NOTICE

THE FOLLOWING DOCUMENT HAS NOT BEEN REVIEWED OR APPROVED BY THE INACTIVE HAZARDOUS SITES PROGRAM. ON January 31, 2008, PROGRAM STAFF NOTIFIED THE REMEDIATING PARTY THAT BASED ON INFORMATION PROVIDED TO THE BRANCH AND KNOWN CONTAMINANT EXPOSURE CONCERNS RELATIVE TO OTHER SITES IDENTIFIED BY THE BRANCH, THIS SITE WAS DEEMED ELIGIBLE FOR PRIVATE PARTY OVERSIGHT AND CLEANUP UNDER THE REGISTERED ENVIRONMENTAL CONSULTANT (REC) PROGRAM. IN ORDER TO RECEIVE APPROVAL AND REVIEW, FUTURE REMEDIAL ACTIVITIES NEEDED TO BE PERFORMED UNDER THE REC PROGRAM.

AS OF THIS REPORT, THE REMEDIATING PARTY HAS NOT ENTERED THE REC PROGRAM.

AECOM
1600 Perimeter Park Drive, Suite 400
Morrisville, NC 27560

919.461.1100 tel
919.461.1415 fax

June 21, 2016

Mr. Dave Brown
NCDEQ-IHSB
127 Cardinal Drive Extension
Wilmington, NC 28405

Subject: 2016 Annual Sampling Report
Former Wilmington Fertilizer Facility
Wilmington, New Hanover County, NC
NONCD0002734
AECOM Job Number: 60489443

Dear Mr. Brown:

AECOM Technical Services – North Carolina (AECOM) on behalf Kinder Morgan (KM) is pleased to submit this annual monitoring report for the former Wilmington Fertilizer facility located in Wilmington, New Hanover County, North Carolina (the Site). A Location Map is provided as **Figure 1**.

An annual sampling event was conducted on March 3, 2016, in accordance with the June 1997 Corrective Action Plan (CAP) for the Site. The CAP, prepared by John F. McNair, Inc. (McNair), was approved by the North Carolina Department of Environmental Quality (NCDEQ) on September 26, 1997. Twenty-nine monitoring events have been conducted at the Site between 1993 and 2016.

Brief Site History

Wilmington Fertilizer acquired the property in October 1963 and manufactured fertilizer at the Site until the late 1980s when operation ceased. McNair purchased the Site in or around 1990, followed by Chemserve Terminal, Inc., which purchased the Site in April 1998. Kinder Morgan and Smith Creek Boatyard acquired the Site property in mid-2008. The southern portion of the Site, owned by KM, operates as a bulk terminal for the storage and distribution of various liquid products. The northern portion of the property is owned by Smith Creek Boatyard where two warehouse buildings are utilized for storage and boat building/repair. These warehouse buildings are former Wilmington Fertilizer operational/manufacturing buildings. A Site Map is provided as **Figure 2**.

Groundwater Flow Direction

Depth-to-water was measured at each of the monitoring wells on March 3, 2016, prior to sampling. The water-levels were measured with an electronic water-level probe, which was decontaminated with a dilute Liquinox/water solution prior to inserting into each well. The water-level measurements were converted to water-level elevations using the top of casing elevation data. The depths-to-water during the March 2016 sampling event ranged from 1.59 feet below top of casing (ft btoc) in MW-9R to 8.86 ft btoc in MW-8B. Similar to previous events, groundwater flow for the March 2016 event is to the north as shown on **Figure 3**.

Sampling Procedures

During the monitoring event, groundwater samples were collected for laboratory analysis from monitoring wells MW-7R, MW-8B, MW-9R, and MW-10R (**Table 1**, **Figure 2**) per the CAP. Prior to sampling, the wells were purged using low-flow sampling methods. Each monitoring well was purged using a peristaltic pump with new polyethylene tubing and groundwater parameters were

measured using a multi-meter encased in a flow-through cell. Purging and sampling were completed in general accordance with industry standard low-flow protocols.

Groundwater samples were collected in laboratory-supplied containers, and were immediately placed in a cooler and stored on wet ice. Samples collected in the field remained in the presence of a project representative until shipment via overnight courier to the laboratory. A completed chain-of-custody record was provided with each sample cooler to maintain a record of all personnel who had contact with the samples. Groundwater samples were delivered to SGS Accutest Laboratories in Orlando, Florida (SGS) for analysis of chloride, nitrate, and sulfate.

Surface water samples (Upstream and Downstream) were collected from Smith Creek with a pole mounted Teflon cup and poured into laboratory-supplied containers (see **Figure 2** for locations). The surface water samples were also analyzed for chloride, nitrate, and sulfate.

Groundwater Field Parameters

During the purging of each well, groundwater parameters of pH, specific conductance, temperature, dissolved oxygen (DO), and oxidation-reduction potential (ORP) were measured using a calibrated portable meter encased in a flow-through cell. The groundwater field parameters which were recorded prior to sampling each monitoring well are presented in **Table 2**.

Groundwater Results

Laboratory results for the groundwater samples collected on March 3, 2016 are summarized and compared to the Title 15A of the North Carolina Administrative Code, Subchapter 2L, Classifications and Water Quality Standards (or 2L Standards) in **Table 3**. Historical results are provided in **Attachment 1A**. The results of the chloride analysis for all four wells were below the 2L Standards. Nitrate and sulfate concentrations in MW-9R and MW-10R, located in the vicinity of the former manufacturing area, were reported in excess of the 2L Standard. Constituent concentrations were within their historical ranges.

Time trend graphs for chloride, nitrate, and sulfate groundwater concentrations are presented in **Attachment 2**. The graphs generally show decreasing concentration trends for each constituent in each well over the period of record beginning in 1993.

Surface Water Results

The results of laboratory analysis of the March 3, 2016 surface water samples are summarized in **Table 4**. Historical results are provided in **Attachment 1B**. Similar to historical results, the Downstream results were nearly identical to the Upstream results for all three analytes (chloride, sulfate, and nitrate) during the sampling event, indicating that any groundwater discharge from the Site is not affecting surface water quality. None of the analytes analyzed exceeded the NC surface water standards.

The laboratory report for the groundwater and surface water samples is included as **Attachment 3**.

Conclusions

Based on the data obtained during the sampling event and from a review of historical data, groundwater flow is consistent with historical observations and groundwater conditions show a decreasing trend in constituent concentrations. Nitrate and sulfate exceeded the 2L Standard in wells MW-9R and MW-10R, located adjacent to the former manufacturing area. However, no exceedances of the 2L standards were reported in downgradient well, MW-8B, indicating that

constituent concentrations are attenuating. Additionally, nearly identical analyte concentrations in the Upstream and Downstream surface water samples indicate groundwater discharge from the Site is not affecting surface water quality.

If you have any questions in regard to this report or require any additional information, please contact the undersigned at 919-461-1100.

