug 2005 13:06, User: AOCONOR, EGIS: Charleston Naval Complex - Figure 2 Site Map

Appendix A

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PROJECT NUMBER	WELL NUMBER		
258814	CNC18-MW04	SHEET 1	OF 1

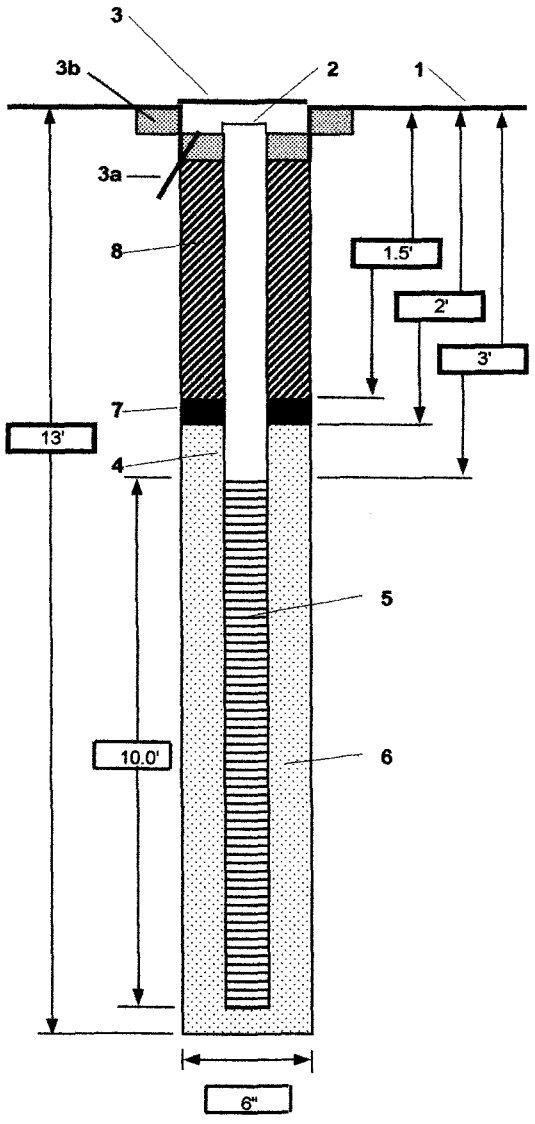
WELL COMPLETION DIAGRAM

PROJECT : Charleston Naval Complex | LOCATION : Site 19, AST 3909 | NORTHING 371916.5

DRILLING CONTRACTOR : Prosonic Drilling Corporation | EASTING 2322730.0

DRILLING METHOD AND EQUIPMENT USED : truck mounted drill rig

WATER LEVELS :4.06 | START : 5-12-05 | END : 5-12-05 | LOGGER : Andrew O'Conor



1- Ground elevation at well	Not obtained
2- Top of casing elevation	7.21
3- Wellhead protection cover type	Bolt-down manhole cover.
a) drain tube?	No
b) concrete pad dimensions	2' X 2' X 6"
4- Dia./type of well casing	2-inch / PVC
5- Type/slot size of screen	PVC / .010-slot
6- Type screen filter	20/30 silica sand
a) Quantity used	5.5 bags
7- Type of seal	Barroid bentonite chips
a) Quantity used	1.0 (50 lb) bag
8- Grout	
a) Grout mix used	Type I Portland cement w/ 5% bentonite
b) Method of placement	Trimmie
Development method	Surge block / Submersible pump
Development time	One hour
Estimated purge volume	40 gallons

Comments Well developed clear.

