North Carolina Department of Environment and Natural Resources
Division of Waste Management

Beverly Eaves Perdue
Governor

Dexter R. Matthews
Director

Dee Freeman
Secretary

May 4, 2010

Robert E. Barnhill, Jr.
REB Acquisitions, LLC
P.O. Box 1529
Tarboro, NC 27886-1529

Re: **WATER SUPPLY WELL SAMPLING RESULTS AND HEALTH RISK EVALUATIONS**
APAC-Carolina, Inc., Castle Hayne Asphalt Plant
4901 and 4909 N. College Road
Castle Hayne, New Hanover County, NC
NONCD0002779

Dear Mr. Tomlinson:

On April 28 and 29, 2009, personnel with Environmental Services, Inc. (ESI) sampled the three supply wells at the above referenced property. The most recent sampling results revealed the presence of iron, manganese and thallium above applicable standards and bis(2-ethylhexyl)phthalate, copper, lead, nickel, silver and zinc above the method detection limits in water supply well #1 (WSW-1) (see enclosed map). Iron and manganese were detected above applicable standards and chloroethane, vinyl chloride, copper, lead, mercury, nickel, silver and zinc were detected above the method detection limits in WSW-2. Iron and manganese were detected above applicable standards and MTBE, nickel and silver were detected above the method detection limits in WSW-3. Enclosed are copies of the analytical results of the sampling.

Due to the presence of the contaminants, the Branch performed Health Risk Evaluations (HRE) for each supply well. The HREs concluded that the water in all the wells should not be used for drinking or cooking, but it can be used for other purposes. Copies of the HREs are also enclosed. The water from these supply wells should be sampled at least once a year to verify that the levels of contaminants are not increasing, which could pose additional risks.

If you have questions, please contact me at (910) 796-7215.

Sincerely,

Genevieve M. Henderson, P.G.
Hydrogeologist
Division of Waste Management, Superfund Section
Inactive Hazardous Sites Branch

Cc: IHSB – WiRO files w/attachments
Michael Burns w/attachments, Environmental Services, Inc., 524 S. New Hope Rd., Raleigh, NC 27610
APAC-Atlantic, Inc. w/attachments, 604 E. New Bern Rd., Kinston, NC 28504
William H. Tomlinson w/attachments, President, APAC-Atlantic, Inc., 900 Ashwood Parkway, Ste. 700, Atlanta, GA 30338

April 30, 2010

MEMORANDUM

TO: Ginney Henderson, Hydrogeologist
Inactive Hazardous Sites Branch
Superfund Section

FROM: Hanna Assefa, Industrial Hygienist
Inactive Hazardous Sites Branch
Superfund Section

RE: Health Risk Evaluation
4901/4909 N. College Rd. – WSW-3
Castle Hayne, New Hanover Co.
APAC-Carolina, Castle Hayne Asphalt Plant
Site I.D. # NONCD0002779

A water sample was collected from the water supply well at the subject address on April 28, 2009. The concentrations of iron and manganese exceeded applicable standards. The standards used to determine if the water is suitable for drinking and cooking are the federal drinking water standards (USEPA MCL), or where there is no MCL, the North Carolina Groundwater Quality Standard (15A NCAC 2L). Please note however that the concentrations of these contaminants that exceed standards are less than what are determined to be naturally occurring background concentrations.

If contaminant concentrations exceed the applicable standards for using the water for drinking and cooking, the contaminant concentrations are further analyzed to determine if the water is suitable for other household uses, such as showering, bathing, washing dishes, flushing toilets, and hand washing. **The water from this well should not be used for drinking and cooking. The water from this well can be used for all other residential purposes described above.** The following table compares the detected contaminant concentration with the applicable standard. The table also shows the concentrations detected in background groundwater samples for the contaminants that exceed health based standards:

Sample #	Chemical	04/28/2009 Concentrations Ug/l	USEPA MCL Ug/l	15A NCAC 2L Ug/l	Site Specific Natural Background Concentration Range Ug/l
C904895-09	Methyl tert-Butyl Ether	9.8		20	
	Iron	5,350		300	12,300-354,000
	Manganese	1,250		50	309-6,330
	Nickel	3.2J		100	
	Silver	2.4J		20	

The abbreviation Ug/l stands for micrograms of contaminant per liter of water

Shaded areas indicate an exceedance of standards

J = Estimated Concentration

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Description: WSW-1
Matrix: Drinking Water
Project: Former Castle Hayne Asphalt Plant

Lab Sample ID: C904895-07
Sampled: 04/29/09 11:11
Sampled By: A.J. Steffen

Received: 04/30/09 12:47
Work Order: C904895

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.40	U	ug/L	1	0.40	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,1,1-Trichloroethane [71-55-6] ^	0.27	U	ug/L	1	0.27	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.33	U	ug/L	1	0.33	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,1,2-Trichloroethane [79-00-5] ^	0.37	U	ug/L	1	0.37	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,1-Dichloroethane [75-34-3] ^	0.33	U	ug/L	1	0.33	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,1-Dichloroethene [75-35-4] ^	0.24	U	ug/L	1	0.24	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,1-Dichloropropene [563-58-6] ^	0.32	U	ug/L	1	0.32	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,2,3-Trichlorobenzene [87-61-6] ^	0.25	U	ug/L	1	0.25	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,2,3-Trichloropropane [96-18-4] ^	0.55	U	ug/L	1	0.55	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,2,4-Trichlorobenzene [120-82-1] ^	0.36	U	ug/L	1	0.36	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,2,4-Trimethylbenzene [95-63-6] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,2-Dibromoethane [106-93-4] ^	0.42	U	ug/L	1	0.42	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,2-Dichlorobenzene [95-50-1] ^	0.27	U	ug/L	1	0.27	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,2-Dichloroethane [107-06-2] ^	0.65	U	ug/L	1	0.65	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,2-Dichloropropane [78-87-5] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,3,5-Trimethylbenzene [108-67-8] ^	0.25	U	ug/L	1	0.25	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,3-Dichlorobenzene [541-73-1] ^	0.30	U	ug/L	1	0.30	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,3-Dichloropropane [142-28-9] ^	0.32	U	ug/L	1	0.32	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
1,4-Dichlorobenzene [106-46-7] ^	0.38	U	ug/L	1	0.38	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
2,2-Dichloropropane [594-20-7] ^	0.55	U	ug/L	1	0.55	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
2-Butanone [78-93-3] ^	1.0	U	ug/L	1	1.0	5.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
2-Chloroethyl Vinyl Ether [110-75-8] ^	0.94	U	ug/L	1	0.94	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
2-Chlorotoluene [95-49-8] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
2-Hexanone [591-78-6] ^	0.69	U	ug/L	1	0.69	5.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
4-Chlorotoluene [106-43-4] ^	0.25	U	ug/L	1	0.25	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
4-Isopropyltoluene [99-87-6] ^	0.26	U	ug/L	1	0.26	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Acetone [67-64-1] ^	1.5	U	ug/L	1	1.5	5.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Benzene [71-43-2] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Bromobenzene [108-86-1] ^	0.28	U	ug/L	1	0.28	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Bromochloromethane [74-97-5] ^	0.42	U	ug/L	1	0.42	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Bromodichloromethane [75-27-4] ^	0.37	U	ug/L	1	0.37	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Bromoform [75-25-2] ^	0.71	U	ug/L	1	0.71	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Bromomethane [74-83-9] ^	0.49	U	ug/L	1	0.49	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Carbon disulfide [75-15-0] ^	0.54	U	ug/L	1	0.54	5.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Carbon tetrachloride [56-23-5] ^	0.38	U	ug/L	1	0.38	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Chlorobenzene [108-90-7] ^	0.27	U	ug/L	1	0.27	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Chloroethane [75-00-3] ^	0.30	U	ug/L	1	0.30	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Chloroform [67-66-3] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Chloromethane [74-87-3] ^	0.34	U	ug/L	1	0.34	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
cis-1,2-Dichloroethene [156-59-2] ^	0.36	U	ug/L	1	0.36	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
cis-1,3-Dichloropropene [10061-01-5] ^	0.28	U	ug/L	1	0.28	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Dibromochloromethane [124-48-1] ^	0.32	U	ug/L	1	0.32	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Dibromomethane [74-95-3] ^	0.37	U	ug/L	1	0.37	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Dichlorodifluoromethane [75-71-8] ^	0.38	U	ug/L	1	0.38	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Ethylbenzene [100-41-4] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Hexachlorobutadiene [87-68-3] ^	0.35	U	ug/L	1	0.35	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Isopropylbenzene [98-82-8] ^	0.24	U	ug/L	1	0.24	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
m,p-Xylenes [108-38-3/106-42-3] ^	0.48	U	ug/L	1	0.48	2.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Methylene chloride [75-09-2] ^	0.53	U	ug/L	1	0.53	2.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	