Sincerely,
AECOM Technical Services – North Carolina

Walter D. Plekan
Project Manager

cc: Michael Oktavec – Kinder Morgan
Paul LaWare – Kinder Morgan
File

Tables

TABLE 1
Groundwater Elevation Data
Former Wilmington Fertilizer Facility
Wilmington, New Hanover County, NC

Well ID	Date	TOC Elevation (ft msl)	Depth to Bottom (ft btoc)	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)
MW-7R	11/18/2009	21.58	12.00	5.15	16.43
	4/7/2010			5.81	15.77
	9/29/2010			3.54	18.04
	5/23/2011			6.47	15.11
	9/28/2011			5.00	16.58
	5/29/2012			6.30	15.28
	10/2/2012			6.10	15.48
	4/9/2013			5.97	15.61
	10/17/2013			6.21	15.37
	4/21/2014			4.43	17.15
	10/21/2014			5.99	15.59
	4/14/2015			5.75	15.83
	3/3/2016			5.54	16.04
MW-8B	11/18/2009	18.53	16.00	9.00	9.53
	4/7/2010			9.34	9.19
	9/29/2010			7.96	10.57
	5/23/2011			9.51	9.02
	9/28/2011			8.61	9.92
	5/29/2012			9.25	9.28
	10/2/2012			9.00	9.53
	4/9/2013			8.94	9.59
	10/17/2013			8.87	9.66
	4/21/2014			8.10	10.43
	10/21/2014			8.70	9.83
	4/14/2015			8.66	9.87
	3/3/2016			8.86	9.67
MW-9R	11/18/2009	18.00	10.00	2.80	15.20
	4/7/2010			2.65	15.35
	9/29/2010			2.42	15.58
	5/23/2011			3.42	14.58
	9/28/2011			2.92	15.08
	5/29/2012			3.50	14.50
	10/2/2012			2.84	15.16
	4/9/2013			3.04	14.96
	10/17/2013			2.91	15.09
	4/21/2014			2.41	15.59
	10/21/2014			2.58	15.42
	4/14/2015			2.18	15.82
	3/3/2016			1.59	16.41

TABLE 1
Groundwater Elevation Data
Former Wilmington Fertilizer Facility
Wilmington, New Hanover County, NC

Well ID	Date	TOC Elevation (ft msl)	Depth to Bottom (ft btoc)	Depth to Water (ft btoc)	Groundwater Elevation (ft msl)
MW-10R	11/18/2009	24.36	12.00	5.72	18.64
	4/7/2010			6.29	18.07
	9/29/2010			5.12	19.24
	5/23/2011			7.59	16.77
	9/28/2011			6.21	18.15
	5/29/2012			7.74	16.62
	10/2/2012			6.68	17.68
	4/9/2013			6.60	17.76
	10/17/2013			6.94	17.42
	4/21/2014			5.29	19.07
	10/21/2014			6.40	17.96
	4/14/2015			5.84	18.52
	3/3/2016			4.85	19.51

Notes:
TOC - top of casing
ft msl - feet above mean sea level.
ft btoc - feet below top of casing.

TABLE 2
Groundwater Field Parameters
Former Wilmington Fertilizer Facility
Wilmington, New Hanover County, NC

WELL ID	Date	pH (S.U.)	Specific Conductance (mS/cm)	Temperature (^{0}C)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)
MW-7R	3/3/2016	6.29	0.293	15.95	0.14	143.8
MW-8B	3/3/2016	6.59	0.433	16.48	0.39	-62.1
MW-9R	3/3/2016	6.20	3.022	15.96	1.92	125.6
MW-10R	3/3/2016	5.09	1.693	16.49	0.33	170.3

Notes:
S.U. - Standard Units
mS/cm - milliSiemens per Centimeter
^{0}C - Degrees Celsius
mg/L - milligrams per Liter
mV - milliVolts

TABLE 3
Groundwater Analytical Results
Former Wilmington Fertilizer Facility
Wilmington, New Hanover County, NC

Analyte (2L Standard)	Sample ID / Sample Date	MW-7R	MW-8R	MW-9R	MW-10R
Chloride (250 mg/L)	11/18/09	2.35	12.6	226	4.21
	4/7/10	2.4	24.9	229	15.5
	9/29/10	3.39	13.5	126	7.09
	5/23/11	3.8	22.9	190	21.5
	9/28/11	4.19 J	16.5	201	20.6
	5/29/12	3.27	1.13	126	31.4
	10/2/12	2.73 U	10.2	224 U	42.9
	4/9/13	2.2	19.3	187	14.3
	10/17/13	3.1	20.8	179	12.8
	4/21/14	2.7	17	164	8.0 J
	10/21/14	1.6 J	21.1	190	8.0 U
	4/14/15	2.0	20.0	175	<4.0
	3/3/16	2.1	17.7	173	< 8.0
Nitrate as N (10 mg/L)	11/18/09	9.2	<0.3	**86.9**	**15.1**
	4/7/10	9.66	<0.02	**121**	**42.2**
	9/29/10	**15**	0.282 J	**88.3**	**42.7**
	5/23/11	**51.5**	0.386	**97.1**	**40.2**
	9/28/11	**32.4**	0.48	**97.3**	**37**
	5/29/12	**37.4**	<0.0370	**58.9**	**55.5**
	10/2/12	**28.0**	<0.0370	**81.7**	**54.5**
	4/9/13	**24.9**	<0.050	**94.5**	**28.9**
	10/17/13	**12.5 J**	0.25 U	**108 J**	**25.3 J**
	4/21/14	**30.1 J**	<0.050	**122 J**	**11.2**
	10/21/14	**19.1**	0.25 U	**151**	**15.5**
	4/14/15	**16.5 J**	0.19	**147 J**	**25.7 J**
	3/3/16	8.8	<0.050	**130 J**	**35.8**
Sulfate (250 mg/L)	11/18/09	26.3	40.2	**1320**	**1169**
	4/7/10	17.2	82.1	**1530**	**1400**
	9/29/10	98.6	38.8	**1040**	**876**
	5/23/11	155	99	**889**	**819**
	9/28/11	38.6	81.7	**1070**	**901**
	5/29/12	58.2	5.19	**738**	**608**
	10/2/12	18.5	38.3	**924**	**894**
	4/9/13	28.3	73.6	**950**	**728**
	10/17/13	50.6	59.1	**971**	**671**
	4/21/14	22.7	72.5	**1100**	**875**
	10/21/14	35.8	84	**1150**	**847**
	4/14/15	36.5	82.4	**1120**	**825**
	3/3/16	58.9	70.0	**1060**	**1010**

Notes:
All results are in milligrams per liter (mg/L)
2L Standard - 15A NCAC 2L Groundwater Quality Standard
< - less than detection limit
J - Estimated concentration
U - not present above the associated level; blank contamination exists
Bold - indicates exceedance of 2L standards

TABLE 4
Surface Water Analytical Results
Former Wilmington Fertilizer Facility
Wilmington, New Hanover County, NC