pH: 5.97 Cond: 1.68 Turb: 1 Temp: 18.5

CH2MHILL

PROJECT NUMBER	WELL NUMBER		
258814	CNC18-MW05	SHEET 1	OF 1

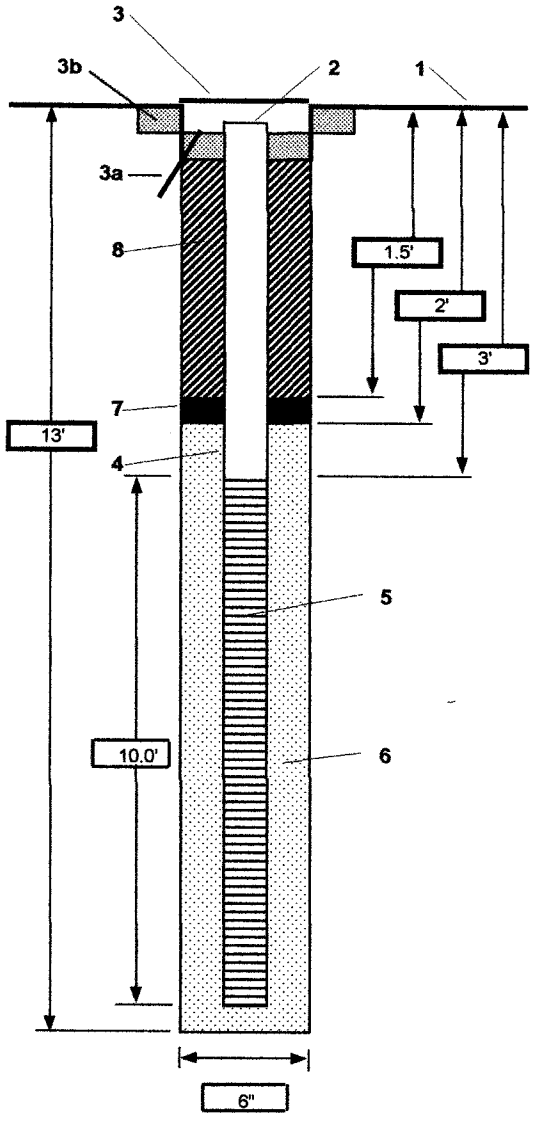
WELL COMPLETION DIAGRAM

PROJECT : Charleston Naval Complex | LOCATION : Site 19, AST 3909 | NORTHING 371820.2

DRILLING CONTRACTOR : Prosonic Drilling Corporation | EASTING 2322757.0

DRILLING METHOD AND EQUIPMENT USED : truck mounted drill rig

WATER LEVELS :4.75 | START : 5-12-05 | END : 5-12-05 | LOGGER : Andrew O'Conor



1- Ground elevation at well: Not obtained

2- Top of casing elevation: 7.59

3- Wellhead protection cover type: Bolt-down manhole cover.
- a) drain tube?: No
- b) concrete pad dimensions: 2' X 2' X 6"

4- Dia./type of well casing: 2-inch / PVC

5- Type/slot size of screen: PVC / .010-slot

6- Type screen filter: 20/30 silica sand
- a) Quantity used: 5.5 bags

7- Type of seal: Barroid bentonite chips
- a) Quantity used: 1.0 (50 lb) bag

8- Grout
- a) Grout mix used: Type I Portland cement w/ 5% bentonite
- b) Method of placement: Trimmie

Development method: Surge block / Submersible pump

Development time: One hour

Estimated purge volume: 20 gallons

Comments: Well developed clear.

pH: 6.48 Cond: 12 Turb: 4 Temp: 21.8

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PROJECT NUMBER	WELL NUMBER		
258814	CNC18-MW06	SHEET 1	OF 1

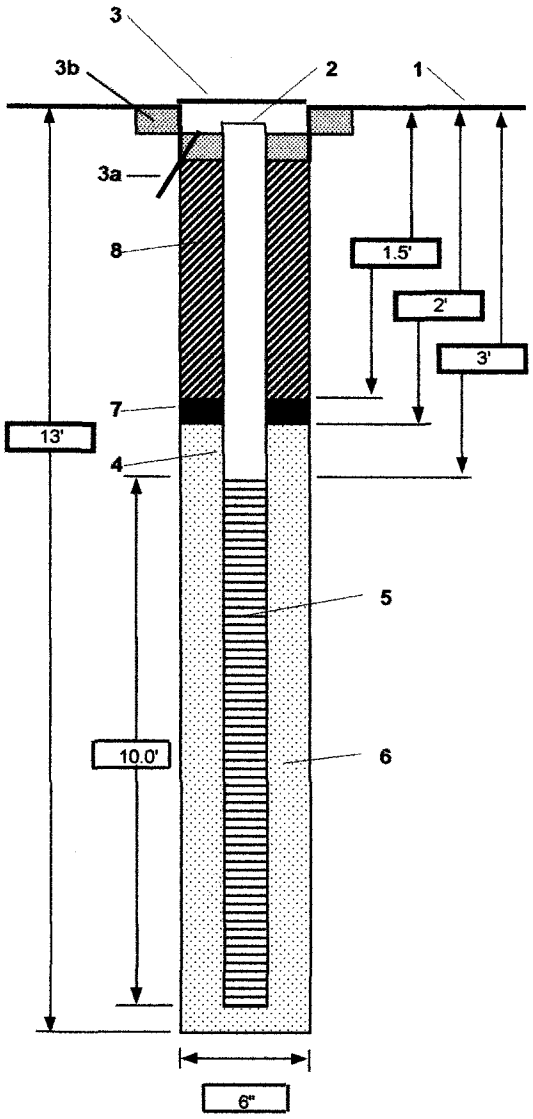
WELL COMPLETION DIAGRAM

PROJECT : Charleston Naval Complex | LOCATION : Site 19, AST 3909 | NORTHING 378991.8

DRILLING CONTRACTOR : Prosonic Drilling Corporation | EASTING 2322786.7

DRILLING METHOD AND EQUIPMENT USED : truck mounted drill rig

WATER LEVELS :4.63 | START : 5-12-05 | END : 5-12-05 | LOGGER : Andrew O'Conor



1- Ground elevation at well	Not obtained
2- Top of casing elevation	6.73
3- Wellhead protection cover type	Bolt-down manhole cover.
a) drain tube?	No
b) concrete pad dimensions	2' X 2' X 6"
4- Dia./type of well casing	2-inch / PVC
5- Type/slot size of screen	PVC / .010-slot
6- Type screen filter	20/30 silica sand
a) Quantity used	5.5 bags
7- Type of seal	Barroid bentonite chips
a) Quantity used	1.0 (50 lb) bag
8- Grout	
a) Grout mix used	Type I Portland cement w/ 5% bentonite
b) Method of placement	Trimmie
Development method	Surge block / Submersible pump
Development time	One hour
Estimated purge volume	40 gallons