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Description: WSW-1
Matrix: Drinking Water
Project: Former Castle Hayne Asphalt Plant

Lab Sample ID: C904895-07
Sampled: 04/29/09 11:11
Sampled By: A.J. Steffen

Received: 04/30/09 12:47
Work Order: C904895

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Methyl-tert-Butyl Ether [1634-04-4] ^	0.38	U	ug/L	1	0.38	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Naphthalene [91-20-3] ^	0.39	U	ug/L	1	0.39	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
n-Butyl Benzene [104-51-8] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
n-Propyl Benzene [103-65-1] ^	0.30	U	ug/L	1	0.30	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
o-Xylene [95-47-6] ^	0.27	U	ug/L	1	0.27	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
sec-Butylbenzene [135-98-8] ^	0.24	U	ug/L	1	0.24	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Styrene [100-42-5] ^	0.26	U	ug/L	1	0.26	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
tert-Butylbenzene [98-06-6] ^	0.28	U	ug/L	1	0.28	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Tetrachloroethene [127-18-4] ^	0.36	U	ug/L	1	0.36	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Toluene [108-88-3] ^	0.27	U	ug/L	1	0.27	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
trans-1,2-Dichloroethene [156-60-5] ^	0.34	U	ug/L	1	0.34	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
trans-1,3-Dichloropropene [10061-02-6] ^	0.38	U	ug/L	1	0.38	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Trichloroethene [79-01-6] ^	0.38	U	ug/L	1	0.38	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Trichlorofluoromethane [75-69-4] ^	0.28	U	ug/L	1	0.28	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Vinyl chloride [75-01-4] ^	0.30	U	ug/L	1	0.30	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	
Xylenes (Total) [1330-20-7] ^	0.40	U	ug/L	1	0.40	1.0	9E06017	EPA 8260B	05/06/09 21:47	JKG	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*44*	*1*	*50.0*	*88 %*	*51-122*	*9E06017*	*EPA 8260B*	*05/06/09 21:47*	*JKG*	
Dibromofluoromethane	*49*	*1*	*50.0*	*98 %*	*68-117*	*9E06017*	*EPA 8260B*	*05/06/09 21:47*	*JKG*	
Toluene-d8	*50*	*1*	*50.0*	*101 %*	*69-110*	*9E06017*	*EPA 8260B*	*05/06/09 21:47*	*JKG*	

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Description: WSW-1
Matrix: Drinking Water
Project: Former Castle Hayne Asphalt Plant

Lab Sample ID: C904895-07
Sampled: 04/29/09 11:11
Sampled By: A.J. Steffen

Received: 04/30/09 12:47
Work Order: C904895

Semivolatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
1,2,4-Trichlorobenzene [120-82-1] ^	2.1	U	ug/L	1	2.1	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
1,2-Dichlorobenzene [95-50-1] ^	2.3	U	ug/L	1	2.3	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
1,3-Dichlorobenzene [541-73-1] ^	2.2	U	ug/L	1	2.2	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
1,4-Dichlorobenzene [106-46-7] ^	2.2	U	ug/L	1	2.2	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
1-Methylnaphthalene [90-12-0] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
2,4,5-Trichlorophenol [95-95-4] ^	1.1	U	ug/L	1	1.1	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
2,4,6-Trichlorophenol [88-06-2] ^	1.4	U	ug/L	1	1.4	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
2,4-Dichlorophenol [120-83-2] ^	1.6	U	ug/L	1	1.6	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
2,4-Dimethylphenol [105-67-9] ^	3.0	U	ug/L	1	3.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
2,4-Dinitrophenol [51-28-5] ^	1.7	U	ug/L	1	1.7	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
2,4-Dinitrotoluene [121-14-2] ^	1.2	U	ug/L	1	1.2	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
2,6-Dinitrotoluene [606-20-2] ^	1.0	U	ug/L	1	1.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
2-Chloronaphthalene [91-58-7] ^	1.6	U	ug/L	1	1.6	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
2-Chlorophenol [95-57-8] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
2-Methyl-4,6-dinitrophenol [534-52-1] ^	1.4	U	ug/L	1	1.4	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
2-Methylnaphthalene [91-57-6] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
2-Methylphenol [95-48-7] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
2-Nitroaniline [88-74-4] ^	1.2	U	ug/L	1	1.2	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
2-Nitrophenol [88-75-5] ^	1.8	U	ug/L	1	1.8	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
3 & 4-Methylphenol [108-39-4/106-44-5] ^	1.9	U	ug/L	1	1.9	20	9E05008	EPA 8270C	05/06/09 13:00	DFM	
3,3'-Dichlorobenzidine [91-94-1] ^	1.8	U	ug/L	1	1.8	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
3-Nitroaniline [99-09-2] ^	1.6	U	ug/L	1	1.6	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
4-Bromophenyl-phenylether [101-55-3] ^	1.2	U	ug/L	1	1.2	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
4-Chloro-3-methylphenol [59-50-7] ^	1.4	U	ug/L	1	1.4	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
4-Chloroaniline [106-47-8] ^	1.6	U	ug/L	1	1.6	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
4-Chlorophenyl-phenylether [7005-72-3] ^	1.2	U	ug/L	1	1.2	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
4-Nitroaniline [100-01-6] ^	1.4	U	ug/L	1	1.4	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
4-Nitrophenol [100-02-7] ^	1.2	U	ug/L	1	1.2	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Acenaphthene [83-32-9] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Acenaphthylene [208-96-8] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Anthracene [120-12-7] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Benzidine [92-87-5] ^	1.5	U	ug/L	1	1.5	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Benzo(a)anthracene [56-55-3] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Benzo(a)pyrene [50-32-8] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Benzo(b)fluoranthene [205-99-2] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Benzo(g,h,i)perylene [191-24-2] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Benzo(k)fluoranthene [207-08-9] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Benzoic acid [65-85-0] ^	4.3	U	ug/L	1	4.3	50	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Benzyl alcohol [100-51-6] ^	1.0	U	ug/L	1	1.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Bis(2-chloroethoxy)methane [111-91-1] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Bis(2-chloroethyl)ether [111-44-4] ^	2.1	U	ug/L	1	2.1	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Bis(2-chloroisopropyl)ether [39638-32-9] ^	2.2	U	ug/L	1	2.2	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Bis(2-ethylhexyl)phthalate [117-81-7] ^	**1.9**	J	ug/L	1	1.9	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Butylbenzylphthalate [85-68-7] ^	1.4	U	ug/L	1	1.4	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Chrysene [218-01-9] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Dibenzo(a,h)anthracene [53-70-3] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Dibenzofuran [132-64-9] ^	1.3	U	ug/L	1	1.3	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Diethylphthalate [84-66-2] ^	1.3	U	ug/L	1	1.3	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Dimethylphthalate [131-11-3] ^	1.1	U	ug/L	1	1.1	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Di-n-butylphthalate [84-74-2] ^	1.0	U	ug/L	1	1.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Di-n-octylphthalate [117-84-0] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	

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Description: WSW-1
Matrix: Drinking Water
Project: Former Castle Hayne Asphalt Plant