Analyte (2B Standard)	Sample ID / Sample Date	Upstream	Downstream
Chloride (230 mg/L)	11/18/09	24.1	24.4
	4/7/10	97.0	103
	9/29/10	158	148
	5/23/11	**5080**	**4580**
	9/28/11	**3070**	**3090**
	5/29/12	**2000**	**2580**
	10/2/12	**4980**	**4470**
	4/9/13	**1120**	**1020**
	10/17/13	**8020**	**8230**
	4/21/14	30.5	20.7
	10/21/14	**3080**	**3650**
	4/14/15	**315**	**396**
	3/3/16	22.5	23.8
Nitrate as N (10 mg/L)	11/18/09	0.558	0.55
	4/7/10	0.23	0.22
	9/29/10	0.631	0.857
	5/23/11	0.586	0.757
	9/28/11	0.472	0.551
	5/29/12	<0.0370	<0.0370
	10/2/12	0.167 U	0.356
	4/9/13	0.93 J	0.85 J
	10/17/13	<10 U	<10 U
	4/21/14	0.24	0.23
	10/21/14	5.0 U	5.0 U
	4/14/15	0.38 J	0.59
	3/3/16	0.62	0.69
Sulfate (250 mg/L)	11/18/09	8.33	8.32
	4/72010	26.5	31.1
	9/29/10	37.8	34.2
	5/23/11	**616**	**589**
	9/28/11	**448**	**434**
	5/29/12	29.4	27
	10/2/12	**672**	**588**
	4/9/13	**173**	**158**
	10/17/13	**1130**	**1150**
	4/21/14	10.5	8.4
	10/21/14	**405**	**462**
	4/14/15	49.1	62.0
	3/3/16	12.0	13.0

Notes:

All results are in milligrams per liter (mg/L)

NC 2B - Fresh surface water standards for the protection of Class C per 15A NCAC 2B .0200m effective May 15, 2013

< - less than detection limit

U - not present above the associated level; blank contamination exists.

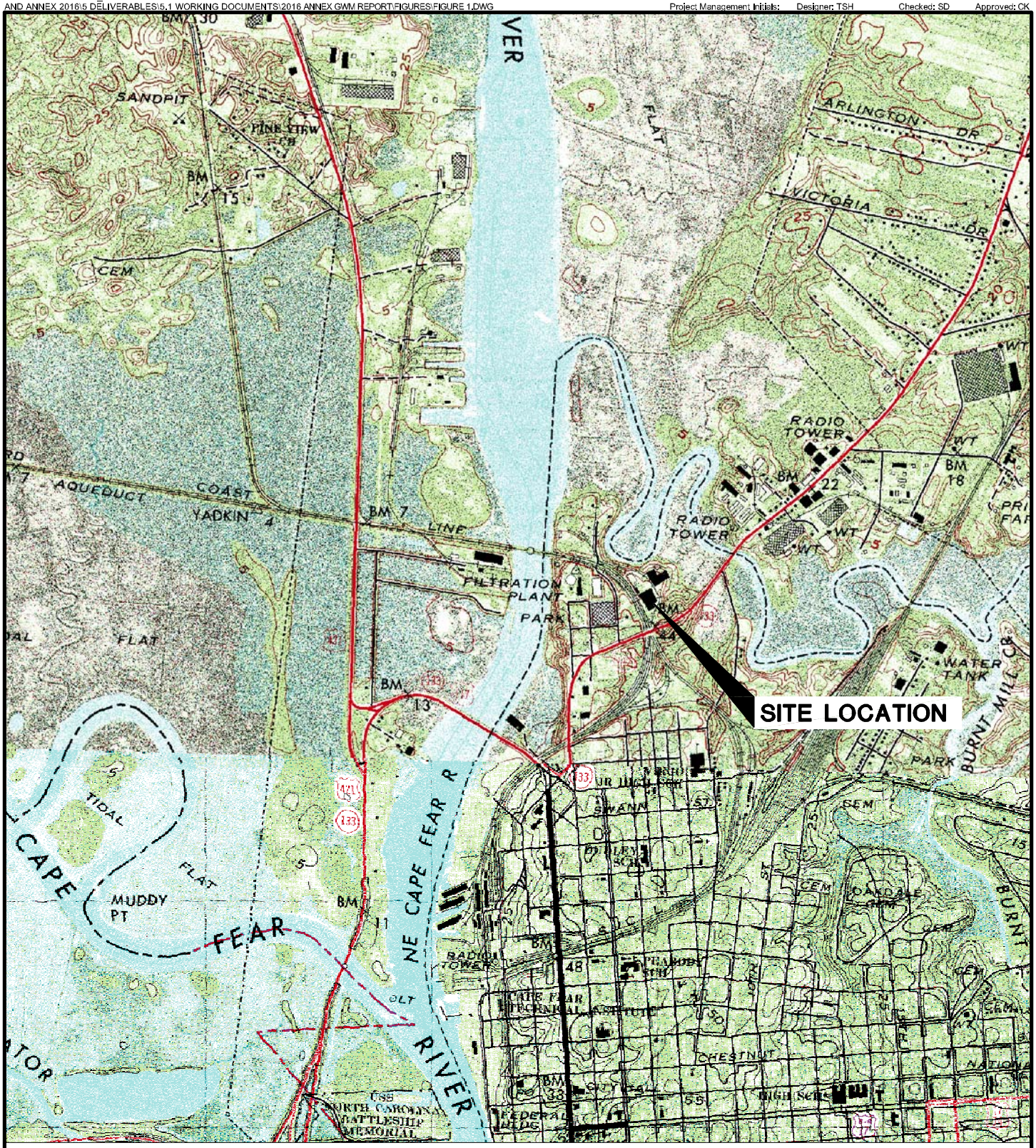
J - estimated concentration

Bold - indicates exceedance of 2B standards

Figures

Filename: P:\COMMON_PROJECTS\KINDER MORGAN\2.0 PROJECT ADMINISTRATION\6TH STREET TERMINAL\60489443 MAIN AND ANNEX 2016\5 DELIVERABLES\5.1 WORKING DOCUMENTS\2016 ANNEX GWM REPORT\FIGURES\FIGURE 1.DWG

Project Management Initials: Designer: TSH Checked: SD Approved: CK



SOURCE: USGS 7.5' TOPOGRAPHIC QUADRANGLE
CASTLE HAYNE, NC – DATED 1970

QUADRANGLE LOCATION

SCALE IN FEET
0 2000

N

ANNUAL SAMPLING REPORT - 2016
FORMER WILMINGTON FERTILIZER
WILMINGTON, NORTH CAROLINA
Project No.: 60489443 Date: 2016-04-21

SITE LOCATION MAP

AECOM

Figure: 1

SITE MAP

ANNUAL SAMPLING REPORT - 2016
FORMER WILMINGTON FERTILIZER
WILMINGTON, NORTH CAROLINA
Project No.: 60489443 Date: 2016-04-21

AECOM

Figure: 2

GROUNDWATER FLOW MAP
MARCH 3, 2016

ANNUAL SAMPLING REPORT - 2016
FORMER WILMINGTON FERTILIZER
WILMINGTON, NORTH CAROLINA
Project No.: 60489443 Date: 2016-04-21

AECOM

Figure: 3

Attachment 1
Historical Results

Attachment 1A
Historical Groundwater Analytical Results
Former Wilmington Fertilizer Facility
Wilmington, New Hanover County, NC