Comments: Well developed clear.

pH: 5.81 Cond: 4.44 Turb: 7 Temp: 18.4

Appendix B

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WELL PURGE AND SAMPLING FIELD SHEET

WELL NUMBER: CNC18MW06 **SITE:** 3909

FIELD CREW: Andrew O'Conor

		CASING DIAMETER		GAL/FT OF CASING	
DEPTH TO WATER (FT):	4.35				
WELL DEPTH (FT):	14	**2 IN.**		**0.1632**	
WATER COLUMN (FT):	9.65	**4 IN.**		**0.6528**	
GAL/FT OF CASING	0.1632	**6 IN.**		**1.4688**	
CASING VOLUME (GAL)	1.57	**8 IN.**		**2.611**	
NO. OF VOLUMES min.(3)	3	**10 IN.**		**4.0797**	
PURGE VOLUME (GAL)	4.72	**12 IN.**		**5.8748**	

METHOD OF PURGING

PUMP: Peristaltic	**OTHER:**	**BAILER** : TEFLON, SS ,OTHER:
TIME ON: 0916		BAILER VOL.. (gal)
FLOW RATE (gpm): 0.19		REQUIRED PULLS:
PUMP TIME (min): 24		VOL. PURGED (gals):
VOL. PURGED (gals): 4.35		OTHER:

FIELD PARAMETERS	FIELD MEASUREMENTS					
	Initial	1st	2nd	3rd	5th	6th
TIME	0917	0924	0932	0940		
VOL. (gal)		1	2	3		
pH (s.units)	6.54	6.8	6.85	6.81		
COND.(S/m)	25.3	6.95	5.92	5.9		
TURBIDITY(NTUs)	284	150	48.8	36.9		
TEMP.(C)	18.45	18.26	18.24	18.5		
DO.(mg/L)	1.94	1.17	0.76	0.7		
ORP(mV)	-318	-345	-361	-363		

OBSERVATIONS

COLOR:

ODOR:

COMMENTS:

SAMPLE DATE/ TIME: 0941 / 4-25-2006

CH2MHILL

WELL PURGE AND SAMPLING FIELD SHEET

WELL NUMBER: FDSGW01D **SITE:** 3909

FIELD CREW: Andrew O'Conor

		CASING DIAMETER		GAL/FT OF CASING	
DEPTH TO WATER (FT):	6.51				
WELL DEPTH (FT):	12.48	**2 IN.**		**0.1632**	
WATER COLUMN (FT):	5.97	**4 IN.**		**0.6528**	
GAL/FT OF CASING	0.1632	**6 IN.**		**1.4688**	
CASING VOLUME (GAL)	0.97	**8 IN.**		**2.611**	
NO. OF VOLUMES min.(3)	3	**10 IN.**		**4.0797**	
PURGE VOLUME (GAL)	2.92	**12 IN.**		**5.8748**	

METHOD OF PURGING

PUMP: Peristaltic	**OTHER:**	**BAILER** : TEFLON, SS ,OTHER:
TIME ON: 1322		BAILER VOL.. (gal)
FLOW RATE (gpm): 0.19		REQUIRED PULLS:
PUMP TIME (min): 15		VOL. PURGED (gals):
VOL. PURGED (gals): 2.92		OTHER:

FIELD PARAMETERS	FIELD MEASUREMENTS					
	Initial	1st	2nd	3rd	5th	6th
TIME	1322	1325	1330	1335		
VOL. (gal)	I	1	2	3		
pH (s.units)	7.07	7.05	6.99	7		
COND.(S/m)	6.33	8.02	8.97	8.54		
TURBIDITY(NTUs)	135	40.4	8.2	7.6		
TEMP.(C)	19.75	20.02	19.97	20.15		
DO.(mg/L)	2.34	2.75	1.13	1.03		
ORP(mV)	-234	-216	-242	-247		

OBSERVATIONS

COLOR:

ODOR:

COMMENTS:

SAMPLE DATE/ TIME: 1336 / 4-25-2006

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WELL PURGE AND SAMPLING FIELD SHEET

WELL NUMBER: CNC18MW05 **SITE:** 3909

FIELD CREW: Andrew O'Conor

		CASING DIAMETER		GAL/FT OF CASING	
DEPTH TO WATER (FT):	4.65				
WELL DEPTH (FT):	13	**2 IN.**		**0.1632**	
WATER COLUMN (FT):	8.35	**4 IN.**		**0.6528**	
GAL/FT OF CASING	0.1632	**6 IN.**		**1.4688**	
CASING VOLUME (GAL)	1.36	**8 IN.**		**2.611**	
NO. OF VOLUMES min.(3)	3	**10 IN.**		**4.0797**	
PURGE VOLUME (GAL)	4.08	**12 IN.**		**5.8748**	

METHOD OF PURGING

PUMP: Peristaltic	**OTHER:**	**BAILER** : TEFLON, SS ,OTHER:
TIME ON: 1223		BAILER VOL.. (gal)
FLOW RATE (gpm): 0.2		REQUIRED PULLS:
PUMP TIME (min): 18		VOL. PURGED (gals):
VOL. PURGED (gals): 4.08		OTHER:

FIELD PARAMETERS	FIELD MEASUREMENTS					
	Initial	1st	2nd	3rd	5th	6th
TIME	1224	1228	1234	1241		
VOL. (gal)	I	1	2	3		
pH (s.units)	6.8	6.84	6.84	6.85		
COND.(S/m)	12.7	12.9	12.9	13		
TURBIDITY(NTUs)	335	120	13.8	1.2		
TEMP.(C)	22.52	22.79	22.47	22.49		
DO.(mg/L)	4.94	1.76	1.39	1.33		
ORP(mV)	-227	-227	-228	-229		

OBSERVATIONS

COLOR:

ODOR:

COMMENTS:

SAMPLE DATE/ TIME: 1242 / 4-25-2006

CH2MHILL

WELL PURGE AND SAMPLING FIELD SHEET

WELL NUMBER: CNC18MW04 **SITE:** 3909

FIELD CREW: Andrew O'Conor

		CASING DIAMETER		GAL/FT OF CASING	
DEPTH TO WATER (FT):	4.35				
WELL DEPTH (FT):	13	**2 IN.**		**0.1632**	
WATER COLUMN (FT):	8.65	**4 IN.**		**0.6528**	
GAL/FT OF CASING	0.1632	**6 IN.**		**1.4688**	
CASING VOLUME (GAL)	1.41	**8 IN.**		**2.611**	
NO. OF VOLUMES min.(3)	3	**10 IN.**		**4.0797**	
PURGE VOLUME (GAL)	4.23	**12 IN.**		**5.8748**	

METHOD OF PURGING

PUMP: Peristaltic	**OTHER:**	**BAILER** : TEFLON, SS ,OTHER:
TIME ON: 0926		BAILER VOL.. (gal)
FLOW RATE (gpm): 0.19		REQUIRED PULLS:
PUMP TIME (min): 22		VOL. PURGED (gals):
VOL. PURGED (gals): 4.23		OTHER:

FIELD PARAMETERS	**FIELD MEASUREMENTS**					
	Initial	1st	2nd	3rd	5th	6th
TIME	0927	0933	0940	0947		
VOL. (gal)	I	1	2	3		
pH (s.units)	6.35	6.54	6.72	6.8		
COND.(S/m)	0.803	0.969	1.61	1.71		
TURBIDITY(NTUs)	92	10.7	4	4		
TEMP.(C)	16.56	16.51	16.53	16.55		
DO.(mg/L)	2.19	1.49	1.32	1.25		
ORP(mV)	-273	-306	-325	-334		

OBSERVATIONS

COLOR:

ODOR:

COMMENTS:

SAMPLE DATE/ TIME: 0948 / 4-26-2006

CH2MHILL

WELL PURGE AND SAMPLING FIELD SHEET

WELL NUMBER: CNC19MW01 **SITE:** 3909

FIELD CREW: Andrew O'Conor

		CASING DIAMETER		GAL/FT OF CASING	
DEPTH TO WATER (FT):	4.1				
Free Product (FT)	4.08				
WELL DEPTH (FT):	-	**2 IN.**		**0.1632**	
WATER COLUMN (FT):	=	**4 IN.**		**0.6528**	
GAL/FT OF CASING	x	**6 IN.**		**1.4688**	
CASING VOLUME (GAL)	=	**8 IN.**		**2.611**	
NO. OF VOLUMES min.(3)	x	**10 IN.**		**4.0797**	
PURGE VOLUME (GAL)	=	**12 IN.**		**5.8748**	

METHOD OF PURGING

PUMP: Peristaltic	**OTHER:**	**BAILER** : TEFLON, SS ,OTHER:
TIME ON: 0750		BAILER VOL.. (gal)
FLOW RATE (gpm): 0.16		REQUIRED PULLS:
PUMP TIME (min): 30		VOL. PURGED (gals):
VOL. PURGED (gals): 4.96		OTHER:

FIELD PARAMETERS	**FIELD MEASUREMENTS**					
	Initial	1st	2nd	3rd	5th	6th
TIME						
VOL. (gal)						
pH (s.units)						
COND.(S/m)						
TURBIDITY(NTUs)						
TEMP.(C)						
DO.(mg/L)						
ORP(mV)						

OBSERVATIONS

COLOR:

ODOR:

COMMENTS:

SAMPLE DATE/ TIME: no sample

CH2MHILL

WELL PURGE AND SAMPLING FIELD SHEET

WELL NUMBER: FDSGW01E **SITE:** 3909

FIELD CREW: Andrew O'Conor

		CASING DIAMETER		GAL/FT OF CASING	
DEPTH TO WATER (FT):	4.01				
WELL DEPTH (FT):	10.2	2 IN.		0.1632	
WATER COLUMN (FT):	6.19	4 IN.		0.6528	
GAL/FT OF CASING	0.1632	6 IN.		1.4688	
CASING VOLUME (GAL)	1	8 IN.		2.611	
NO. OF VOLUMES min.(3)	3	10 IN.		4.0797	
PURGE VOLUME (GAL)	3	12 IN.		5.8748	