Lab Sample ID: C904895-07
Sampled: 04/29/09 11:11
Sampled By: A.J. Steffen

Received: 04/30/09 12:47
Work Order: C904895

Semivolatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Fluoranthene [206-44-0] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Fluorene [86-73-7] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Hexachlorobenzene [118-74-1] ^	1.1	U	ug/L	1	1.1	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Hexachlorobutadiene [87-68-3] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Hexachlorocyclopentadiene [77-47-4] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Hexachloroethane [67-72-1] ^	2.4	U	ug/L	1	2.4	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Indeno(1,2,3-cd)pyrene [193-39-5] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Isophorone [78-59-1] ^	1.8	U	ug/L	1	1.8	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Naphthalene [91-20-3] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Nitrobenzene [98-95-3] ^	1.9	U	ug/L	1	1.9	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
N-Nitrosodimethylamine [62-75-9] ^	1.9	U	ug/L	1	1.9	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
N-Nitroso-di-n-propylamine [621-64-7] ^	2.1	U	ug/L	1	2.1	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
N-Nitrosodiphenylamine/Diphenylamine [86-30-6/122-39-4] ^	1.1	U	ug/L	1	1.1	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Pentachlorophenol [87-86-5] ^	1.2	U	ug/L	1	1.2	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Phenanthrene [85-01-8] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Phenol [108-95-2] ^	1.5	U	ug/L	1	1.5	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Pyrene [129-00-0] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	
Pyridine [110-86-1] ^	2.1	U	ug/L	1	2.1	10	9E05008	EPA 8270C	05/06/09 13:00	DFM	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,6-Tribromophenol	*81*	*1*	*100*	*81 %*	*10-179*	*9E05008*	*EPA 8270C*	*05/06/09 13:00*	*DFM*	
2-Fluorobiphenyl	*43*	*1*	*50.0*	*85 %*	*10-149*	*9E05008*	*EPA 8270C*	*05/06/09 13:00*	*DFM*	
2-Fluorophenol	*52*	*1*	*100*	*52 %*	*10-110*	*9E05008*	*EPA 8270C*	*05/06/09 13:00*	*DFM*	
Nitrobenzene-d5	*35*	*1*	*50.0*	*71 %*	*10-149*	*9E05008*	*EPA 8270C*	*05/06/09 13:00*	*DFM*	
Phenol-d5	*42*	*1*	*100*	*42 %*	*10-88*	*9E05008*	*EPA 8270C*	*05/06/09 13:00*	*DFM*	
Terphenyl-d14	*50*	*1*	*50.0*	*101 %*	*10-188*	*9E05008*	*EPA 8270C*	*05/06/09 13:00*	*DFM*	

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Description: WSW-1
Matrix: Drinking Water
Project: Former Castle Hayne Asphalt Plant

Lab Sample ID: C904895-07
Sampled: 04/29/09 11:11
Sampled By: A.J. Steffen

Received: 04/30/09 12:47
Work Order: C904895

Tentatively Identified Compounds by Semivolatile GCMS

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Unknown [NA]	10	JB	ug/L	1			9E05008	EPA 8270C	05/06/09 13:00	DFM	B

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Description: WSW-1
Matrix: Drinking Water
Project: Former Castle Hayne Asphalt Plant

Lab Sample ID: C904895-07
Sampled: 04/29/09 11:11
Sampled By: A.J. Steffen

Received: 04/30/09 12:47
Work Order: C904895

Metals by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Antimony [7440-36-0] ^	2.8	U	ug/L	1	2.8	10.0	9E01011	EPA 6010B	05/04/09 15:04	JDH	
Arsenic [7440-38-2] ^	2.8	U	ug/L	1	2.8	10.0	9E01011	EPA 6010B	05/04/09 15:04	JDH	
Beryllium [7440-41-7] ^	0.08	U	ug/L	1	0.08	1.00	9E01011	EPA 6010B	05/04/09 15:04	JDH	
Cadmium [7440-43-9] ^	0.09	U	ug/L	1	0.09	1.00	9E01011	EPA 6010B	05/04/09 15:04	JDH	
Chromium [7440-47-3] ^	0.7	U	ug/L	1	0.7	10.0	9E01011	EPA 6010B	05/04/09 15:04	JDH	
Copper [7440-50-8] ^	**79.9**		ug/L	1	0.81	10.0	9E01011	EPA 6010B	05/04/09 15:04	JDH	
Iron [7439-89-6] ^	**1620**		ug/L	1	31	50	9E01011	EPA 6010B	05/04/09 15:04	JDH	
Lead [7439-92-1] ^	**5.0**	J	ug/L	1	1.6	10.0	9E01011	EPA 6010B	05/04/09 15:04	JDH	
Manganese [7439-96-5] ^	**90.8**		ug/L	1	1.1	10.0	9E01011	EPA 6010B	05/04/09 15:04	JDH	
Mercury [7439-97-6] ^	0.11	U	ug/L	1	0.11	0.20	9E04009	EPA 7470A	05/04/09 14:55	NLH	
Nickel [7440-02-0] ^	**0.9**	J	ug/L	1	0.6	10.0	9E01011	EPA 6010B	05/04/09 15:04	JDH	
Selenium [7782-49-2] ^	3.4	U	ug/L	1	3.4	10.0	9E01011	EPA 6010B	05/04/09 15:04	JDH	
Silver [7440-22-4] ^	**2.3**	J	ug/L	1	1.0	10.0	9E01011	EPA 6010B	05/04/09 15:04	JDH	
Thallium [7440-28-0] ^	**3.3**	J	ug/L	1	2.8	10.0	9E01011	EPA 6010B	05/04/09 15:04	JDH	
Zinc [7440-66-6] ^	**139**		ug/L	1	3.4	10.0	9E01011	EPA 6010B	05/04/09 15:04	JDH	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

April30, 2010

MEMORANDUM

TO: Ginney Henderson, Hydrogeologist
Inactive Hazardous Sites Branch
Superfund Section

FROM: Hanna Assefa, Industrial Hygienist
Inactive Hazardous Sites Branch
Superfund Section

RE: Health Risk Evaluation
4901/4909 N. College Rd. – WSW-2
Castle Hayne, New Hanover Co.
APAC-Carolina, Castle Hayne Asphalt Plant
Site I.D. # NONCD0002779

A water sample was collected from the water supply well at the subject address on April 28, 2010. The concentrations of iron and manganese exceeded applicable standards. The standards used to determine if the water is suitable for drinking and cooking are the federal drinking water standards (USEPA MCL), or where there is no MCL, the North Carolina Groundwater Quality Standard (15A NCAC 2L). Please note however that the concentrations of these contaminants that exceed standards are less than what are determined to be naturally occurring background concentrations.

If contaminant concentrations exceed the applicable standards for using the water for drinking and cooking, the contaminant concentrations are further analyzed to determine if the water is suitable for other household uses, such as showering, bathing, washing dishes, flushing toilets, and hand washing. **The water from this well should not be used for drinking and cooking. The water from this well can be used for all other residential purposes described above.** The table below compares the detected contaminant concentration with the applicable standard. The table below also shows the concentrations detected in background groundwater samples for the contaminants that exceed health based standards:

Sample #	Chemical	04/28/2009 Concentrations Ug/l	USEPA MCL Ug/l	15A NCAC 2L Ug/l	Site Specific Natural Background Concentration Range Ug/l
C904895-07	Chloroethane	0.87		2,800	
	Vinyl Chloride	0.51J	2		
	Copper	25.1	1,300		
	Iron	6,330		300	12,300-354000
	Lead	4.3J	15		
	Manganese	722		50	309-6,330
	Mercury	0.11J	2		
	Nickel	2.1J		100	
	Silver	3.1J		20	
	Zinc	94.4		1,000	

The abbreviation Ug/l stands for micrograms of contaminant per liter of water

Shaded areas indicate an exceedance of standards

J = Estimated Concentration

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Description: WSW-2
Matrix: Drinking Water
Project: Former Castle Hayne Asphalt Plant