Analyte (2L Standard)	Sample ID / Sample Date	MW-7R	MW-8B	MW-9R	MW-10R
Chloride (250 mg/L)	Nov-93	171	--	**324**	**1640**
	Jan-95	195	--	**1260**	141
	Aug-95	**401**	--	**1792**	**361**
	Mar-96	**456**	--	**976**	**462**
	Aug-96	166	--	**1090**	65
	Apr-97	--	**252**	--	--
	Nov-97	**433**	54	**610**	140
	Jun-98	**568**	32	**769**	124
	Jan-99	15	77	**802**	**370**
	Jul-99	16	**747**	**1010**	82
	Dec-99	11	56	**956**	**255**
	Jun-00	12	47	**456**	54
	Dec-03	2	20	**369**	67
	Mar-05	14	24	**260**	62
	Jan-07	<5	27	**370**	28
	Feb-08	3.8	18	**290**	49
Nitrate as N (10 mg/L)	Nov-93	**69**	--	**68**	**452**
	Jan-95	**65**	--	**379**	**102**
	Aug-95	**158**	--	**506**	**219**
	Mar-96	**91**	--	**153**	**103**
	Aug-96	**31**	--	**103**	**65**
	Apr-97	--	**19**	--	--
	Nov-97	**78**	4.3	**174**	**13**
	Jun-98	**113**	2.9	**209**	**36**
	Jan-99	**11**	**15**	**263**	**118**
	Jul-99	**14**	**209**	**348**	**91**
	Dec-99	9.3	**11**	**464**	**117**
	Jun-00	**11**	0.53	**269**	**81**
	Dec-03	3.54	1.06	**134**	**52**
	Mar-05	**18**	<0.15	**83**	**27.1**
	Jan-07	7.3	<0.10	**150**	**28**
	Feb-08	**31**	0.11	**79**	**45**
Sulfate (250 mg/L)	Nov-93	**786**	--	**2330**	**3400**
	Jan-95	**693**	--	**2640**	**1910**
	Aug-95	**1130**	--	**6000**	**1930**
	Mar-96	**1080**	--	**2240**	**1785**
	Aug-96	**600**	--	**2600**	**1750**
	Apr-97	--	**700**	--	--
	Nov-97	**1050**	108	**1650**	**1100**
	Jun-98	**1750**	70	**2600**	**1700**
	Jan-99	115	200	**2820**	**6150**
	Jul-99	70	**2200**	**3130**	**2600**
	Dec-99	80	**3000**	**3500**	**3200**
	Jun-00	70	**500**	**3750**	**2000**
	Dec-03	16	89	**2400**	**2540**
	Mar-05	8.7	105	**1770**	**1390**
	Jan-07	16	75	**1800**	**1400**
	Feb-08	17	130	**1600**	**1500**

Notes:
All results are in milligrams per liter (mg/l)
2L Standard- 15A NCAC 2L Groundwater Quality Standard
< - less than reporting limit
Bold - indicates exceedance of 2L standard

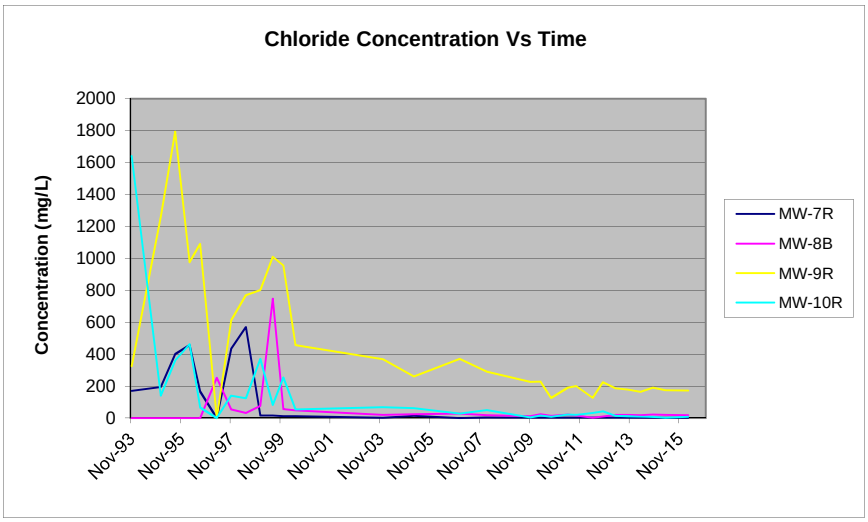
Attachment 1B
Historical Surface Water Analytical Results
Former Wilmington Fertilizer Facility
Wilmington, New Hanover County, NC

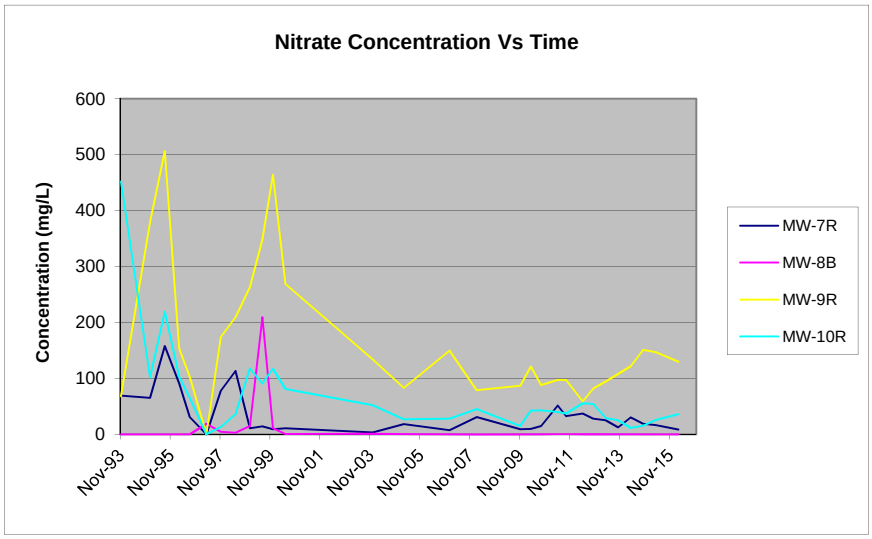
Analyte (2B Standard)	Sample ID / Sample Date	Upstream	Downstream
Chloride (230 mg/L)	Nov-97	144	127
	Jun-98	181	**940**
	Jan-99	35	22
	Jul-99	**593**	86
	Dec-99	**456**	159
	Jun-00	**3050**	**3280**
	Dec-03	**463**	**1140**
	Mar-05	**913**	**779**
	Jan-07	20	220
	Feb-08	**780**	**850**
Nitrate as N (10 mg/L)	Nov-97	0.13	0.22
	Jun-98	0.28	0.63
	Jan-99	0.25	0.3
	Jul-99	0.54	0.18
	Dec-99	0.68	0.33
	Jun-00	0.36	0.32
	Dec-03	0.25	0.26
	Mar-05	0.37	0.52
	Jan-07	0.37	0.4
	Feb-08	0.31	0.53
Sulfate (250 mg/L)	Nov-97	26	27
	Jun-98	38	130
	Jan-99	17	12
	Jul-99	85	18
	Dec-99	75	24
	Jun-00	**450**	**450**
	Dec-03	79	**168**
	Mar-05	135	121
	Jan-07	<5	34
	Feb-08	120	130