METHOD OF PURGING

PUMP: Peristaltic	**OTHER:**	**BAILER** : TEFLON, SS ,OTHER:
TIME ON: 0955		BAILER VOL.. (gal)
FLOW RATE (gpm): 0.2		REQUIRED PULLS:
PUMP TIME (min): 15		VOL. PURGED (gals):
VOL. PURGED (gals): 3		OTHER:

FIELD PARAMETERS	FIELD MEASUREMENTS					
	Initial	1st	2nd	3rd	5th	6th
TIME		1000	1005	1010		
VOL. (gal)		1	2	3		
pH (s.units)		7.11	7.11	7.1		
COND.(S/m)		1.16	1.2	1.19		
TURBIDITY(NTUs)		0	0	0		
TEMP.(C)		17.62	17.56	17.6		
DO.(mg/L)		1.62	1.34	1.26		
ORP(mV)		-308	-311	-308		

OBSERVATIONS

COLOR:

ODOR:

COMMENTS:

SAMPLE DATE/ TIME: 1011 / 4-26-2006

CH2MHILL

WELL PURGE AND SAMPLING FIELD SHEET

WELL NUMBER: FDSGW01A **SITE:** 3909

FIELD CREW: Andrew O'Conor

		CASING DIAMETER		GAL/FT OF CASING	
DEPTH TO WATER (FT):	6.32				
Free Product (FT)	6.3				
WELL DEPTH (FT):	-	**2 IN.**		**0.1632**	
WATER COLUMN (FT):	=	**4 IN.**		**0.6528**	
GAL/FT OF CASING	x	**6 IN.**		**1.4688**	
CASING VOLUME (GAL)	=	**8 IN.**		**2.611**	
NO. OF VOLUMES min.(3)	x	**10 IN.**		**4.0797**	
PURGE VOLUME (GAL)	=	**12 IN.**		**5.8748**	

METHOD OF PURGING

PUMP: Peristaltic	**OTHER:**	**BAILER** : TEFLON, SS ,OTHER:
TIME ON: 0750		BAILER VOL.. (gal)
FLOW RATE (gpm): 0.16		REQUIRED PULLS:
PUMP TIME (min): 30		VOL. PURGED (gals):
VOL. PURGED (gals): 4.96		OTHER:

FIELD PARAMETERS	**FIELD MEASUREMENTS**					
	Initial	1st	2nd	3rd	5th	6th
TIME						
VOL. (gal)						
pH (s.units)						
COND.(S/m)						
TURBIDITY(NTUs)						
TEMP.(C)						
DO.(mg/L)						
ORP(mV)						

OBSERVATIONS

COLOR:

ODOR:

COMMENTS:

SAMPLE DATE/ TIME: No sample

CH2MHILL

WELL PURGE AND SAMPLING FIELD SHEET

WELL NUMBER: U19GW009 **SITE:** 3909

FIELD CREW: Andrew O'Conor

		CASING DIAMETER		GAL/FT OF CASING	
DEPTH TO WATER (FT):	4.65				
WELL DEPTH (FT):	13	**2 IN.**		**0.1632**	
WATER COLUMN (FT):	8.35	**4 IN.**		**0.6528**	
GAL/FT OF CASING	0.1632	**6 IN.**		**1.4688**	
CASING VOLUME (GAL)	1.36	**8 IN.**		**2.611**	
NO. OF VOLUMES min.(3)	3	**10 IN.**		**4.0797**	
PURGE VOLUME (GAL)	4.08	**12 IN.**		**5.8748**	

METHOD OF PURGING

PUMP: Peristaltic	**OTHER:**	**BAILER** : TEFLON, SS ,OTHER:
TIME ON: 1250		BAILER VOL.. (gal)
FLOW RATE (gpm): 0.2		REQUIRED PULLS:
PUMP TIME (min): 15		VOL. PURGED (gals):
VOL. PURGED (gals): 4		OTHER:

FIELD PARAMETERS	FIELD MEASUREMENTS					
	Initial	1st	2nd	3rd	5th	6th
TIME	1251	1255	1300	1305		
VOL. (gal)		1	2	3		
pH (s.units)	6.83	6.79	6.8	6.83		
COND.(S/m)	4.41	7.4	7.9	8.8		
TURBIDITY(NTUs)	334	176	0	10		
TEMP.(C)	21.43	21.22	21.33	21.24		
DO.(mg/L)	2.23	1.25	1.18	1.1		
ORP(mV)	-188	-227	-236	-261		

OBSERVATIONS

COLOR:

ODOR:

COMMENTS:

SAMPLE DATE/ TIME: 1306 / 4-25-2006

CH2MHILL

WELL PURGE AND SAMPLING FIELD SHEET

WELL NUMBER: U19GW010 **SITE:** 3909

FIELD CREW: Andrew O'Conor

		CASING DIAMETER		GAL/FT OF CASING	
DEPTH TO WATER (FT):	4.3				
WELL DEPTH (FT):	15	2 IN.		0.1632	
WATER COLUMN (FT):	10.7	4 IN.		0.6528	
GAL/FT OF CASING	0.1632	6 IN.		1.4688	
CASING VOLUME (GAL)	1.74	8 IN.		2.611	
NO. OF VOLUMES min.(3)	3	10 IN.		4.0797	
PURGE VOLUME (GAL)	5.23	12 IN.		5.8748	

METHOD OF PURGING

PUMP: Peristaltic	**OTHER:**	**BAILER** : TEFLON, SS ,OTHER:
TIME ON: 1014		BAILER VOL.. (gal)
FLOW RATE (gpm): 0.22		REQUIRED PULLS:
PUMP TIME (min): 22		VOL. PURGED (gals):
VOL. PURGED (gals): 5.2		OTHER:

FIELD PARAMETERS	FIELD MEASUREMENTS					
	Initial	1st	2nd	3rd	5th	6th
TIME	1014	1021	1028	1035		
VOL. (gal)		1	2	3		
pH (s.units)	6.44	6.46	6.47	6.5		
COND.(S/m)	19.3	22.6	22	24.6		
TURBIDITY(NTUs)	167	156	0	0		
TEMP.(C)	19.42	19.34	19.56	19.36		
DO.(mg/L)	1.61	1.06	0.78	0.66		
ORP(mV)	-344	-354	-361	-372		

OBSERVATIONS

COLOR:

ODOR:

COMMENTS:

SAMPLE DATE/ TIME: 1036 / 4-25-2006

CH2MHILL

WELL PURGE AND SAMPLING FIELD SHEET

WELL NUMBER: CNC18-MW03 **SITE:** 3909

FIELD CREW: Andrew O'Conor

		CASING DIAMETER		GAL/FT OF CASING	
DEPTH TO WATER (FT):	3.6				
WELL DEPTH (FT):	12	**2 IN.**		**0.1632**	
WATER COLUMN (FT):	8.4	**4 IN.**		**0.6528**	
GAL/FT OF CASING	0.1632	**6 IN.**		**1.4688**	
CASING VOLUME (GAL)	1.36	**8 IN.**		**2.611**	
NO. OF VOLUMES min.(3)	3	**10 IN.**		**4.0797**	
PURGE VOLUME (GAL)	4.1	**12 IN.**		**5.8748**	

METHOD OF PURGING

PUMP: Peristaltic	**OTHER:**	**BAILER** : TEFLON, SS ,OTHER:
TIME ON: 1044		BAILER VOL.. (gal)
FLOW RATE (gpm): 0.22		REQUIRED PULLS:
PUMP TIME (min): 18		VOL. PURGED (gals):
VOL. PURGED (gals): 4.1		OTHER:

FIELD PARAMETERS	FIELD MEASUREMENTS					
	Initial	1st	2nd	3rd	5th	6th
TIME	1044	1050	1056	1102		
VOL. (gal)		1	2	3		
pH (s.units)	6.56	6.59	6.57	6.59		
COND.(S/m)	51	40.7	39.2	39.6		
TURBIDITY(NTUs)	346	28.8	278	12.5		
TEMP.(C)	19.75	18.18	18.1	18.01		
DO.(mg/L)	1.6	1.23	1.02	0.91		
ORP(mV)	-365	-493	-478	-495		

OBSERVATIONS

COLOR:

ODOR:

COMMENTS:

SAMPLE DATE/ TIME: 1103 / 4-26-2006

Appendix C

CH2MHILL
CHARLESTON NAVAL COMPLEX

CH2MHILL

Request Number: 85

June 2, 2006

Request for disposal of purge water generated at the Charleston Naval Complex, Charleston, South Carolina.

Matrix	Amount of Material in Container (gallons)	Drum Number	Site Number / Date	Approval	Comments
Purge Water	11 gallons	WO756	SWMU 39 / 4-28-2006		
Purge Water	10 gallons	WO755	FDS 22 / 4-26-2006		
Purge Water	58 gallons	WO754	AST 9608 / 4-26-2006		
Purge Water	37 gallons	WO752	UST NH48 site 30 4-17-2006		
Purge water	33 gallons	WO751	NH28 A / 4-10-2006		
Purge water	40 gallons	WO750	AST 601 / 4-5-2006		
Purge water	62 gallons	WO749	UST 1175 / 4-4-2006		
Purge water	10 gallons	WO748	UST 901 / 3-24-2006		

☐ Attached results are from most contaminated wells for each site.
Total amount requested for disposal is 229 gallons maximum. Water to be disposed of through Building 1824 system at the Charleston Naval Complex. The information above along with the attached analytical data is correct to the best of my knowledge.

6.2.06
CH2MHILL Date

With review of the information provided, North Charleston Sewer District will ✓ will not ____ approve the discharge of the collected purge water from Building 1824 of the Charleston Naval Complex.

6-5-06
Kelly Singer NCSD Date

Appendix D

SAMPLE DATA

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
U19TW001

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 161574

Matrix: (soil/water) GROUND WAT Lab Sample ID: 161574011

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 6I315

Level: (low/med) LOW Date Received: 04/26/06

% Moisture: not dec. _____ Date Analyzed: 05/03/06

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4	tert-Butyl methyl ether	1.0	U
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
----------	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	3.0	U
91-20-3	Naphthalene	1.0	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
U19GW010R1

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 161574

Matrix: (soil/water) GROUND WAT Lab Sample ID: 161574010

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 6I328

Level: (low/med) LOW Date Received: 04/26/06

% Moisture: not dec. _____ Date Analyzed: 05/04/06

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4	tert-Butyl methyl ether	1.0	U
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	0.37	J
----------	m,p-Xylenes	0.44	J
1330-20-7	Xylenes (total)	0.81	J
91-20-3	Naphthalene	0.92	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
U19GW009R1

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 161574

Matrix: (soil/water) GROUND WAT Lab Sample ID: 161574009

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 6I327

Level: (low/med) LOW Date Received: 04/26/06

% Moisture: not dec. _____ Date Analyzed: 05/04/06

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4	tert-Butyl methyl ether	1.0	U
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
----------	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	3.0	U
91-20-3	Naphthalene	1.0	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FDSGW01ESDR1

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 161574

Matrix: (soil/water) GROUND WAT Lab Sample ID: 161574007

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 6I325

Level: (low/med) LOW Date Received: 04/26/06

% Moisture: not dec. _____ Date Analyzed: 05/04/06

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4	tert-Butyl methyl ether	7.6	
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
----------	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	3.0	U
91-20-3	Naphthalene	1.0	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FDSGW01ER1

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 161574

Matrix: (soil/water) GROUND WAT Lab Sample ID: 161574005

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 6I323

Level: (low/med) LOW Date Received: 04/26/06

% Moisture: not dec. _____ Date Analyzed: 05/04/06

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4	tert-Butyl methyl ether	9.3	
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
----------	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	3.0	U
91-20-3	Naphthalene	1.0	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FDSGW01EMSR1

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 161574

Matrix: (soil/water) GROUND WAT Lab Sample ID: 161574006

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 6I324

Level: (low/med) LOW Date Received: 04/26/06

% Moisture: not dec. _____ Date Analyzed: 05/04/06

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4	tert-Butyl methyl ether	7.8	
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
----------	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	3.0	U
91-20-3	Naphthalene	1.0	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FDSGW01DR1

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 161574

Matrix: (soil/water) GROUND WAT Lab Sample ID: 161574004

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 6I322

Level: (low/med) LOW Date Received: 04/26/06

% Moisture: not dec. _____ Date Analyzed: 05/04/06

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4	tert-Butyl methyl ether	1.0	U
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
----------	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	3.0	U
91-20-3	Naphthalene	1.0	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FDSGW01BR1

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 161574

Matrix: (soil/water) GROUND WAT Lab Sample ID: 161574008

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 6I326

Level: (low/med) LOW Date Received: 04/26/06

% Moisture: not dec. _____ Date Analyzed: 05/04/06

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4	tert-Butyl methyl ether	1.0	U
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
----------	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	3.0	U
91-20-3	Naphthalene	1.0	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CNC19-MW03R1

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 161574

Matrix: (soil/water) GROUND WAT Lab Sample ID: 161574012

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 6I329

Level: (low/med) LOW Date Received: 04/26/06

% Moisture: not dec. _____ Date Analyzed: 05/04/06

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4	tert-Butyl methyl ether	1.0	U
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
----------	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	3.0	U
91-20-3	Naphthalene	1.0	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CNC18-MW06RI

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 161574

Matrix: (soil/water) GROUND WAT Lab Sample ID: 161574003

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 6I321

Level: (low/med) LOW Date Received: 04/26/06

% Moisture: not dec. _____ Date Analyzed: 05/04/06

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4	tert-Butyl methyl ether	1.0	U
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
----------	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	3.0	U
91-20-3	Naphthalene	1.0	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CNC18-MW05R1

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 161574

Matrix: (soil/water) GROUND WAT Lab Sample ID: 161574002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 6I320

Level: (low/med) LOW Date Received: 04/26/06

% Moisture: not dec. _____ Date Analyzed: 05/04/06

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4	tert-Butyl methyl ether	1.0	U
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
----------	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	3.0	U
91-20-3	Naphthalene	1.0	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CNC18-MW04R1

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 161574

Matrix: (soil/water) GROUND WAT Lab Sample ID: 161574001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 6I319

Level: (low/med) LOW Date Received: 04/26/06

% Moisture: not dec. _____ Date Analyzed: 05/04/06

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4	tert-Butyl methyl ether	1.0	U
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
----------	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	3.0	U
91-20-3	Naphthalene	0.78	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
CNC18-EW04R1

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 161574

Matrix: (soil/water) GROUND WAT Lab Sample ID: 161574013

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 6I406

Level: (low/med) LOW Date Received: 04/26/06

% Moisture: not dec. _____ Date Analyzed: 05/04/06

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4	tert-Butyl methyl ether	1.0	U
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
95-47-6	o-Xylene	1.0	U
----------	m,p-Xylenes	2.0	U
1330-20-7	Xylenes (total)	3.0	U
91-20-3	Naphthalene	1.0	U

CH2M HILL Chain of Custody/ Laboratory Analysis Form

COC Tracking #: **ZCU30-071604-01** page 1 of 2

Laboratory:	GEL	**Site Name:**	Zone G, UST Site 18 (AST 3909) SCDHEC No. 01093
Project Name:	Charleston Navy Complex		
Project Number:	158814.PM.04	**TAT:**	21
Project Manager:	Gary Foster	**QA Level:**	level 2
Address:	GNV: 3011 SW Williston Rd., Gainesville, FL 32605		
	ATL: 115 Perimeter Center Place NE, Suite 700, Atlanta, GA 30346-1278		
Send Report To:	see last page of COC	**EDD:**	CNC format

Lab Batch/SDG:

	Sample ID	1615748 Station ID	Sample Description	Depth Begin	Depth End	Date & Time Collected	Matrix	# of containers	VOCs (SW8260B)	SVOCs (SW8270C)	3 - 40mL vial, HCl	2 -1L amber	Comments	
001	CNC18-MW04R1	GCNC18-MW04				4-26-2006 / 0948	WG	3	X					.1
002	CNC18-MW05R1	GCNC18-MW05				4-25-2006 / 1242	WG	3	X					
003	CNC18-MW06R1	GCNC18-MW06				4-25-2006 / 0941	WG	3	X					
	CNC19-MW01R1	GCNC19-MW01				no sample	WG		X				free product	
	CNC19-HW01R1	GCNC19-MW01				no sample	WG		X				free product	
	FDSGW01AR1	GFDSGW01A				no sample	WG		X				free product	
004	FDSGW01DR1	GFDSGW01D				4-25-2006 / 1336	WG	3	X					
005	FDSGW01ER1	GFDSGW01E				4-26-2006 / 1011	WG	3	X					
006	FDSGW01EMSR1	GFDSGW01E				4-26-2006 / 1011	WG	3	X					
007	FDSGW01ESDR1	GFDSGW01E				4-26-2006 / 1011	WG	3	X					
008	FDSGW01BR1	FDSGW01B				4-25-2006 / 1010	WG	3	X					
009	U19GW009R1	GU19GW009				4-25-2006 / 1306	WG	3	X				samples	
010	U19GW010R1	GU19GW010				4-25-2006 / 1036	WG	3	X				complete	V
012	CNC19-MW03R1	GCNC19-MW03				4-26-2006 / 1103	WQ	5	X	X				.2
013	CNC18-EW04R1	CNC18-EW04				4-25-2006 /	WQ	5	X	X			EB	.2
011	U19TW001	GU19TW001				lab supplied	WQ	3	X				TB	.1

Sampled By: Andrew O'Conor — Date/Time: 4-25 and 4-26-06

Relinquished by: [signature] — Date/Time: 4-26-06 1325

Additional Samplers:

Received By Lab: [signature] — Date/Time: 4-26-06 1325

Relinquished by: — Date/Time:

Received By: — Date/Time:

Shipped Via: UPS FedEx Hand Other Tracking#:

Remarks: CNC18MW04 is a replacement well for CNC18MW01

Temperature:

Receipt Exceptions:

UST
VOCs (SW8260)
Benzene
Toluene
Ethylbenzene
o-Xylene
m- & p-Xylene
Xylenes, total
MTBE
Naphthalene

UST
SVOCs (SW8270)
PAHs

Reports
Herb Kelly/GNV - 1 hardcopy, 1 CD
Gary Foster
Andrew O'Conor

Herb Kelly
3011 SW Williston Rd
Gainesville, FL 32608
Ph: (352) 335 - 5877 ext.2572
Fax: (352) 271 - 4811

Andrew O'Conor
1330 Kilo St.
North Charleston, SC 29405
Ph: 843-740-9033
Fax: 843-740-9135

Receipt exceptions: _____

SAMPLE DATA

1B
SVOA ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
CNC18-EW04R1

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 161574

Matrix: (soil/water) GROUND WAT Lab Sample ID: 161574013

Sample wt/vol: 980.0 (g/mL) ML Lab File ID: S4E0107

Level: (low/med) LOW Date Received: 04/26/06

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/28/06

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 05/01/06

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1.0	U
208-96-8	Acenaphthylene	1.0	U
83-32-9	Acenaphthene	1.0	U
86-73-7	Fluorene	1.0	U
85-01-8	Phenanthrene	1.0	U
120-12-7	Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
129-00-0	Pyrene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
218-01-9	Chrysene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	U
53-70-3	Dibenzo(a,h)anthracene	1.0	U
191-24-2	Benzo(ghi)perylene	1.0	U

1B

SVOA ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CNC19-MW03R1

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 161574

Matrix: (soil/water) GROUND WAT Lab Sample ID: 161574012

Sample wt/vol: 990.0 (g/mL) ML Lab File ID: S4E0106

Level: (low/med) LOW Date Received: 04/26/06

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/28/06

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 05/01/06

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	Naphthalene	1.0	U
208-96-8	Acenaphthylene	1.0	U
83-32-9	Acenaphthene	41.8	
86-73-7	Fluorene	10.0	
85-01-8	Phenanthrene	19.8	
120-12-7	Anthracene	1.0	U
206-44-0	Fluoranthene	1.3	
129-00-0	Pyrene	0.66	J
56-55-3	Benzo(a)anthracene	1.0	U
218-01-9	Chrysene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	U
53-70-3	Dibenzo(a,h)anthracene	1.0	U
191-24-2	Benzo(ghi)perylene	1.0	U