Lab Sample ID: C904895-08
Sampled: 04/28/09 15:10
Sampled By: A.J. Steffen

Received: 04/30/09 12:47
Work Order: C904895

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.40	U	ug/L	1	0.40	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,1,1-Trichloroethane [71-55-6] ^	0.27	U	ug/L	1	0.27	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.33	U	ug/L	1	0.33	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,1,2-Trichloroethane [79-00-5] ^	0.37	U	ug/L	1	0.37	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,1-Dichloroethane [75-34-3] ^	0.33	U	ug/L	1	0.33	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,1-Dichloroethene [75-35-4] ^	0.24	U	ug/L	1	0.24	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,1-Dichloropropene [563-58-6] ^	0.32	U	ug/L	1	0.32	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,2,3-Trichlorobenzene [87-61-6] ^	0.25	U	ug/L	1	0.25	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,2,3-Trichloropropane [96-18-4] ^	0.55	U	ug/L	1	0.55	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,2,4-Trichlorobenzene [120-82-1] ^	0.36	U	ug/L	1	0.36	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,2,4-Trimethylbenzene [95-63-6] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,2-Dibromoethane [106-93-4] ^	0.42	U	ug/L	1	0.42	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,2-Dichlorobenzene [95-50-1] ^	0.27	U	ug/L	1	0.27	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,2-Dichloroethane [107-06-2] ^	0.65	U	ug/L	1	0.65	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,2-Dichloropropane [78-87-5] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,3,5-Trimethylbenzene [108-67-8] ^	0.25	U	ug/L	1	0.25	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,3-Dichlorobenzene [541-73-1] ^	0.30	U	ug/L	1	0.30	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,3-Dichloropropane [142-28-9] ^	0.32	U	ug/L	1	0.32	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
1,4-Dichlorobenzene [106-46-7] ^	0.38	U	ug/L	1	0.38	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
2,2-Dichloropropane [594-20-7] ^	0.55	U	ug/L	1	0.55	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
2-Butanone [78-93-3] ^	1.0	U	ug/L	1	1.0	5.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
2-Chloroethyl Vinyl Ether [110-75-8] ^	0.94	U	ug/L	1	0.94	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
2-Chlorotoluene [95-49-8] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
2-Hexanone [591-78-6] ^	0.69	U	ug/L	1	0.69	5.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
4-Chlorotoluene [106-43-4] ^	0.25	U	ug/L	1	0.25	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
4-Isopropyltoluene [99-87-6] ^	0.26	U	ug/L	1	0.26	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Acetone [67-64-1] ^	1.5	U	ug/L	1	1.5	5.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Benzene [71-43-2] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Bromobenzene [108-86-1] ^	0.28	U	ug/L	1	0.28	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Bromochloromethane [74-97-5] ^	0.42	U	ug/L	1	0.42	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Bromodichloromethane [75-27-4] ^	0.37	U	ug/L	1	0.37	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Bromoform [75-25-2] ^	0.71	U	ug/L	1	0.71	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Bromomethane [74-83-9] ^	0.49	U	ug/L	1	0.49	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Carbon disulfide [75-15-0] ^	0.54	U	ug/L	1	0.54	5.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Carbon tetrachloride [56-23-5] ^	0.38	U	ug/L	1	0.38	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Chlorobenzene [108-90-7] ^	0.27	U	ug/L	1	0.27	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Chloroethane [75-00-3] ^	**0.87**	J	ug/L	1	0.30	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Chloroform [67-66-3] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Chloromethane [74-87-3] ^	0.34	U	ug/L	1	0.34	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
cis-1,2-Dichloroethene [156-59-2] ^	0.36	U	ug/L	1	0.36	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
cis-1,3-Dichloropropene [10061-01-5] ^	0.28	U	ug/L	1	0.28	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Dibromochloromethane [124-48-1] ^	0.32	U	ug/L	1	0.32	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Dibromomethane [74-95-3] ^	0.37	U	ug/L	1	0.37	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Dichlorodifluoromethane [75-71-8] ^	0.38	U	ug/L	1	0.38	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Ethylbenzene [100-41-4] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Hexachlorobutadiene [87-68-3] ^	0.35	U	ug/L	1	0.35	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Isopropylbenzene [98-82-8] ^	0.24	U	ug/L	1	0.24	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
m,p-Xylenes [108-38-3/106-42-3] ^	0.48	U	ug/L	1	0.48	2.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Methylene chloride [75-09-2] ^	0.53	U	ug/L	1	0.53	2.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	

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Description: WSW-2
Matrix: Drinking Water
Project: Former Castle Hayne Asphalt Plant

Lab Sample ID: C904895-08
Sampled: 04/28/09 15:10
Sampled By: A.J. Steffen

Received: 04/30/09 12:47
Work Order: C904895

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Methyl-tert-Butyl Ether [1634-04-4] ^	0.38	U	ug/L	1	0.38	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Naphthalene [91-20-3] ^	0.39	U	ug/L	1	0.39	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
n-Butyl Benzene [104-51-8] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
n-Propyl Benzene [103-65-1] ^	0.30	U	ug/L	1	0.30	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
o-Xylene [95-47-6] ^	0.27	U	ug/L	1	0.27	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
sec-Butylbenzene [135-98-8] ^	0.24	U	ug/L	1	0.24	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Styrene [100-42-5] ^	0.26	U	ug/L	1	0.26	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
tert-Butylbenzene [98-06-6] ^	0.28	U	ug/L	1	0.28	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Tetrachloroethene [127-18-4] ^	0.36	U	ug/L	1	0.36	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Toluene [108-88-3] ^	0.27	U	ug/L	1	0.27	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
trans-1,2-Dichloroethene [156-60-5] ^	0.34	U	ug/L	1	0.34	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
trans-1,3-Dichloropropene [10061-02-6] ^	0.38	U	ug/L	1	0.38	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Trichloroethene [79-01-6] ^	0.38	U	ug/L	1	0.38	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Trichlorofluoromethane [75-69-4] ^	0.28	U	ug/L	1	0.28	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Vinyl chloride [75-01-4] ^	**0.51**	J	ug/L	1	0.30	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	
Xylenes (Total) [1330-20-7] ^	0.40	U	ug/L	1	0.40	1.0	9E06017	EPA 8260B	05/06/09 22:18	JKG	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*44*	*1*	*50.0*	*88 %*	*51-122*	*9E06017*	*EPA 8260B*	*05/06/09 22:18*	*JKG*	
Dibromofluoromethane	*50*	*1*	*50.0*	*100 %*	*68-117*	*9E06017*	*EPA 8260B*	*05/06/09 22:18*	*JKG*	
Toluene-d8	*49*	*1*	*50.0*	*99 %*	*69-110*	*9E06017*	*EPA 8260B*	*05/06/09 22:18*	*JKG*	

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Description: WSW-2
Matrix: Drinking Water
Project: Former Castle Hayne Asphalt Plant