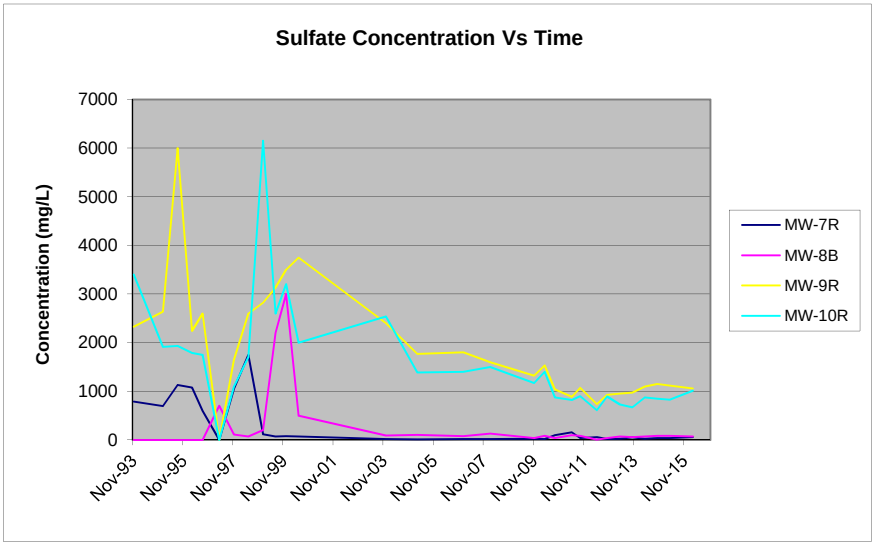
Notes:
All results are in milligrams per liter (mg/L)
NC 2B - Fresh surface water standards for the protection of Class C per 15A
< - less than detection limit
Bold - indicates exceedance of 2B standards

Attachment 2
Time-Trend Graphs

Attachment 2
Time Trend Graphs
Former Wilmington Fertilizer
Wilmington, New Hanover County, NC







Attachment 3
Laboratory Analytical Data

e-Hardcopy 2.0
Automated Report

Technical Report for

AECOM, INC.

KMLT-Wilmington; 2500 N 6th St, Wilmington, NC

31829682

SGS Accutest Job Number: FA31924

Sampling Date: 03/03/16

Report to:

AECOM, INC.

NCChemists@urs.com

ATTN: Martha Meyers

Total number of pages in report: 24

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Norm Farmer
Technical Director

Client Service contact: Heather Wandrey 407-425-6700

Certifications: FL (E83510), LA (03051), KS (E-10327), IA (366), IL (200063), NC (573), NJ (FL002), SC (96038001) DoD ELAP (L-A-B L2229), CA (2937), TX (T104704404), PA (68-03573), VA (460177), AK, AR, GA, KY, MA, NV, OK, UT, WA

Sections: 1 2 3 4 5 6

Table of Contents

Sample Summary

AECOM, INC.

Job No: FA31924

KMLT-Wilmington; 2500 N 6th St, Wilmington, NC
Project No: 31829682

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA31924-1	03/03/16	11:45	DBJW	03/04/16	AQ	Ground Water	MW-7R
FA31924-2	03/03/16	14:40	DBJW	03/04/16	AQ	Ground Water	MW-8R
FA31924-3	03/03/16	11:40	DBJW	03/04/16	AQ	Ground Water	MW-9R
FA31924-4	03/03/16	11:15	DBJW	03/04/16	AQ	Ground Water	MW-10R
FA31924-5	03/03/16	13:45	DBJW	03/04/16	AQ	Surface Water	DOWNSTREAM
FA31924-6	03/03/16	14:00	DBJW	03/04/16	AQ	Surface Water	UPSTREAM
FA31924-7	03/03/16	14:45	DBJW	03/04/16	AQ	Ground Water	DUP-3

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC. **Job** FA31924

Site: KMLT-Wilmington; 2500 N 6th St, Wilmington, NC **Report Date** 3/10/2016 2:34:15 PM

7 Samples were collected on 03/03/2016 and were received at SGS Accutest Southeast (SASE) on 03/04/2016 properly preserved, at 3.2 Deg. C and intact. These Samples received an SASE job number of FA31924. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Wet Chemistry By Method EPA 300/SW846 9056A

Matrix: AQ **Batch ID:** GP27547

All method blanks for this batch meet method specific criteria.

Sample(s) FA31907-1MS, FA31907-1MSD were used as the QC samples for Chloride, Nitrogen, Nitrate, Sulfate.

FA31924-3 for Nitrogen, Nitrate: Sample exceeded hold time due to reanalysis on dilution.

Matrix: AQ **Batch ID:** GP27554

All samples were prepped within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA31924-6MS, FA31924-6MSD, FA31924-7MS, FA31924-7MSD were used as the QC samples for Chloride, Nitrogen, Nitrate, Sulfate.

FA31924-4 for Chloride: Dilution required due to matrix interference.

SGS Accutest (SASE) certifies that this report meets the project requirements for analytical data produced for the samples as received at SASE and as stated on the COC. SASE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SASE Quality Manual except as noted above. This report is to be used in its entirety. SASE is not responsible for any assumptions of data quality if partial data packages are used

Narrative prepared by:

_____

Lovelie Metzgar, QA Officer (signature on file)

Date: March 10, 2016

Laboratory Report Glossary

Client Sample ID: Normally refers to a point of collection – a monitoring well, discharge outfall, treatment facility intake, soil core grid location and depth, or any other identification client assigns to a sample.
Lab Sample ID: Letter prefix identifies one of Accutest laboratories and the rest is a consecutive number of the job (or SDG) received. Number after dash is a sample number and it is unequivocally linked in the LIMS to the Client Sample ID (see above).
Matrix (Matrix Code):

- **AQ- Water Samples**
- **SO- Soil/Solid Samples**
- **LIQ- Non-Water Liquid Samples**
- **OIL- Oil Samples**

Matrix Type:

- **SW for Surface Water**
- **SO for Soil/Sediment**
- **GW for Ground Water**
- **DW for Drinking Water**

All available definitions are found on Chain of Custody form.

Deg. C: Degrees Celsius, measurement of temperature.
Method: Analytical and preparation methods used for the analysis, with the version or revision identified.
Date Sampled: This information is entered from Chain of Custody at the time of login for every sample.
Date Received: When the job was received by Accutest Laboratories.
Percent Solids: Applicable only to SO matrix. For other matrices this field defaults to "n/a".
Run #: Provides information how many attempts were made in the analysis of the sample. LIMS can merge information from several attempts and lists all of them, including dilution, confirmation, etc. #1 designation is assigned to the analytical run with majority of analytes reported from it, not necessarily in chronological order.
File ID: Actual instrument data acquisition file that produced the final result. Letter prefix identifies the instrument; the rest is a consecutive injection number for that instrument.
DF (Dilution Factor): Most common reasons are either to fit into the range of the calibration, or alleviate matrix interference. DF other than 1 are accompanied with a comment at the end of the sample report.
Analyzed: Date of analysis.
By: Field Technician or Analyst uniquely identified by initials.
Prep Date: Date of sample preparation. If hold time is 72 hours or less, time of preparation is also indicated.
Prep Batch: Letter prefix OP followed by a consecutive number. For VOC analysis preparation happens at the time of analysis, therefore analytical batch and preparation batch are the same. Size of prep batch is limited to 20 field samples of similar matrix and the entire batch should be completed within 12 hour time.
Analytical Batch: Letter prefix identifies the instrument and is followed by a consecutive number. Not limited by a number of samples.
Initial Weight or Initial Volume: Raw sample size used for preparation.
Final Volume: Final volume of extract. If different from method-prescribed volume, reasons are reflected in the comments at the end of the report form.
CAS Number: *Chemical Abstracts Service* (CAS), a division of the *American Chemical Society*.
Compound: Most commonly used names of chemical compounds.
Result: Depending on project requirements, this field could be set up as text, such as ND (for Non Detected) or a number. The number may be reported with a qualifier.
MDL (Method Detection Limit): This value is defined as 99% probability that analyte above this concentration is positively (qualitatively) identified.
RL (Reporting Limit): This value is supported by the low calibration standard and defines lowest point of quantitative identification of analyte.
DL (Detection Limit): The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration with 99% confidence. At the DL, the false positive rate (Type I error) is 1%.
LOD (Limit of Detection): The smallest concentration of a substance that must be present in a sample in order to be detected at the DL with 99% confidence. At the LOD, the false negative rate (Type II error) is 1%.
LOQ (Limit of Quantitation): The smallest concentration that produces a quantitative result with known and recorded precision and bias.

Units: ug/l (micrograms per liter) for aqueous samples and ug/kg (micrograms per kilogram) for solids (or ppb – parts per billion). The units could be set according to project or state-specific requirements, such as mg/l (milligrams per liter), or mg/kg (milligrams per kilogram).
Qualifiers (Q): Definitions of most often used qualifiers are found at the bottom of each result page. Applied depending on the program – state-specific (Florida A.C. 62-160), CLP-like, AFCEE, DOD QSM, etc.
Tentatively Identified Compound (TIC): Used when client requests a search for analytes that are not part of instrument calibration. Unknown peaks are compared with published spectral libraries and best match is reported as TIC.
Surrogate (S1, S2, S3 etc.): are positive controls that are used in most organics methods to ascertain preparation efficiency and matrix effect in individual samples. These chemicals mimic common method constituents but are unlikely to be found in real samples. Recoveries can be reported for every analytical run used in the analysis.
IS (Internal Standard IS1, IS2, IS3, etc): quantitative reference used to adjust for instrument performance fluctuations.
Area (of chromatographic peak): signal intensity directly related to compound concentration.
RT (Retention Time): time required for analyte to traverse the length of analytical column. Used for compound identification.
ICAL (Initial Calibration): Must pass calibration criteria established by method.
ICV (Independent Calibration Verification): Used to verify ICAL preparation and concentration of calibration points.
CCV (Continuing Calibration Verification): Used to assess calibration status of the instrument and must recover within established acceptance criteria.
MB (Method Blank): is a negative batch control. MB is an aliquot of matrix free of analyte of interest (either ASTM Type II water or appropriate solid substance) that is put through all the preparation and possible clean-up steps alongside investigative (field) samples. MB should be free of interferences above a set level.
BS (Blank Spike, Laboratory Fortified Blank - LFB, Laboratory Control Sample - LCS): is a positive control used to determine method accuracy - in clean matrix, i.e. matrix free of analytes of interest.
BSD (Blank Spike Duplicate): Used to assess recovery reproducibility - method precision – per analytical method requirement. %Recovery and Relative Percent Difference (%RPD) are compared with the established acceptance criteria.
MS and/or **MSD (Matrix Spike and Matrix Spike Duplicate):** positive batch controls which indicate matrix effect on the precision and accuracy of the method in given sample matrix. Results are expressed in %Recovery and Relative Percent Difference (%RPD), and compared with the established acceptance criteria.
DUP (Matrix Duplicate): Positive batch control, a way of assessing laboratory's precision; however, the composition of the samples is unknown and may not yield meaningful results.
REC (Recovery in Percent): expresses method accuracy.
RPD (Relative Percent Difference): expresses method precision.
Limits: Recovery limits for surrogates and spikes

Summary of Hits

Job Number: FA31924
Account: AECOM, INC.
Project: KMLT-Wilmington; 2500 N 6th St, Wilmington, NC
Collected: 03/03/16

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FA31924-1	**MW-7R**					
Chloride		2.1	2.0	0.80	mg/l	EPA 300/SW846 9056A
Nitrogen, Nitrate		8.8	0.10	0.050	mg/l	EPA 300/SW846 9056A
Sulfate		58.9	2.0	0.60	mg/l	EPA 300/SW846 9056A
FA31924-2	**MW-8R**					
Chloride		17.7	2.0	0.80	mg/l	EPA 300/SW846 9056A
Sulfate		70.0	2.0	0.60	mg/l	EPA 300/SW846 9056A
FA31924-3	**MW-9R**					
Chloride		173	2.0	0.80	mg/l	EPA 300/SW846 9056A
Nitrogen, Nitrate [a]		130	2.5	1.3	mg/l	EPA 300/SW846 9056A
Sulfate		1060	50	15	mg/l	EPA 300/SW846 9056A
FA31924-4	**MW-10R**					
Nitrogen, Nitrate		35.8	1.0	0.50	mg/l	EPA 300/SW846 9056A
Sulfate		1010	20	6.0	mg/l	EPA 300/SW846 9056A
FA31924-5	**DOWNSTREAM**					
Chloride		23.8	2.0	0.80	mg/l	EPA 300/SW846 9056A
Nitrogen, Nitrate		0.69	0.10	0.050	mg/l	EPA 300/SW846 9056A
Sulfate		13.0	2.0	0.60	mg/l	EPA 300/SW846 9056A
FA31924-6	**UPSTREAM**					
Chloride		22.5	2.0	0.80	mg/l	EPA 300/SW846 9056A
Nitrogen, Nitrate		0.62	0.10	0.050	mg/l	EPA 300/SW846 9056A
Sulfate		12.0	2.0	0.60	mg/l	EPA 300/SW846 9056A
FA31924-7	**DUP-3**					
Chloride		17.6	2.0	0.80	mg/l	EPA 300/SW846 9056A
Sulfate		69.3	2.0	0.60	mg/l	EPA 300/SW846 9056A

(a) Sample exceeded hold time due to reanalysis on dilution.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	MW-7R		
Lab Sample ID:	FA31924-1	**Date Sampled:**	03/03/16
Matrix:	AQ - Ground Water	**Date Received:**	03/04/16
		Percent Solids:	n/a
Project:	KMLT-Wilmington; 2500 N 6th St, Wilmington, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	2.1	2.0	0.80	mg/l	1	03/04/16 18:14	DM	EPA 300/SW846 9056A
Nitrogen, Nitrate	8.8	0.10	0.050	mg/l	1	03/04/16 18:14	DM	EPA 300/SW846 9056A
Sulfate	58.9	2.0	0.60	mg/l	1	03/04/16 18:14	DM	EPA 300/SW846 9056A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-8R		
Lab Sample ID:	FA31924-2	**Date Sampled:**	03/03/16
Matrix:	AQ - Ground Water	**Date Received:**	03/04/16
		Percent Solids:	n/a
Project:	KMLT-Wilmington; 2500 N 6th St, Wilmington, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	17.7	2.0	0.80	mg/l	1	03/04/16 18:29	DM	EPA 300/SW846 9056A
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	03/04/16 18:29	DM	EPA 300/SW846 9056A
Sulfate	70.0	2.0	0.60	mg/l	1	03/04/16 18:29	DM	EPA 300/SW846 9056A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-9R		
Lab Sample ID:	FA31924-3	**Date Sampled:**	03/03/16
Matrix:	AQ - Ground Water	**Date Received:**	03/04/16
		Percent Solids:	n/a
Project:	KMLT-Wilmington; 2500 N 6th St, Wilmington, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	173	2.0	0.80	mg/l	1	03/04/16 21:16	DM	EPA 300/SW846 9056A
Nitrogen, Nitrate [a]	130	2.5	1.3	mg/l	25	03/07/16 14:46	DM	EPA 300/SW846 9056A
Sulfate	1060	50	15	mg/l	25	03/07/16 14:46	DM	EPA 300/SW846 9056A