Lab Sample ID: C904895-08
Sampled: 04/28/09 15:10
Sampled By: A.J. Steffen

Received: 04/30/09 12:47
Work Order: C904895

Semivolatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
1,2,4-Trichlorobenzene [120-82-1] ^	2.1	U	ug/L	1	2.1	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
1,2-Dichlorobenzene [95-50-1] ^	2.3	U	ug/L	1	2.3	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
1,3-Dichlorobenzene [541-73-1] ^	2.2	U	ug/L	1	2.2	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
1,4-Dichlorobenzene [106-46-7] ^	2.2	U	ug/L	1	2.2	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
1-Methylnaphthalene [90-12-0] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
2,4,5-Trichlorophenol [95-95-4] ^	1.1	U	ug/L	1	1.1	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
2,4,6-Trichlorophenol [88-06-2] ^	1.4	U	ug/L	1	1.4	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
2,4-Dichlorophenol [120-83-2] ^	1.6	U	ug/L	1	1.6	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
2,4-Dimethylphenol [105-67-9] ^	3.0	U	ug/L	1	3.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
2,4-Dinitrophenol [51-28-5] ^	1.7	U	ug/L	1	1.7	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
2,4-Dinitrotoluene [121-14-2] ^	1.2	U	ug/L	1	1.2	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
2,6-Dinitrotoluene [606-20-2] ^	1.0	U	ug/L	1	1.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
2-Chloronaphthalene [91-58-7] ^	1.6	U	ug/L	1	1.6	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
2-Chlorophenol [95-57-8] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
2-Methyl-4,6-dinitrophenol [534-52-1] ^	1.4	U	ug/L	1	1.4	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
2-Methylnaphthalene [91-57-6] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
2-Methylphenol [95-48-7] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
2-Nitroaniline [88-74-4] ^	1.2	U	ug/L	1	1.2	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
2-Nitrophenol [88-75-5] ^	1.8	U	ug/L	1	1.8	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
3 & 4-Methylphenol [108-39-4/106-44-5] ^	1.9	U	ug/L	1	1.9	20	9E05008	EPA 8270C	05/06/09 13:29	DFM	
3,3'-Dichlorobenzidine [91-94-1] ^	1.8	U	ug/L	1	1.8	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
3-Nitroaniline [99-09-2] ^	1.6	U	ug/L	1	1.6	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
4-Bromophenyl-phenylether [101-55-3] ^	1.2	U	ug/L	1	1.2	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
4-Chloro-3-methylphenol [59-50-7] ^	1.4	U	ug/L	1	1.4	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
4-Chloroaniline [106-47-8] ^	1.6	U	ug/L	1	1.6	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
4-Chlorophenyl-phenylether [7005-72-3] ^	1.2	U	ug/L	1	1.2	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
4-Nitroaniline [100-01-6] ^	1.4	U	ug/L	1	1.4	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
4-Nitrophenol [100-02-7] ^	1.2	U	ug/L	1	1.2	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Acenaphthene [83-32-9] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Acenaphthylene [208-96-8] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Anthracene [120-12-7] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Benzidine [92-87-5] ^	1.5	U	ug/L	1	1.5	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Benzo(a)anthracene [56-55-3] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Benzo(a)pyrene [50-32-8] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Benzo(b)fluoranthene [205-99-2] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Benzo(g,h,i)perylene [191-24-2] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Benzo(k)fluoranthene [207-08-9] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Benzoic acid [65-85-0] ^	4.3	U	ug/L	1	4.3	50	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Benzyl alcohol [100-51-6] ^	1.0	U	ug/L	1	1.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Bis(2-chloroethoxy)methane [111-91-1] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Bis(2-chloroethyl)ether [111-44-4] ^	2.1	U	ug/L	1	2.1	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Bis(2-chloroisopropyl)ether [39638-32-9] ^	2.2	U	ug/L	1	2.2	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Bis(2-ethylhexyl)phthalate [117-81-7] ^	1.9	U	ug/L	1	1.9	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Butylbenzylphthalate [85-68-7] ^	1.4	U	ug/L	1	1.4	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Chrysene [218-01-9] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Dibenzo(a,h)anthracene [53-70-3] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Dibenzofuran [132-64-9] ^	1.3	U	ug/L	1	1.3	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Diethylphthalate [84-66-2] ^	1.3	U	ug/L	1	1.3	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Dimethylphthalate [131-11-3] ^	1.1	U	ug/L	1	1.1	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Di-n-butylphthalate [84-74-2] ^	1.0	U	ug/L	1	1.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Di-n-octylphthalate [117-84-0] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	

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Description: WSW-2
Matrix: Drinking Water
Project: Former Castle Hayne Asphalt Plant

Lab Sample ID: C904895-08
Sampled: 04/28/09 15:10
Sampled By: A.J. Steffen

Received: 04/30/09 12:47
Work Order: C904895

Semivolatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Fluoranthene [206-44-0] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Fluorene [86-73-7] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Hexachlorobenzene [118-74-1] ^	1.1	U	ug/L	1	1.1	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Hexachlorobutadiene [87-68-3] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Hexachlorocyclopentadiene [77-47-4] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Hexachloroethane [67-72-1] ^	2.4	U	ug/L	1	2.4	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Indeno(1,2,3-cd)pyrene [193-39-5] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Isophorone [78-59-1] ^	1.8	U	ug/L	1	1.8	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Naphthalene [91-20-3] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Nitrobenzene [98-95-3] ^	1.9	U	ug/L	1	1.9	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
N-Nitrosodimethylamine [62-75-9] ^	1.9	U	ug/L	1	1.9	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
N-Nitroso-di-n-propylamine [621-64-7] ^	2.1	U	ug/L	1	2.1	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
N-Nitrosodiphenylamine/Diphenylamine [86-30-6/122-39-4] ^	1.1	U	ug/L	1	1.1	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Pentachlorophenol [87-86-5] ^	1.2	U	ug/L	1	1.2	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Phenanthrene [85-01-8] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Phenol [108-95-2] ^	1.5	U	ug/L	1	1.5	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Pyrene [129-00-0] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	
Pyridine [110-86-1] ^	2.1	U	ug/L	1	2.1	10	9E05008	EPA 8270C	05/06/09 13:29	DFM	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,6-Tribromophenol	*85*	*1*	*100*	*85 %*	*10-179*	*9E05008*	*EPA 8270C*	*05/06/09 13:29*	*DFM*	
2-Fluorobiphenyl	*38*	*1*	*50.0*	*76 %*	*10-149*	*9E05008*	*EPA 8270C*	*05/06/09 13:29*	*DFM*	
2-Fluorophenol	*46*	*1*	*100*	*46 %*	*10-110*	*9E05008*	*EPA 8270C*	*05/06/09 13:29*	*DFM*	
Nitrobenzene-d5	*32*	*1*	*50.0*	*63 %*	*10-149*	*9E05008*	*EPA 8270C*	*05/06/09 13:29*	*DFM*	
Phenol-d5	*37*	*1*	*100*	*37 %*	*10-88*	*9E05008*	*EPA 8270C*	*05/06/09 13:29*	*DFM*	
Terphenyl-d14	*52*	*1*	*50.0*	*103 %*	*10-188*	*9E05008*	*EPA 8270C*	*05/06/09 13:29*	*DFM*	

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Description: WSW-2
Matrix: Drinking Water
Project: Former Castle Hayne Asphalt Plant

Lab Sample ID: C904895-08
Sampled: 04/28/09 15:10
Sampled By: A.J. Steffen

Received: 04/30/09 12:47
Work Order: C904895

Tentatively Identified Compounds by Semivolatile GCMS

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Unknown [NA]	9.0	JB	ug/L	1			9E05008	EPA 8270C	05/06/09 13:29	DFM	B

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Description: WSW-2
Matrix: Drinking Water
Project: Former Castle Hayne Asphalt Plant

Lab Sample ID: C904895-08
Sampled: 04/28/09 15:10
Sampled By: A.J. Steffen

Received: 04/30/09 12:47
Work Order: C904895

Metals by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Antimony [7440-36-0] ^	2.8	U	ug/L	1	2.8	10.0	9E01011	EPA 6010B	05/04/09 15:14	JDH	
Arsenic [7440-38-2] ^	2.8	U	ug/L	1	2.8	10.0	9E01011	EPA 6010B	05/04/09 15:14	JDH	
Beryllium [7440-41-7] ^	0.08	U	ug/L	1	0.08	1.00	9E01011	EPA 6010B	05/04/09 15:14	JDH	
Cadmium [7440-43-9] ^	0.09	U	ug/L	1	0.09	1.00	9E01011	EPA 6010B	05/04/09 15:14	JDH	
Chromium [7440-47-3] ^	0.7	U	ug/L	1	0.7	10.0	9E01011	EPA 6010B	05/04/09 15:14	JDH	
Copper [7440-50-8] ^	**25.1**		ug/L	1	0.81	10.0	9E01011	EPA 6010B	05/04/09 15:14	JDH	
Iron [7439-89-6] ^	**6330**		ug/L	1	31	50	9E01011	EPA 6010B	05/04/09 15:14	JDH	
Lead [7439-92-1] ^	**4.3**	J	ug/L	1	1.6	10.0	9E01011	EPA 6010B	05/04/09 15:14	JDH	
Manganese [7439-96-5] ^	**722**		ug/L	1	1.1	10.0	9E01011	EPA 6010B	05/04/09 15:14	JDH	
Mercury [7439-97-6] ^	**0.11**	J	ug/L	1	0.11	0.20	9E04009	EPA 7470A	05/04/09 14:59	NLH	
Nickel [7440-02-0] ^	**2.1**	J	ug/L	1	0.6	10.0	9E01011	EPA 6010B	05/04/09 15:14	JDH	
Selenium [7782-49-2] ^	3.4	U	ug/L	1	3.4	10.0	9E01011	EPA 6010B	05/04/09 15:14	JDH	
Silver [7440-22-4] ^	**3.1**	J	ug/L	1	1.0	10.0	9E01011	EPA 6010B	05/04/09 15:14	JDH	
Thallium [7440-28-0] ^	2.8	U	ug/L	1	2.8	10.0	9E01011	EPA 6010B	05/04/09 15:14	JDH	
Zinc [7440-66-6] ^	**94.4**		ug/L	1	3.4	10.0	9E01011	EPA 6010B	05/04/09 15:14	JDH	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

April 30, 2010

MEMORANDUM

TO: Ginney Henderson, Hydrogeologist
Inactive Hazardous Sites Branch
Superfund Section

FROM: Hanna Assefa, Industrial Hygienist
Inactive Hazardous Sites Branch
Superfund Section

RE: Health Risk Evaluation
4901/4909 N. College Rd. – WSW-1
Castle Hayne, New Hanover Co.
APAC-Carolina, Castle Hayne Asphalt Plant
Site I.D. # NONCD0002779

A water sample was collected from the water supply well at the subject address on April 29, 2009. The concentrations of iron, manganese, and thallium exceed applicable standards. The standards used to determine if the water is suitable for drinking and cooking are the federal drinking water standards (USEPA MCL), or where there is no MCL, the North Carolina Groundwater Quality Standard (15A NCAC 2L). Please note however that the concentrations of these contaminants that exceed standards are less than what is determined to be naturally occurring background concentrations.

If contaminant concentrations exceed the applicable standards for using the water for drinking and cooking, the contaminant concentrations are further analyzed to determine if the water is suitable for other household uses, such as showering, bathing, washing dishes, flushing toilets, and hand washing. **The water from this well should not be used for drinking and cooking. The water from this well can be used for all other residential purposes described above.** The following table compares the detected contaminant concentration with the applicable standard. The table also shows the detected background concentrations of the contaminants that exceed health based standards:

Sample #	Chemical	04/29/2009 Concentrations Ug/l	USEPA MCL Ug/l	15A NCAC 2L Ug/l	Site Specific Natural Background Concentration Range Ug/l
C904895-07	Bis (2-ethyl hexyl) phthalate	1.9	6		
	Copper	79.9	1300		
	Iron	1,620		300	12,300-354000
	Lead	5.0J	15		
	Manganese	90.8		50	309-6,330
	Nickel	0.9J		100	
	Silver	2.3J		20	
	Thallium	3.3J	2		8.0
	Zinc	139		1000	

The abbreviation Ug/l stands for micrograms of contaminant per liter of water
Shaded areas indicate an exceedance of standards
J = Estimated Concentration

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Description: WSW-3
Matrix: Drinking Water
Project: Former Castle Hayne Asphalt Plant

Lab Sample ID: C904895-09
Sampled: 04/28/09 15:57
Sampled By: A.J. Steffen

Received: 04/30/09 12:47
Work Order: C904895

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.40	U	ug/L	1	0.40	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,1,1-Trichloroethane [71-55-6] ^	0.27	U	ug/L	1	0.27	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.33	U	ug/L	1	0.33	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,1,2-Trichloroethane [79-00-5] ^	0.37	U	ug/L	1	0.37	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,1-Dichloroethane [75-34-3] ^	0.33	U	ug/L	1	0.33	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,1-Dichloroethene [75-35-4] ^	0.24	U	ug/L	1	0.24	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,1-Dichloropropene [563-58-6] ^	0.32	U	ug/L	1	0.32	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,2,3-Trichlorobenzene [87-61-6] ^	0.25	U	ug/L	1	0.25	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,2,3-Trichloropropane [96-18-4] ^	0.55	U	ug/L	1	0.55	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,2,4-Trichlorobenzene [120-82-1] ^	0.36	U	ug/L	1	0.36	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,2,4-Trimethylbenzene [95-63-6] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,2-Dibromoethane [106-93-4] ^	0.42	U	ug/L	1	0.42	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,2-Dichlorobenzene [95-50-1] ^	0.27	U	ug/L	1	0.27	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,2-Dichloroethane [107-06-2] ^	0.65	U	ug/L	1	0.65	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,2-Dichloropropane [78-87-5] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,3,5-Trimethylbenzene [108-67-8] ^	0.25	U	ug/L	1	0.25	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,3-Dichlorobenzene [541-73-1] ^	0.30	U	ug/L	1	0.30	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,3-Dichloropropane [142-28-9] ^	0.32	U	ug/L	1	0.32	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
1,4-Dichlorobenzene [106-46-7] ^	0.38	U	ug/L	1	0.38	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
2,2-Dichloropropane [594-20-7] ^	0.55	U	ug/L	1	0.55	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
2-Butanone [78-93-3] ^	1.0	U	ug/L	1	1.0	5.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
2-Chloroethyl Vinyl Ether [110-75-8] ^	0.94	U	ug/L	1	0.94	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
2-Chlorotoluene [95-49-8] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
2-Hexanone [591-78-6] ^	0.69	U	ug/L	1	0.69	5.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
4-Chlorotoluene [106-43-4] ^	0.25	U	ug/L	1	0.25	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
4-Isopropyltoluene [99-87-6] ^	0.26	U	ug/L	1	0.26	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Acetone [67-64-1] ^	1.5	U	ug/L	1	1.5	5.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Benzene [71-43-2] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Bromobenzene [108-86-1] ^	0.28	U	ug/L	1	0.28	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Bromochloromethane [74-97-5] ^	0.42	U	ug/L	1	0.42	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Bromodichloromethane [75-27-4] ^	0.37	U	ug/L	1	0.37	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Bromoform [75-25-2] ^	0.71	U	ug/L	1	0.71	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Bromomethane [74-83-9] ^	0.49	U	ug/L	1	0.49	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Carbon disulfide [75-15-0] ^	0.54	U	ug/L	1	0.54	5.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Carbon tetrachloride [56-23-5] ^	0.38	U	ug/L	1	0.38	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Chlorobenzene [108-90-7] ^	0.27	U	ug/L	1	0.27	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Chloroethane [75-00-3] ^	0.30	U	ug/L	1	0.30	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Chloroform [67-66-3] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Chloromethane [74-87-3] ^	0.34	U	ug/L	1	0.34	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
cis-1,2-Dichloroethene [156-59-2] ^	0.36	U	ug/L	1	0.36	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
cis-1,3-Dichloropropene [10061-01-5] ^	0.28	U	ug/L	1	0.28	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Dibromochloromethane [124-48-1] ^	0.32	U	ug/L	1	0.32	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Dibromomethane [74-95-3] ^	0.37	U	ug/L	1	0.37	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Dichlorodifluoromethane [75-71-8] ^	0.38	U	ug/L	1	0.38	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Ethylbenzene [100-41-4] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Hexachlorobutadiene [87-68-3] ^	0.35	U	ug/L	1	0.35	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Isopropylbenzene [98-82-8] ^	0.24	U	ug/L	1	0.24	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
m,p-Xylenes [108-38-3/106-42-3] ^	0.48	U	ug/L	1	0.48	2.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Methylene chloride [75-09-2] ^	0.53	U	ug/L	1	0.53	2.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	

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Description: WSW-3
Matrix: Drinking Water
Project: Former Castle Hayne Asphalt Plant

Lab Sample ID: C904895-09
Sampled: 04/28/09 15:57
Sampled By: A.J. Steffen

Received: 04/30/09 12:47
Work Order: C904895

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Methyl-tert-Butyl Ether [1634-04-4] ^	**9.8**		ug/L	1	0.38	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Naphthalene [91-20-3] ^	0.39	U	ug/L	1	0.39	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
n-Butyl Benzene [104-51-8] ^	0.20	U	ug/L	1	0.20	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
n-Propyl Benzene [103-65-1] ^	0.30	U	ug/L	1	0.30	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
o-Xylene [95-47-6] ^	0.27	U	ug/L	1	0.27	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
sec-Butylbenzene [135-98-8] ^	0.24	U	ug/L	1	0.24	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Styrene [100-42-5] ^	0.26	U	ug/L	1	0.26	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
tert-Butylbenzene [98-06-6] ^	0.28	U	ug/L	1	0.28	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Tetrachloroethene [127-18-4] ^	0.36	U	ug/L	1	0.36	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Toluene [108-88-3] ^	0.27	U	ug/L	1	0.27	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
trans-1,2-Dichloroethene [156-60-5] ^	0.34	U	ug/L	1	0.34	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
trans-1,3-Dichloropropene [10061-02-6] ^	0.38	U	ug/L	1	0.38	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Trichloroethene [79-01-6] ^	0.38	U	ug/L	1	0.38	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Trichlorofluoromethane [75-69-4] ^	0.28	U	ug/L	1	0.28	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Vinyl chloride [75-01-4] ^	0.30	U	ug/L	1	0.30	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	
Xylenes (Total) [1330-20-7] ^	0.40	U	ug/L	1	0.40	1.0	9E06017	EPA 8260B	05/06/09 22:48	JKG	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*43*	*1*	*50.0*	*87 %*	*51-122*	*9E06017*	*EPA 8260B*	*05/06/09 22:48*	*JKG*	
Dibromofluoromethane	*50*	*1*	*50.0*	*100 %*	*68-117*	*9E06017*	*EPA 8260B*	*05/06/09 22:48*	*JKG*	
Toluene-d8	*50*	*1*	*50.0*	*100 %*	*69-110*	*9E06017*	*EPA 8260B*	*05/06/09 22:48*	*JKG*	

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Description: WSW-3
Matrix: Drinking Water
Project: Former Castle Hayne Asphalt Plant

Lab Sample ID: C904895-09
Sampled: 04/28/09 15:57
Sampled By: A.J. Steffen

Received: 04/30/09 12:47
Work Order: C904895

Semivolatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
1,2,4-Trichlorobenzene [120-82-1] ^	2.1	U	ug/L	1	2.1	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
1,2-Dichlorobenzene [95-50-1] ^	2.3	U	ug/L	1	2.3	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
1,3-Dichlorobenzene [541-73-1] ^	2.2	U	ug/L	1	2.2	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
1,4-Dichlorobenzene [106-46-7] ^	2.2	U	ug/L	1	2.2	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
1-Methylnaphthalene [90-12-0] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
2,4,5-Trichlorophenol [95-95-4] ^	1.1	U	ug/L	1	1.1	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
2,4,6-Trichlorophenol [88-06-2] ^	1.4	U	ug/L	1	1.4	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
2,4-Dichlorophenol [120-83-2] ^	1.6	U	ug/L	1	1.6	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
2,4-Dimethylphenol [105-67-9] ^	3.0	U	ug/L	1	3.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
2,4-Dinitrophenol [51-28-5] ^	1.7	U	ug/L	1	1.7	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
2,4-Dinitrotoluene [121-14-2] ^	1.2	U	ug/L	1	1.2	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
2,6-Dinitrotoluene [606-20-2] ^	1.0	U	ug/L	1	1.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
2-Chloronaphthalene [91-58-7] ^	1.6	U	ug/L	1	1.6	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
2-Chlorophenol [95-57-8] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
2-Methyl-4,6-dinitrophenol [534-52-1] ^	1.4	U	ug/L	1	1.4	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
2-Methylnaphthalene [91-57-6] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
2-Methylphenol [95-48-7] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
2-Nitroaniline [88-74-4] ^	1.2	U	ug/L	1	1.2	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
2-Nitrophenol [88-75-5] ^	1.8	U	ug/L	1	1.8	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
3 & 4-Methylphenol [108-39-4/106-44-5] ^	1.9	U	ug/L	1	1.9	20	9E05008	EPA 8270C	05/06/09 13:59	DFM	
3,3'-Dichlorobenzidine [91-94-1] ^	1.8	U	ug/L	1	1.8	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
3-Nitroaniline [99-09-2] ^	1.6	U	ug/L	1	1.6	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
4-Bromophenyl-phenylether [101-55-3] ^	1.2	U	ug/L	1	1.2	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
4-Chloro-3-methylphenol [59-50-7] ^	1.4	U	ug/L	1	1.4	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
4-Chloroaniline [106-47-8] ^	1.6	U	ug/L	1	1.6	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
4-Chlorophenyl-phenylether [7005-72-3] ^	1.2	U	ug/L	1	1.2	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
4-Nitroaniline [100-01-6] ^	1.4	U	ug/L	1	1.4	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
4-Nitrophenol [100-02-7] ^	1.2	U	ug/L	1	1.2	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Acenaphthene [83-32-9] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Acenaphthylene [208-96-8] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Anthracene [120-12-7] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Benzidine [92-87-5] ^	1.5	U	ug/L	1	1.5	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Benzo(a)anthracene [56-55-3] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Benzo(a)pyrene [50-32-8] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Benzo(b)fluoranthene [205-99-2] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Benzo(g,h,i)perylene [191-24-2] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Benzo(k)fluoranthene [207-08-9] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Benzoic acid [65-85-0] ^	4.3	U	ug/L	1	4.3	50	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Benzyl alcohol [100-51-6] ^	1.0	U	ug/L	1	1.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Bis(2-chloroethoxy)methane [111-91-1] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Bis(2-chloroethyl)ether [111-44-4] ^	2.1	U	ug/L	1	2.1	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Bis(2-chloroisopropyl)ether [39638-32-9] ^	2.2	U	ug/L	1	2.2	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Bis(2-ethylhexyl)phthalate [117-81-7] ^	1.9	U	ug/L	1	1.9	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Butylbenzylphthalate [85-68-7] ^	1.4	U	ug/L	1	1.4	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Chrysene [218-01-9] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Dibenzo(a,h)anthracene [53-70-3] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Dibenzofuran [132-64-9] ^	1.3	U	ug/L	1	1.3	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Diethylphthalate [84-66-2] ^	1.3	U	ug/L	1	1.3	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Dimethylphthalate [131-11-3] ^	1.1	U	ug/L	1	1.1	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Di-n-butylphthalate [84-74-2] ^	1.0	U	ug/L	1	1.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Di-n-octylphthalate [117-84-0] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	

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Description: WSW-3
Matrix: Drinking Water
Project: Former Castle Hayne Asphalt Plant

Lab Sample ID: C904895-09
Sampled: 04/28/09 15:57
Sampled By: A.J. Steffen

Received: 04/30/09 12:47
Work Order: C904895

Semivolatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Fluoranthene [206-44-0] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Fluorene [86-73-7] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Hexachlorobenzene [118-74-1] ^	1.1	U	ug/L	1	1.1	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Hexachlorobutadiene [87-68-3] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Hexachlorocyclopentadiene [77-47-4] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Hexachloroethane [67-72-1] ^	2.4	U	ug/L	1	2.4	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Indeno(1,2,3-cd)pyrene [193-39-5] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Isophorone [78-59-1] ^	1.8	U	ug/L	1	1.8	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Naphthalene [91-20-3] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Nitrobenzene [98-95-3] ^	1.9	U	ug/L	1	1.9	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
N-Nitrosodimethylamine [62-75-9] ^	1.9	U	ug/L	1	1.9	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
N-Nitroso-di-n-propylamine [621-64-7] ^	2.1	U	ug/L	1	2.1	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
N-Nitrosodiphenylamine/Diphenylamine [86-30-6/122-39-4] ^	1.1	U	ug/L	1	1.1	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Pentachlorophenol [87-86-5] ^	1.2	U	ug/L	1	1.2	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Phenanthrene [85-01-8] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Phenol [108-95-2] ^	1.5	U	ug/L	1	1.5	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Pyrene [129-00-0] ^	2.0	U	ug/L	1	2.0	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	
Pyridine [110-86-1] ^	2.1	U	ug/L	1	2.1	10	9E05008	EPA 8270C	05/06/09 13:59	DFM	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	**Notes**
2,4,6-Tribromophenol	*90*	*1*	*100*	*90 %*	*10-179*	*9E05008*	*EPA 8270C*	*05/06/09 13:59*	*DFM*	
2-Fluorobiphenyl	*39*	*1*	*50.0*	*78 %*	*10-149*	*9E05008*	*EPA 8270C*	*05/06/09 13:59*	*DFM*	
2-Fluorophenol	*43*	*1*	*100*	*43 %*	*10-110*	*9E05008*	*EPA 8270C*	*05/06/09 13:59*	*DFM*	
Nitrobenzene-d5	*31*	*1*	*50.0*	*62 %*	*10-149*	*9E05008*	*EPA 8270C*	*05/06/09 13:59*	*DFM*	
Phenol-d5	*36*	*1*	*100*	*36 %*	*10-88*	*9E05008*	*EPA 8270C*	*05/06/09 13:59*	*DFM*	
Terphenyl-d14	*52*	*1*	*50.0*	*104 %*	*10-188*	*9E05008*	*EPA 8270C*	*05/06/09 13:59*	*DFM*	

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Description: WSW-3
Matrix: Drinking Water
Project: Former Castle Hayne Asphalt Plant

Lab Sample ID: C904895-09
Sampled: 04/28/09 15:57
Sampled By: A.J. Steffen

Received: 04/30/09 12:47
Work Order: C904895

Tentatively Identified Compounds by Semivolatile GCMS

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Unknown [NA]	8.2	JB	ug/L	1			9E05008	EPA 8270C	05/06/09 13:59	DFM	B

www.encolabs.com

Description: WSW-3
Matrix: Drinking Water
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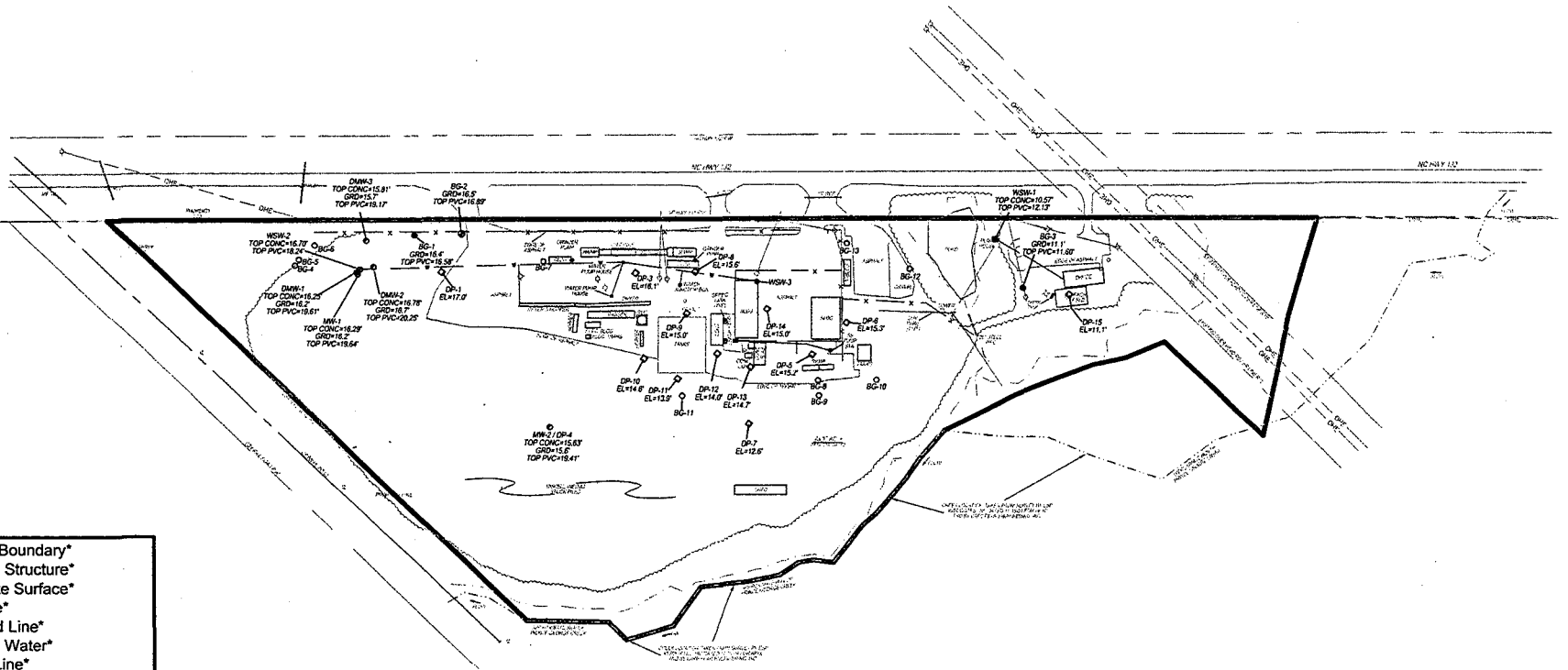
Received: 04/30/09 12:47
Work Order: C904895

Metals by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Antimony [7440-36-0] ^	2.8	U	ug/L	1	2.8	10.0	9E01011	EPA 6010B	05/04/09 15:16	JDH	
Arsenic [7440-38-2] ^	2.8	U	ug/L	1	2.8	10.0	9E01011	EPA 6010B	05/04/09 15:16	JDH	
Beryllium [7440-41-7] ^	0.08	U	ug/L	1	0.08	1.00	9E01011	EPA 6010B	05/04/09 15:16	JDH	
Cadmium [7440-43-9] ^	0.09	U	ug/L	1	0.09	1.00	9E01011	EPA 6010B	05/04/09 15:16	JDH	
Chromium [7440-47-3] ^	0.7	U	ug/L	1	0.7	10.0	9E01011	EPA 6010B	05/04/09 15:16	JDH	
Copper [7440-50-8] ^	0.81	U	ug/L	1	0.81	10.0	9E01011	EPA 6010B	05/04/09 15:16	JDH	
Iron [7439-89-6] ^	**5350**		ug/L	1	31	50	9E01011	EPA 6010B	05/04/09 15:16	JDH	
Lead [7439-92-1] ^	1.6	U	ug/L	1	1.6	10.0	9E01011	EPA 6010B	05/04/09 15:16	JDH	
Manganese [7439-96-5] ^	**1250**		ug/L	1	1.1	10.0	9E01011	EPA 6010B	05/04/09 15:16	JDH	
Mercury [7439-97-6] ^	0.11	U	ug/L	1	0.11	0.20	9E04009	EPA 7470A	05/04/09 15:02	NLH	
Nickel [7440-02-0] ^	**3.2**	J	ug/L	1	0.6	10.0	9E01011	EPA 6010B	05/04/09 15:16	JDH	
Selenium [7782-49-2] ^	3.4	U	ug/L	1	3.4	10.0	9E01011	EPA 6010B	05/04/09 15:16	JDH	
Silver [7440-22-4] ^	**2.4**	J	ug/L	1	1.0	10.0	9E01011	EPA 6010B	05/04/09 15:16	JDH	
Thallium [7440-28-0] ^	2.8	U	ug/L	1	2.8	10.0	9E01011	EPA 6010B	05/04/09 15:16	JDH	
Zinc [7440-66-6] ^	3.4	U	ug/L	1	3.4	10.0	9E01011	EPA 6010B	05/04/09 15:16	JDH	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.



- Project Boundary*
- Existing Structure*
- Concrete Surface*
- Treeline*
- Wetland Line*
- Surface Water*
- Fence Line*
- Overhead Power Line*
- Water Line*
- Monitoring Well*
- Temporary Monitoring Well*
- Water Supply Well*
- Soil Boring*
- Attempted Background Sample*

*Location and extent is approximate.

0 100 200
Feet

Source: Project boundary provided by Cape Fear Engineering, Inc. and New Hanover County GIS; Site plan provided by Cape Fear Engineering, Inc.

Disclaimer: The information depicted on this figure is for informational purposes only and was not prepared for, and is not suitable for legal or engineering purposes.

Project:	ER08136.03
Date:	Aug 2009
Drwn/Chkd:	AJS/MB
Figure:	2

Site Plan
Former APAC Asphalt Plant
Castle Hayne, New Hanover County, North Carolina

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