(a) Sample exceeded hold time due to reanalysis on dilution.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	MW-10R		
Lab Sample ID:	FA31924-4	**Date Sampled:**	03/03/16
Matrix:	AQ - Ground Water	**Date Received:**	03/04/16
		Percent Solids:	n/a
Project:	KMLT-Wilmington; 2500 N 6th St, Wilmington, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride [a]	8.0 U	20	8.0	mg/l	10	03/04/16 21:31	DM	EPA 300/SW846 9056A
Nitrogen, Nitrate	35.8	1.0	0.50	mg/l	10	03/04/16 21:31	DM	EPA 300/SW846 9056A
Sulfate	1010	20	6.0	mg/l	10	03/04/16 21:31	DM	EPA 300/SW846 9056A

(a) Dilution required due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	DOWNSTREAM		
Lab Sample ID:	FA31924-5	**Date Sampled:**	03/03/16
Matrix:	AQ - Surface Water	**Date Received:**	03/04/16
		Percent Solids:	n/a
Project:	KMLT-Wilmington; 2500 N 6th St, Wilmington, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	23.8	2.0	0.80	mg/l	1	03/04/16 21:46	DM	EPA 300/SW846 9056A
Nitrogen, Nitrate	0.69	0.10	0.050	mg/l	1	03/04/16 21:46	DM	EPA 300/SW846 9056A
Sulfate	13.0	2.0	0.60	mg/l	1	03/04/16 21:46	DM	EPA 300/SW846 9056A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	UPSTREAM		
Lab Sample ID:	FA31924-6	**Date Sampled:**	03/03/16
Matrix:	AQ - Surface Water	**Date Received:**	03/04/16
		Percent Solids:	n/a
Project:	KMLT-Wilmington; 2500 N 6th St, Wilmington, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	22.5	2.0	0.80	mg/l	1	03/04/16 22:32	DM	EPA 300/SW846 9056A
Nitrogen, Nitrate	0.62	0.10	0.050	mg/l	1	03/04/16 22:32	DM	EPA 300/SW846 9056A
Sulfate	12.0	2.0	0.60	mg/l	1	03/04/16 22:32	DM	EPA 300/SW846 9056A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	DUP-3		
Lab Sample ID:	FA31924-7	**Date Sampled:**	03/03/16
Matrix:	AQ - Ground Water	**Date Received:**	03/04/16
		Percent Solids:	n/a
Project:	KMLT-Wilmington; 2500 N 6th St, Wilmington, NC		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chloride	17.6	2.0	0.80	mg/l	1	03/04/16 22:47	DM	EPA 300/SW846 9056A
Nitrogen, Nitrate	0.050 U	0.10	0.050	mg/l	1	03/04/16 22:47	DM	EPA 300/SW846 9056A
Sulfate	69.3	2.0	0.60	mg/l	1	03/04/16 22:47	DM	EPA 300/SW846 9056A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

5

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Analyst Legend

Accutest Laboratories Southeast
Chain of Custody

ACCUTEST LABORATORIES

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL. 407-425-6700 • FAX: 407-425-0707
www.accutest.com

Accutest JOB # FA31924 PAGE 1 OF 1

Accutest Quote # | SKIFF#

Client / Reporting Information

Company Name: AECOM
Address: 1600 Perimeter Park Dr. Ste 400
City: Morrisville State: NC Zip: 27560
Project Contact: Martha.myers-lee@aecom.com
Phone#: 919 461 1100
Sampler(s) Name(s) (Printed): J. Wilke D. Briley

Project Information

Project Name: KM Wilmington Annex
Street: 2005 N 6th St
City: Wilmington State: NC
Project #:
Fax #:
Client Purchase Order #:

Analytical Information

Nitrate/Sulfate/Chloride

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe

Accutest Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	CONTAINER INFORMATION OTHER	NONE	HCl	HONO3	H2SO4	NaOH	ZnAc+NaOH	DI WATER	MEOH	Nitrate/Sulfate/Chloride	LAB USE ONLY
1	MW-7R	3/3/16	1145	DB	GW	1		1								X	
2	MW-8R		1140	DB												X	
3	MW-9R		1140	JW												X	
4	MW-10R		1115	DB												X	
5	DOWNSTREAM		1345		SW											X	
6	UPSTREAM		1400		SW											X	
7	DUP-3		1145		GW											X	

TURNAROUND TIME (Business Days)

Approved By: / Rush Code

- [x] 10 Days Standard
- [ ] 7 Day RUSH
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [ ] OTHER

Emergency or Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [ ] FULT1 (EPA LEVEL 4)
- [ ] EDD'S

Comments / Remarks

Accutest Laboratories
Raleigh, North Carolina
Service Center

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished by :	Date Time:	Received By:
1 J. Wilke	3/3/16 1500	2 Fedex	3 FX	3-4-16	4 J. Coyne (A258) 09:45
Relinquished by:	Date Time:	Received By:	Relinquished by:	Date Time:	Received By:
5		6	7		8

Lab Use Only: Custody Seal in Place: Y N Temp Blank Provided: Y N Preserved where Applicable: Y N Total # of Coolers: 1 Cooler Temperature (s) Celsius: 3.2

5.1 5

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: FA31924 CLIENT: AECOM PROJECT: KM WILMINGTON

DATE/TIME RECEIVED: 3-4-16 09:45 {MM/DD/YY 24:00} NUMBER OF COOLERS RECEIVED: 1

METHOD OF DELIVERY: (FEDEX) UPS ACCUTEST COURIER DELIVERY OTHER:

AIRBILL NUMBERS: 8098 5091 2464

COOLER INFORMATION

- [ ] CUSTODY SEAL NOT PRESENT OR NOT INTACT
- [ ] CHAIN OF CUSTODY NOT RECEIVED (COC)
- [ ] ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- [ ] SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- [ ] TEMPERATURE CRITERIA NOT MET

TRIP BLANK INFORMATION

- [X] TRIP BLANK PROVIDED
- [ ] TRIP BLANK NOT PROVIDED
- [X] TRIP BLANK NOT ON COC
- [X] TRIP BLANK INTACT
- [ ] TRIP BLANK NOT INTACT
- [X] RECEIVED WATER TRIP BLANK
- [ ] RECEIVED SOIL TRIP BLANK

TEMPERATURE INFORMATION

- [ ] IR THERM ID 1 CORR. FACTOR +0.2
- [ ] OBSERVED TEMPS: 3.0
- [ ] CORRECTED TEMPS: 3.2 (USED FOR LIMS)

SAMPLE INFORMATION

- [ ] INCORRECT NUMBER OF CONTAINERS USED
- [ ] SAMPLE RECEIVED IMPROPERLY PRESERVED
- [ ] INSUFFICIENT VOLUME FOR ANALYSIS
- [ ] DATES/TIMES ON COC DO NOT MATCH SAMPLE LABEL
- [ ] ID'S ON COC DO NOT MATCH LABEL
- [ ] VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- [ ] BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- [ ] NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- [ ] UNCLEAR FILTERING OR COMPOSITING INSTRUCTIONS
- [ ] SAMPLE CONTAINER(S) RECEIVED BROKEN
- [ ] 5035 FIELD KITS NOT RECEIVED WITHIN 48 HOURS
- [ ] BULK VOA SOIL JARS NOT RECEIVED WITHIN 48 HOURS
- [ ] % SOLIDS JAR NOT RECEIVED
- [ ] RESIDUAL CHLORINE PRESENT LOT#

{APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS}

MISC. INFORMATION

NUMBER OF ENCORES ? 25-GRAM_____ 5-GRAM_____

NUMBER OF 5035 FIELD KITS ? _____

NUMBER OF LAB FILTERED METALS ? _____

TEST STRIP LOT#s pH 0-3 204413A pH 10-12 219813A OTHER (specify) _____

SUMMARY OF COMMENTS:

TECHNICIAN SIGNATURE/DATE JC 3-4-16 REVIEWER SIGNATURE/DATE 3/4/16

NF 11/15 receipt confirmation 111015.xls

5.1 5

FA31924: Chain of Custody
Page 2 of 3

FA31924: Chain of Custody
Page 3 of 3

Analyst Legend

Job Number: FA31924
Account: URSNCM AECOM, INC.
Project: KMLT-Wilmington; 2500 N 6th St, Wilmington, NC

Initials	Full Name	Analysis Type
DM	Douglas Martin	General Chemistry

General Chemistry

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QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA31924
Account: URSNCM - AECOM, INC.
Project: KMLT-Wilmington; 2500 N 6th St, Wilmington, NC

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP27547/GN70076	2.0	0.0	mg/l	50	51.1	102.2	90-110%
Chloride	GP27554/GN70076	2.0	0.0	mg/l	50	51.1	102.2	90-110%
Fluoride	GP27547/GN70076	0.20	0.0	mg/l	2.5	2.53	101.2	90-110%
Fluoride	GP27554/GN70076	0.20	0.0	mg/l	2.5	2.53	101.2	90-110%
Nitrogen, Nitrate	GP27547/GN70076	0.10	0.0	mg/l	2.5	2.44	97.6	90-110%
Nitrogen, Nitrate	GP27554/GN70076	0.10	0.0	mg/l	2.5	2.44	97.6	90-110%
Nitrogen, Nitrite	GP27547/GN70076	0.10	0.0	mg/l	2.5	2.71	108.4	90-110%
Nitrogen, Nitrite	GP27554/GN70076	0.10	0.0	mg/l	2.5	2.71	108.4	90-110%
Sulfate	GP27547/GN70076	2.0	0.0	mg/l	50	51.4	102.8	90-110%
Sulfate	GP27554/GN70076	2.0	0.0	mg/l	50	51.4	102.8	90-110%

Associated Samples:
Batch GP27547: FA31924-1, FA31924-2, FA31924-3
Batch GP27554: FA31924-3, FA31924-4, FA31924-5, FA31924-6, FA31924-7
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA31924
Account: URSNCM - AECOM, INC.
Project: KMLT-Wilmington; 2500 N 6th St, Wilmington, NC

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP27547/GN70076	FA31907-1	mg/l	24.3	50	72.6	96.6	90-110%
Chloride	GP27554/GN70076	FA31924-6	mg/l	22.5	50	71.8	98.6	90-110%
Chloride	GP27554/GN70076	FA31924-7	mg/l	17.6	50	65.9	96.6	90-110%
Fluoride	GP27547/GN70076	FA31907-1	mg/l	0.32	2.5	2.8	99.2	90-110%
Fluoride	GP27554/GN70076	FA31924-6	mg/l	0.093	2.5	2.6	100.3	90-110%
Fluoride	GP27554/GN70076	FA31924-7	mg/l	0.38	2.5	2.9	100.8	90-110%
Nitrogen, Nitrate	GP27547/GN70076	FA31907-1	mg/l	4.9	2.5	7.2	92.0	90-110%
Nitrogen, Nitrate	GP27554/GN70076	FA31924-6	mg/l	0.62	2.5	3.0	95.2	90-110%
Nitrogen, Nitrate	GP27554/GN70076	FA31924-7	mg/l	0.050 U	2.5	2.3	92.0	90-110%
Nitrogen, Nitrite	GP27547/GN70076	FA31907-1	mg/l	0.050 U	2.5	2.6	104.0	90-110%
Nitrogen, Nitrite	GP27554/GN70076	FA31924-6	mg/l	0.050 U	2.5	2.7	108.0	90-110%
Nitrogen, Nitrite	GP27554/GN70076	FA31924-7	mg/l	0.050 U	2.5	2.6	104.0	90-110%
Sulfate	GP27547/GN70076	FA31907-1	mg/l	21.4	50	70.6	98.4	90-110%
Sulfate	GP27554/GN70076	FA31924-6	mg/l	12.0	50	61.4	98.8	90-110%
Sulfate	GP27554/GN70076	FA31924-7	mg/l	69.3	50	118	97.4	90-110%

Associated Samples:
Batch GP27547: FA31924-1, FA31924-2, FA31924-3
Batch GP27554: FA31924-3, FA31924-4, FA31924-5, FA31924-6, FA31924-7
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA31924
Account: URSNCM - AECOM, INC.
Project: KMLT-Wilmington; 2500 N 6th St, Wilmington, NC

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chloride	GP27547/GN70076	FA31907-1	mg/l	24.3	50	72.5	0.1	20%
Chloride	GP27554/GN70076	FA31924-6	mg/l	22.5	50	71.7	0.1	20%
Chloride	GP27554/GN70076	FA31924-7	mg/l	17.6	50	65.8	0.2	20%
Fluoride	GP27547/GN70076	FA31907-1	mg/l	0.32	2.5	2.8	0.0	20%
Fluoride	GP27554/GN70076	FA31924-6	mg/l	0.093	2.5	2.6	0.0	20%
Fluoride	GP27554/GN70076	FA31924-7	mg/l	0.38	2.5	2.9	0.0	20%
Nitrogen, Nitrate	GP27547/GN70076	FA31907-1	mg/l	4.9	2.5	7.2	0.0	20%
Nitrogen, Nitrate	GP27554/GN70076	FA31924-6	mg/l	0.62	2.5	3.0	0.0	20%
Nitrogen, Nitrate	GP27554/GN70076	FA31924-7	mg/l	0.050 U	2.5	2.3	0.0	20%
Nitrogen, Nitrite	GP27547/GN70076	FA31907-1	mg/l	0.050 U	2.5	2.6	0.0	20%
Nitrogen, Nitrite	GP27554/GN70076	FA31924-6	mg/l	0.050 U	2.5	2.7	0.0	20%
Nitrogen, Nitrite	GP27554/GN70076	FA31924-7	mg/l	0.050 U	2.5	2.6	0.0	20%
Sulfate	GP27547/GN70076	FA31907-1	mg/l	21.4	50	70.1	0.7	20%
Sulfate	GP27554/GN70076	FA31924-6	mg/l	12.0	50	61.4	0.0	20%
Sulfate	GP27554/GN70076	FA31924-7	mg/l	69.3	50	118	0.0	20%

Associated Samples:
Batch GP27547: FA31924-1, FA31924-2, FA31924-3
Batch GP27554: FA31924-3, FA31924-4, FA31924-5, FA31924-6, FA31924-7
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits