



PENDER COUNTY REQUEST FOR
QUALIFICATIONS FOR PROFESSIONAL SERVICES
RELATED TO THE BROWNSFIELD STATUS OF
THE FORMER BASF/TEKADA PROPERTY OWNED
BY PENDER COUNTY

January 13, 2021

Introduction

Pender County is requesting environmental support services on the Pender Commerce Park property. The former owner of the Park property is the responsible party engaged in a NCDEQ-mandated post-remediation groundwater monitoring program on part of the Park property. Pender County has a Brownfield Agreement with the NCDEQ. The groundwater monitoring program involves sampling groundwater from monitoring wells located on properties within the Pender Commerce Park. Pender County owns these parcels and would like to make them available for sale as new development sites without the presence of the monitoring wells. These monitoring wells are part of the NCDEQ monitoring program, however some are located in the potential footprint of future structures within undeveloped parcels of the Commerce Park. Therefore, Pender County is seeking to retain the services of an environmental consulting firm to work with the former property owner/responsible party and the NCDEQ to develop a strategy and solution to get the monitoring wells removed from the areas desired for the development of the subject parcels in the Commerce Park.

Background Information

Pender County currently owns 155 acres of land that was the former site of the BASF/Tekada manufacturing facility. The facility, part of BASF's Care Chemicals Division, manufactured and formulated vitamin C products for the dietary supplement industry. The property is generally located off US 421 South and is traversed by the New Hanover and Pender County line. As the property exists, approximately 84.47 acres of the total parcel is located within Pender, while the residual acreage (70.55 acres) is located within New Hanover County. More specifically the property address is 101 Vitamin Drive in Wilmington.

On March 31, 2009, BASF discontinued all operations at the facility. Upon subsequent environmental review of the site it was determined that residual deposits of monitored contaminants were present. Examples of potential contaminants included Acetone, Arsenic, Benzene, Cadmium, Mercury, Thallium, Chloroform, Zinc, and Chloride. Based on the presence of these contaminants the property was designated as a Brownfield site as determined by the Brownfield Property Reuse Act of 1997. Following the closure of the facility, BASF approached Pender County regarding the county's interest in purchasing the property, which cumulatively include approximately 400 acres.

In December 2010, Pender County purchased the BASF site for the purpose of creating an industrial park. A year later a Notice of Brownfield Property was filed in Pender County (PB 53/Page 19) and New Hanover County (MB 56/PG 210-213) outlining the County's desire to redevelop the property as well as the associated land use limitations due to the Brownfield status.

Since that time Pender has developed Pender Commerce Park (PCP) within the northern portion of the former BASF/Tekeda site. Currently, PCP consists of 245 acres of Class A industrial sites and is homes to Acme Smoked Fish, FedEx, Empire Distributors, Coastal Beverage, Polyhose (2021), an existing shell building, and another shell building planned for 1st quarter 2021. Due to

the success of PCP, Pender desires to expand the park to include the residual BASF property which contains several remaining buildings, 2 warehouses, a wastewater and water plant, and other ancillary structures. This residual property also contains numerous monitoring wells that were installed due to the property's Brownfield status. To date, all documented and monitored contaminants, except for Chloride, have been removed or have naturally attenuated from the property.

In regard to the Chloride contaminants present on the property, attenuation has occurred which has resulted in the plume migrating to the south. This attenuation has resulted in most of the remaining Chloride concentrations being isolated in the New Hanover County portions of the property and all of the concentrations that exceed the 2L Standard of 250 mg/l being within New Hanover County.

Scope of Services

The consulting firm will need to review the related NCDEQ files on the groundwater monitoring program being conducted by the former landowner sufficiently to gain an understanding of the groundwater chemistry trends, monitoring well locations and regulatory importance for each of the monitoring wells located in the parcels slated for development.

After the file reviews and becoming familiar with the details of the groundwater monitoring program, the consulting firm will meet with the lead regulatory agency NCDEQ IHSB in Raleigh either in-person or through on-line meetings to discuss the monitoring wells and work with the agency to develop a strategy that meets the requirements and needs of Pender County. The objective is to develop the parcels without the monitoring wells in the future development areas. The consulting firm will also need to have discussions as needed with the former landowner and their consultant on how to best facilitate the County's needs. The consulting firm hired by the County will engage and communicate with Pender County throughout the process. A report documenting the activities and results of the file reviews and meetings will then be prepared. This report will provide a detailed plan with associated cost and regulatory implications for closing the monitoring wells.

Proposal Requirements

Pursuant to GS 143-64.32, Pender County has exempted this project from the requirements of the Mini-Brooks Act in order to allow staff to require all responses to include a fee for the scope of services outlined above.

Online submittals may be emailed to cmcewen@pendercountync.gov. Hard copy submittals may be mailed or delivered to Chad McEwen, 805 South Walker Street, Burgaw, NC 28425.

Deadline for submittals is 5 pm on February 9, 2021. All statement of qualifications must include a fee as well as a schedule of rates and fees.

Attachments

Attachment A-Notice of Brownfield Property

Attachment B- Recent LUR Update

Attachment C- BASF Groundwater Monitoring Report March 2015

Attachment D- Maps of BASF Property

33/48

Attachment A



B4003 P0191 12-15-2011 11 27 47 001
Faye Teachey Prevatte PROF
Pender County, NC Register of Deeds page 1 of 33



2011034815

FOR REGISTRATION REGISTER OF DEEDS
JENNIFER H. MACNEIGH
NEW HANOVER COUNTY, NC
2011 DEC 16 03 48 55 PM
BK 5605 PG 2255-2288 FEE \$98 00

INSTRUMENT # 2011034815

Property Owner: Pender County ✓
Recorded in Book ____, Page ____
Associated plat recorded in Plat Book 53, Page 19
NEW HANOVER - MB 56 PG 210-213

NOTICE OF BROWNFIELDS PROPERTY

This documentary component of a Notice of Brownfields Property ("Notice"), as well as the plat component, have been filed this 15th day of DECEMBER, 2011 by Pender County (hereinafter "Prospective Developer").

The Notice concerns contaminated property.

A copy of this Notice certified by the North Carolina Department of Environment and Natural Resources (hereinafter "DENR") is required to be filed in the Register of Deeds' Office in the county or counties in which the land is located, pursuant to North Carolina General Statutes (hereinafter "NCGS"), Section (hereinafter "§") 130A-310.35(b).

This Notice is required by NCGS § 130A-310.35(a), in order to reduce or eliminate the danger to public health or the environment posed by environmental contamination at a property (hereinafter the "Brownfields Property") being addressed under the Brownfields Property Reuse Act of 1997, NCGS § 130A, Article 9, Part 5 (hereinafter the "Act").

Pursuant to NCGS § 130A-310.35(b), the Prospective Developer must file a certified copy of this Notice within 15 days of Prospective Developer's receipt of DENR's approval of the Notice or Prospective Developer's entry into the Brownfields Agreement required by the Act, whichever is later. Pursuant to NCGS § 130A-310.35(c), the copy of the Notice certified by DENR must be recorded in the grantor index under the names of the owners of the land and, if Prospective Developer is not the owner, also under Prospective Developer's name.

The Brownfields Property is located at 110 Vitamin Drive in New Hanover County and Pender County, North Carolina, and comprises approximately 400 acres. The site is the former location of a BASF Corporation facility that manufactured various vitamin products until closing in 2009. The Prospective Developer intends to redevelop the Brownfields Property as a commercial/industrial park



The Brownfields Agreement between Prospective Developer and DENR is attached hereto as Exhibit A. It sets forth the use that may be made of the Brownfields Property and the measures to be taken to protect public health and the environment, and is required by NCGS § 130A-310.32. The Brownfields Agreement's Exhibit 2 consists of one or more data tables reflecting the concentrations of and other information regarding the Property's regulated substances and contaminants.

Attached hereto as Exhibit B is a reduction, to 8 1/2" x 11", of the survey plat required by NCGS § 130A-310.35(a). It is a plat of areas designated by DENR that has been prepared and certified by a professional land surveyor and that meets the requirements of NCGS § 47-30. That plat contains the following information required by NCGS § 130A-310.35(a):

(1) The location and dimensions of the areas of potential environmental concern with respect to permanently surveyed benchmarks.

(2) The type, location and quantity of regulated substances and contaminants known to exist on the Brownfields Property.

Attached hereto as Exhibit C is a legal description of the Brownfields Property that would be sufficient as a description of the property in an instrument of conveyance.

LAND USE RESTRICTIONS

NCGS 130A-310.35(a) also requires that the Notice identify any restrictions on the current and future use of the Brownfields Property that are necessary or useful to maintain the level of protection appropriate for the designated current or future use of the Brownfields Property and that are designated in the Brownfields Agreement. The restrictions shall remain in force in perpetuity unless canceled by the Secretary of DENR (or its successor in function), or his/her designee, after the hazards have been eliminated, pursuant to NCGS § 130A-310.35(e). All references to DENR shall be understood to include any successor in function. The restrictions are hereby imposed on the Brownfields Property, and are as follows:

1. No use may be made of the Brownfields Property other than for a commercial/industrial park with related water/sewer infrastructure, and as part of a hiking trail (with a restroom facility and parking lot) along the former railroad right-of-way adjacent to the west side of U.S. 421. For purposes of this restriction, Commercial/Industrial Park Development is defined as a form of development characterized by a unified site designed for a variety of commercial and industrial uses, open space, buffers, and a mix of building types in which flexibility is given to the project planning by allowing for the specific land uses to be determined as the market need arises, so long as DENR does not determine that any of the other Land Use Restrictions are being violated and that any of the conditions referenced in N.C.G.S. 130A-310.33(a) and (c) are present.

2. Groundwater at the Brownfields Property may not be used for any purpose without the prior written approval of DENR.

3. Other than in connection with demolition/removal of certain structures and utilities by June 7, 2013 pursuant to section 12.1 of the Prospective Developer/BASF Corporation purchase agreement regarding the Brownfields Property, soil on the Brownfields Property may not be disturbed unless and until DENR states in



writing, in advance of the proposed disturbance, that the disturbance may proceed, if carried out along with any measures DENR deems necessary in connection with the proposed disturbance to avoid rendering the Brownfields Property unsuitable for the uses specified in restriction no.1 above or public health or the environment less than fully protected.

4. No building may be constructed on the Brownfields Property until:

i. DENR determines in writing, based on submittals from the building's proponent, that the building's users, and public health and the environment, would not be at risk from the Brownfields Property's volatile contaminant plume; or

ii. vapor mitigation measures approved in writing by DENR in advance are installed to the satisfaction of a professional engineer licensed in North Carolina, as evidenced by said engineer's seal, and photographs illustrating the installation and a brief narrative describing it are submitted to DENR and deemed satisfactory in writing by that agency.

5. None of the contaminants known to be present in the environmental media at the Brownfields Property, including those appearing on the plat component of this Notice, may be used or stored at the Brownfields Property without the prior written approval of DENR, except in *de minimis* amounts for cleaning and other routine housekeeping activities.

6. The Brownfields Property may not be used as a park or for sports of any kind, including, but not limited to, golf, football, soccer and baseball, without the prior written approval of DENR.

7. The Brownfields Property may not be used as a playground, or for child care centers, preschools or kindergarten through 12th grade schools.

8. The Brownfields Property may not be used for kennels, private animal pens or horse-riding.

9. The owner of any portion of the Brownfields Property where any existing, or subsequently installed, DENR-approved monitoring well is damaged shall be responsible for repair of any such wells to DENR's written satisfaction and within a time period acceptable to DENR.

10. Neither DENR, nor any party conducting environmental assessment or remediation at the Brownfields Property at the direction of, or pursuant to a permit, order or agreement issued or entered into by DENR, may be denied access to the Brownfields Property for purposes of conducting such assessment or remediation, which is to be conducted using reasonable efforts to minimize interference with authorized uses of the Brownfields Property.

11. During January of each year after the year in which this Notice is recorded, the owner of any part of the Brownfields Property as of January 1st of that year shall submit a notarized Land Use Restrictions Update ("LURU") to DENR, and to the chief public health and environmental officials of Pender County and New Hanover County, certifying that, as of said January 1st, the Notice of Brownfields Property containing these land use restrictions remains recorded at the Pender County and New Hanover County Register of Deeds offices and the land use restrictions are being complied with, and stating:



i. the name, mailing address, telephone and facsimile numbers, and contact person's e-mail address of the owner submitting the LURU if said owner acquired any part of the Brownfields Property during the previous calendar year; and

ii. the transferee's name, mailing address, telephone and facsimile numbers, and contact person's e-mail address, if said owner transferred any part of the Brownfields Property during the previous calendar year.

For purposes of the land use restrictions set forth above, the DENR point of contact shall be the DENR official referenced in paragraph 32.a. of Exhibit A hereto, at the address stated therein.

ENFORCEMENT

The above land use restrictions shall be enforceable without regard to lack of privity of estate or contract, lack of benefit to particular land, or lack of any property interest in particular land. The land use restrictions shall be enforced by any owner of the Brownfields Property. The land use restrictions may also be enforced by DENR through the remedies provided in NCGS 130A, Article 1, Part 2 or by means of a civil action; by any unit of local government having jurisdiction over any part of the Brownfields Property; and by any person eligible for liability protection under the Brownfields Property Reuse Act who will lose liability protection if the restrictions are violated. Any attempt to cancel any or all of this Notice without the approval of the Secretary of DENR (or its successor in function), or his/her delegate, shall be subject to enforcement by DENR to the full extent of the law. Failure by any party required or authorized to enforce any of the above restrictions shall in no event be deemed a waiver of the right to do so thereafter as to the same violation or as to one occurring prior or subsequent thereto.

FUTURE SALES, LEASES, CONVEYANCES AND TRANSFERS

When any portion of the Brownfields Property is sold, leased, conveyed or transferred, pursuant to NCGS § 130A-310.35(d) the deed or other instrument of transfer shall contain in the description section, in no smaller type than that used in the body of the deed or instrument, a statement that the Brownfields Property has been classified and, if appropriate, cleaned up as a brownfields property under the Brownfields Property Reuse Act.

IN WITNESS WHEREOF, Prospective Developer has caused this instrument to be duly executed this 7th day of December, 2011.

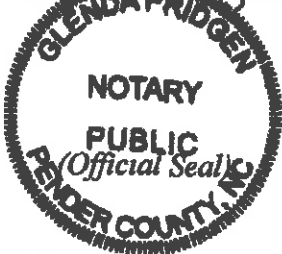
Pender County
By: Rick Benton
Rick Benton
County Manager

NORTH CAROLINA
Pender COUNTY

I certify that the following person(s) personally appeared before me this day, each acknowledging to me that he or she voluntarily signed the foregoing document for the purpose stated therein and in the capacity indicated:

Rick Benton

Date: December 7, 2011



Glenda Pridgen
Official Signature of Notary

Glenda Pridgen
Notary's printed or typed name, Notary Public
My commission expires 5/23/2016

**APPROVAL AND CERTIFICATION OF NORTH CAROLINA DEPARTMENT OF ENVIRONMENT
AND NATURAL RESOURCES**

The foregoing Notice of Brownfields Property is hereby approved and certified.

North Carolina Department of Environment and Natural Resources

By: [Signature]
Linda M. Culpepper
Deputy Director, Division of Waste Management

December 5, 2011
Date

CERTIFICATION OF REGISTERS OF DEEDS

The foregoing documentary component of the Notice of Brownfields Property, and the associated plat, are certified to be duly recorded at the date and time, and in the Books and Pages, shown on the first page hereof.

Register of Deeds for Pender County

By: _____
Name typed or printed _____ Date _____
Deputy/Assistant Register of Deeds

Register of Deeds for New Hanover County

By: _____
Name typed or printed _____ Date _____
Deputy/Assistant Register of Deeds

EXHIBIT A



NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

IN THE MATTER OF Pender County

UNDER THE AUTHORITY OF THE)	BROWNFIELDS AGREEMENT re
BROWNFIELDS PROPERTY REUSE ACT)	Former BASF Facility
OF 1997, N.C.G.S. § 130A-310.30, <i>et seq.</i>)	110 Vitamin Drive
Brownfields Project # 14031-10-71)	Pender/New Hanover Counties

I INTRODUCTION

This Brownfields Agreement ("Agreement") is entered into by the North Carolina Department of Environment and Natural Resources ("DENR") and Pender County (collectively the "Parties") pursuant to the Brownfields Property Reuse Act of 1997, N.C.G.S. § 130A-310.30, et seq (the "Act")

Pender County is a duly constituted North Carolina local government. This Agreement concerns the county's plans to market certain acreage as an industrial park to spur economic development in the area. A map showing the location of the acreage is attached hereto as Exhibit 1

The Parties agree to undertake all actions required by the terms and conditions of this Agreement. The purpose of this Agreement is to settle and resolve, subject to reservations and limitations contained in Section VIII (Certification), Section IX (DENR's Covenant Not to Sue and Reservation of Rights) and Section X (Prospective Developer's Covenant Not to Sue), the potential liability of Pender County for contaminants at the property which is the subject of this Agreement

The Parties agree that Pender County's entry into this Agreement, and the actions undertaken by Pender County in accordance with the Agreement, do not constitute an admission

of any liability by Pender County

The resolution of this potential liability, in exchange for the benefit Pender County shall provide to DENR, is in the public interest.

II DEFINITIONS

Unless otherwise expressly provided herein, terms used in this Agreement which are defined in the Act or elsewhere in N.C G.S. 130A, Article 9 shall have the meaning assigned to them in those statutory provisions, including any amendments thereto

1 "Property" shall mean the Brownfields Property which is the subject of this Agreement, and which is depicted in Exhibit 1 to the Agreement.

2. "Prospective Developer" shall mean Pender County.

III STATEMENT OF FACTS

3 The Property comprises approximately 400 acres at the northwest corner of New Hanover County and southwest corner of Pender County, and consists of pine trees, swamp, and industrial and commercial property and facilities formally operated by BASF Corporation ("BASF"). Prospective Developer has committed itself to redevelopment of it for no uses other than as a commercial/industrial park.

4. The Property is bordered to the north by undeveloped property owned by Corbett Industries Inc. and property being developed by Pender County; to the south by undeveloped property owned by BASF; to the east by U.S. Highway 421, beyond which lie undeveloped properties owned by Phillips Leasing Systems LLC and Pender County, and to the west by the Cape Fear River

5 Prospective Developer obtained or commissioned the following reports, referred to



hereinafter as the "Environmental Reports," regarding the Property

Title	Prepared by	Date of Report
Remedial Action Plan	MACTEC	March 23, 2010
Remedial Investigation Work Plan	MACTEC	December 10, 2009
Annual Report of Groundwater for 2008	Mactec Engineering and Consulting, Inc. ("MACTEC")	May 13, 2009
Annual Report of Groundwater Remediation for 2006	MACTEC	December 28, 2006
Annual Report of Groundwater Remediation for 2004	MACTEC	July 7, 2005
Report of Annual Groundwater Monitoring for 2000 & Additional Assessment Activities	Law Engineering and Environmental Services, Inc. ("LAW")	April 9, 2001
Environmental Baseline Assessment	LAW	January 12, 2001
Review of Hydrogeologic Cross Sections, Pee Dee Formation Review	LAW	September 20, 2000
Annual Report of Groundwater Remediation for 1997	LAW	April 7, 1998
Site Assessment and Corrective Action Plan for Main Plant Area	ENSR Consulting and Engineering	August 12, 1996
Interim Corrective Action Plan	LAW	September 14, 1995
Report of Groundwater Assessment	LAW	August 15, 1995

6 For purposes of this Agreement, DENR relies on the following representations by Prospective Developer as to use and ownership of the Property:

- a. Takeda Vitamin and Food USA, Inc purchased and developed some of the Property in the early 1980s for the manufacture of various vitamin products;
- b. Takeda Vitamin and Food USA, Inc was merged into BASF in 2001, the



facility continued manufacturing vitamin products under the BASF name.

c. BASF ceased operations at and closed the facility in March 2009.

d. Prospective Developer purchased the Property in December 2010.

7. Pertinent environmental information regarding the Property includes the following:

a. Groundwater at the Property is contaminated with volatile organic compounds (chlorinated solvents and petroleum-based compounds), and inorganics such as metals, arsenic and chloride, due to releases that occurred during vitamin production. The volatility of the compounds creates a risk that contaminated vapor will enter any buildings constructed on the Property.

b. Soil at the site contains arsenic, thallium and mercury.

b. Data tables reflecting the concentrations of and other information regarding the Property's regulated substances and contaminants appear in Exhibit 2 to this Agreement

8. For purposes of this Agreement DENR relies on Prospective Developer's representations that Prospective Developer's involvement with the Property has been limited to obtaining or commissioning the Environmental Reports, preparing and submitting to DENR a Brownfields Property Application dated September 21, 2010, and purchasing the Property on December 3, 2010. 9 Prospective Developer has provided DENR with information, or sworn certifications regarding that information on which DENR relies for purposes of this Agreement, sufficient to demonstrate that:

a Prospective Developer and any parent, subsidiary, or other affiliate has substantially complied with federal and state laws, regulations and rules for protection of the environment, and with the other agreements and requirements cited at N.C G.S. § 130A-

310.32(a)(1);



b. as a result of the implementation of this Agreement, the Property will be suitable for the uses specified in the Agreement while fully protecting public health and the environment;

c. Prospective Developer's reuse of the Property will produce a public benefit commensurate with the liability protection provided Prospective Developer hereunder;

d. Prospective Developer has or can obtain the financial, managerial and technical means to fully implement this Agreement and assure the safe use of the Property, and

e. Prospective Developer has complied with all applicable procedural requirements

10. Prospective Developer has paid the \$2,000 fee to seek a brownfields agreement required by N.C.G.S. § 130A-310 39(a)(1), and shall make a payment to DENR of \$3,500 at the time Prospective Developer and DENR enter into this Agreement, defined for this purpose as occurring no later than the last day of the public comment period related to this Agreement. The Parties agree that the second payment shall constitute, within the meaning of N.C.G.S. § 130A-310.39(a)(2), the full cost to DENR and the North Carolina Department of Justice of all activities related to this Agreement.

IV BENEFIT TO COMMUNITY

11. The redevelopment of the Property proposed herein would provide the following public benefits:

a. a return to productive use of the Property

b. a spur to additional community redevelopment, through improved

neighborhood appearance and otherwise

- c. tax revenue for affected jurisdictions;
- d. additional industrial space for the area, and
- e. "smart growth" through use of land in an already developed area, which avoids development of land beyond the urban fringe ("greenfields").

V. WORK TO BE PERFORMED

12. Based on the information in the Environmental Reports, and subject to imposition of and compliance with the land use restrictions set forth below, and subject to Section IX of this Agreement (DENR's Covenant Not to Sue and Reservation of Rights), DENR is not requiring Prospective Developer to perform any active remediation at the Property.

13. By way of the Notice of Brownfields Property referenced below in paragraph 18, Prospective Developer shall impose the following land use restrictions under the Act, running with the land, to make the Property suitable for the uses specified in this Agreement while fully protecting public health and the environment. All references to DENR shall be understood to include any successor in function

- a. No use may be made of the Property other than for a commercial/industrial park with related water/sewer infrastructure, and as part of a hiking trail (with a restroom facility and parking lot) along the former railroad right-of-way adjacent to the west side of U.S. 421. For purposes of this restriction, Commercial/Industrial Park Development is defined as a form of development characterized by a unified site designed for a variety of commercial and industrial uses, open space, buffers, and a mix of building types in which flexibility is given to the project planning by allowing for the specific land uses to be determined as the market need arises, so



long as DENR does not determine that any of the other Land Use Restrictions are being violated and that any of the conditions referenced in N C G S 130A-310.33(a) and (c) are present

b. Groundwater at the Property may not be used for any purpose without the prior written approval of DENR.

c. Other than in connection with demolition/removal of certain structures and utilities by June 7, 2013 pursuant to section 12.1 of the Prospective Developer/BASF Corporation purchase agreement regarding the Property, soil on the Property may not be disturbed unless and until DENR states in writing, in advance of the proposed disturbance, that the disturbance may proceed, if carried out along with any measures DENR deems necessary in connection with the proposed disturbance to avoid rendering the Property unsuitable for the uses specified in subparagraph 13.a. above or public health or the environment less than fully protected.

d. No building may be constructed on the Property until:

i. DENR determines in writing, based on submittals from the building's proponent, that the building's users, and public health and the environment, would not be at risk from the Property's volatile contaminant plume; or

ii. vapor mitigation measures approved in writing by DENR in advance are installed to the satisfaction of a professional engineer licensed in North Carolina, as evidenced by said engineer's seal, and photographs illustrating the installation and a brief narrative describing it are submitted to DENR and deemed satisfactory in writing by that agency.

e. None of the contaminants known to be present in the environmental media at the Property, including those appearing on the plat component of the Notice referenced in



paragraph 19 below, may be used or stored at the Property without the prior written approval of DENR, except in *de minimis* amounts for cleaning and other routine housekeeping activities.

f. The Property may not be used as a park or for sports of any kind, including, but not limited to, golf, football, soccer and baseball, without the prior written approval of DENR

g The Property may not be used as a playground, or for child care centers, preschools or kindergarten through 12th grade schools.

h The Property may not be used for kennels, private animal pens or horse-riding

i The owner of any portion of the Property where any existing, or subsequently installed, DENR-approved monitoring well is damaged shall be responsible for repair of any such wells to DENR's written satisfaction and within a time period acceptable to DENR.

j Neither DENR, nor any party conducting environmental assessment or remediation at the Property at the direction of, or pursuant to a permit, order or agreement issued or entered into by DENR, may be denied access to the Property for purposes of conducting such assessment or remediation, which is to be conducted using reasonable efforts to minimize interference with authorized uses of the Property.

k. During January of each year after the year in which the Notice referenced below in paragraph 18 is recorded, the owner of any part of the Property as of January 1st of that year shall submit a notarized Land Use Restrictions Update ("LURU") to DENR, and to the chief public health and environmental officials of Pender County and New Hanover County, certifying that, as of said January 1st, the Notice of Brownfields Property containing these land use restrictions remains recorded at the Pender County and New Hanover County Register of Deeds offices and that the land use restrictions are being complied with, and stating:



- i. the name, mailing address, telephone and facsimile numbers, and contact person's e-mail address of the owner submitting the LURU if said owner acquired any part of the Property during the previous calendar year; and
- ii the transferee's name, mailing address, telephone and facsimile numbers, and contact person's e-mail address, if said owner transferred any part of the Property during the previous calendar year.

14. The desired result of the above-referenced land use restrictions is to make the Property suitable for the uses specified in the Agreement while fully protecting public health and the environment.

15. The guidelines, including parameters, principles and policies within which the desired results are to be accomplished are, as to field procedures and laboratory testing, the Guidelines of the Inactive Hazardous Sites Branch of DENR's Superfund Section, as embodied in their most current version

16 The consequences of achieving or not achieving the desired results will be that the uses to which the Property is put are or are not suitable for the Property while fully protecting public health and the environment

VI. ACCESS/NOTICE TO SUCCESSORS IN INTEREST

17 In addition to providing access to the Property pursuant to subparagraph 13.j above, Prospective Developer shall provide DENR, its authorized officers, employees, representatives, and all other persons performing response actions under DENR oversight, access at all reasonable times to other property controlled by Prospective Developer in connection with the performance or oversight of any response actions at the Property under applicable law. While

Prospective Developer owns the Property, DENR shall provide reasonable notice to Prospective Developer of the timing of any response actions to be undertaken by or under the oversight of DENR at the Property. Notwithstanding any provision of this Agreement, DENR retains all of its authorities and rights, including enforcement authorities related thereto, under the Act and any other applicable statute or regulation, including any amendments thereto

18. DENR has approved, pursuant to N.C.G.S § 130A-310.35, a Notice of Brownfields Property for the Property containing, inter alia, the land use restrictions set forth in Section V (Work to Be Performed) of this Agreement and a survey plat of the Property Pursuant to N.C.G.S § 130A-310.35(b), within 15 days of the effective date of this Agreement Prospective Developer shall file the Notice of Brownfields Property in the Pender County and New Hanover County, North Carolina register of deeds' offices. Within three (3) days thereafter, Prospective Developer shall furnish DENR a copy of the documentary component of the Notice containing a certification by the register of deeds as to the Book and Page numbers where both the documentary and plat components of the Notice are recorded, and a copy of the plat with notations indicating its recordation.

19. This Agreement shall be attached as Exhibit A to the Notice of Brownfields Property. Subsequent to recordation of said Notice, any deed or other instrument conveying an interest in the Property shall contain the following notice: "The property which is the subject of this instrument is subject to the Brownfields Agreement attached as Exhibit A to the Notice of Brownfields Property recorded in the PENDER County land records, Book 53, Page 19 "
NEW HANOVER 56 210-213
A copy of any such instrument shall be sent to the persons listed in Section XV (Notices and Submissions), though financial figures related to the conveyance may be redacted

20. The Prospective Developer shall ensure that a copy of this Agreement is provided to any current lessee or sublessee on the Property as of the effective date of this Agreement and shall ensure that any subsequent leases, subleases, assignments or transfers of the Property or an interest in the Property are consistent with this Section (Access/Notice To Successors In Interest), Section V (Work to be Performed) and Section XI (Parties Bound & Transfer/Assignment Notice) of this Agreement

VII. DUE CARE/COOPERATION

21. The Prospective Developer shall exercise due care at the Property with respect to regulated substances and shall comply with all applicable local, State, and federal laws and regulations. The Prospective Developer agrees to cooperate fully with any remediation of the Property by DENR and further agrees not to interfere with any such remediation. In the event the Prospective Developer becomes aware of any action or occurrence which causes or threatens a release of contaminants at or from the Property, the Prospective Developer shall immediately take all appropriate action to prevent, abate, or minimize such release or threat of release, and shall, in addition to complying with any applicable notification requirements under N.C.G.S. 130A-310.1 and 143-215.85, and Section 103 of CERCLA, 42 U.S.C. § 9603, or any other law, immediately notify DENR of such release or threatened release.

VIII. CERTIFICATION

22. By entering into this agreement, the Prospective Developer certifies that, without DENR approval, it will make no use of the Property other than that committed to in the Brownfields Letter of Intent dated September 21, 2010 by which it applied for this Agreement. That use is as a commercial/industrial park. Prospective Developer also certifies that to the best

of its knowledge and belief it has fully and accurately disclosed to DENR all information known to Prospective Developer and all information in the possession or control of its officers, directors, employees, contractors and agents which relates in any way to any regulated substances at the Property and to its qualification for this Agreement, including the requirement that it not have caused or contributed to the contamination at the Property.

IX DENR'S COVENANT NOT TO SUE AND RESERVATION OF RIGHTS

23. Unless any of the following apply, Prospective Developer shall not be liable to DENR, and DENR covenants not to sue Prospective Developer, for remediation of the Property except as specified in this Agreement.

- a The Prospective Developer fails to comply with this Agreement.
- b. The activities conducted on the Property by or under the control or direction of the Prospective Developer increase the risk of harm to public health or the environment, in which case Prospective Developer shall be liable for remediation of the areas of the Property, remediation of which is required by this Agreement, to the extent necessary to eliminate such risk of harm to public health or the environment
- c A land use restriction set out in the Notice of Brownfields Property required under N.C.G S 130A-310.35 is violated while the Prospective Developer owns the Property, in which case the Prospective Developer shall be responsible for remediation of the Property to unrestricted use standards.
- d. The Prospective Developer knowingly or recklessly provided false information that formed a basis for this Agreement or knowingly or recklessly offers false information to demonstrate compliance with this Agreement or fails to disclose relevant information about

contamination at the Property.



B4003 P0208 12-16-2011
11 27 47 001
Faye Teachey Prevatte PROP
page 18 of 33

e. New information indicates the existence of previously unreported contaminants or an area of previously unreported contamination on or associated with the Property that has not been remediated to unrestricted use standards, unless this Agreement is amended to include any previously unreported contaminants and any additional areas of contamination. If this Agreement sets maximum concentrations for contaminants, and new information indicates the existence of previously unreported areas of these contaminants, further remediation shall be required only if the areas of previously unreported contaminants raise the risk of the contamination to public health or the environment to a level less protective of public health and the environment than that required by this Agreement.

f. The level of risk to public health or the environment from contaminants is unacceptable at or in the vicinity of the Property due to changes in exposure conditions, including (i) a change in land use that increases the probability of exposure to contaminants at or in the vicinity of the Property or (ii) the failure of remediation to mitigate risks to the extent required to make the Property fully protective of public health and the environment as planned in this Agreement.

g. The Department obtains new information about a contaminant associated with the Property or exposures at or around the Property that raises the risk to public health or the environment associated with the Property beyond an acceptable range and in a manner or to a degree not anticipated in this Agreement.

h. The Prospective Developer fails to file a timely and proper Notice of Brownfields Property under N C G.S. 130A-310.35

24 Except as may be provided herein, DENR reserves its rights against Prospective Developer as to liabilities beyond the scope of the Act, including those regarding petroleum underground storage tanks pursuant to Part 2A, Article 21A of Chapter 143 of the General Statutes.

25. This Agreement does not waive any applicable requirement to obtain a permit, license or certification, or to comply with any and all other applicable law, including the North Carolina Environmental Policy Act, N.C.G.S. § 113A-1, et seq.

X PROSPECTIVE DEVELOPER'S COVENANT NOT TO SUE

26. In consideration of DENR's Covenant Not To Sue in Section IX of this Agreement and in recognition of the absolute State immunity provided in N C.G.S. § 130A-310.37(b), the Prospective Developer hereby covenants not to sue and not to assert any claims or causes of action against DENR, its authorized officers, employees, or representatives with respect to any action implementing the Act, including negotiating, entering, monitoring or enforcing this Agreement or the above-referenced Notice of Brownfields Property.

XI. PARTIES BOUND

27 This Agreement shall apply to and be binding upon DENR, and on the Prospective Developer, its officers, directors, employees, and agents Each Party's signatory to this Agreement represents that she or he is fully authorized to enter into the terms and conditions of this Agreement and to legally bind the Party for whom she or he signs.

XII. DISCLAIMER

28. This Agreement in no way constitutes a finding by DENR as to the risks to public health and the environment which may be posed by regulated substances at the Property, a

representation by DENR that the Property is fit for any particular purpose, nor a waiver of Prospective Developer's duty to seek applicable permits or of the provisions of N.C.G.S. § 130A-310 37

29. Except for the Land Use Restrictions set forth in paragraph 13 above and N.C.G.S. § 130A-310 33(a)(1)-(5)'s provision of the Act's liability protection to certain persons to the same extent as to a prospective developer, no rights, benefits or obligations conferred or imposed upon Prospective Developer under this Agreement are conferred or imposed upon any other person.

XIII. DOCUMENT RETENTION

30. The Prospective Developer agrees to retain and make available to DENR all business and operating records, contracts, site studies and investigations, and documents relating to operations at the Property, for ten years following the effective date of this Agreement, unless otherwise agreed to in writing by the Parties. At the end of ten years, the Prospective Developer shall notify DENR of the location of such documents and shall provide DENR with an opportunity to copy any documents at the expense of DENR

XIV. PAYMENT OF ENFORCEMENT COSTS

31. If the Prospective Developer fails to comply with the terms of this Agreement, including, but not limited to, the provisions of Section V (Work to be Performed), it shall be liable for all litigation and other enforcement costs incurred by DENR to enforce this Agreement or otherwise obtain compliance

XV. NOTICES AND SUBMISSIONS

32. Unless otherwise required by DENR or a Party notifies the other Party in writing of a change in contact information, all notices and submissions pursuant to this Agreement shall be



B4003 P0211 12-15-2011
11 27 47 001
Faye Teachey Prevatte PR0F
Pender County, NC Register of Deeds page 21 of 33

sent by prepaid first class U.S. mail, as follows.

a. for DENR:

Samuel P. Watson
N C. Division of Waste Management
Brownfields Program
Mail Service Center 1646
Raleigh, NC 27699-1646

b. for Prospective Developer

Rick Benton, County Manager
Pender County
P.O Box 5
Burgaw, NC 28425

Notices and submissions sent by prepaid first class U.S. mail shall be effective on the third day following postmarking. Notices and submissions sent by hand or by other means affording written evidence of date of receipt shall be effective on such date

XVI. EFFECTIVE DATE

33 This Agreement shall become effective on the date the Prospective Developer signs it, after receiving it, signed, from DENR. Prospective Developer shall sign the Agreement within seven (7) days following such receipt

XVII. TERMINATION OF CERTAIN PROVISIONS

34. If any Party believes that any or all of the obligations under Section VI (Access/Notice to Successors in Interest) are no longer necessary to ensure compliance with the requirements of the Agreement, that Party may request in writing that the other Party agree to terminate the provision(s) establishing such obligations; provided, however, that the provision(s) in question shall continue in force unless and until the Party requesting such termination receives

written agreement from the other Party to terminate such provision(s).

XVIII CONTRIBUTION PROTECTION

35 With regard to claims for contribution against Prospective Developer in relation to the subject matter of this Agreement, Prospective Developer is entitled to protection from such claims to the extent provided by N.C.G.S. § 130A-310 37(a)(5)-(6) The subject matter of this Agreement is all remediation taken or to be taken and response costs incurred or to be incurred by DENR or any other person in relation to the Property

36 The Prospective Developer agrees that, with respect to any suit or claim for contribution brought by it in relation to the subject matter of this Agreement, it will notify DENR in writing no later than 60 days prior to the initiation of such suit or claim.

37 The Prospective Developer also agrees that, with respect to any suit or claim for contribution brought against it in relation to the subject matter of this Agreement, it will notify DENR in writing within 10 days of service of the complaint on it.

XIX. PUBLIC COMMENT

38. This Agreement shall be subject to a public comment period of at least 30 days starting the day after the last to occur of the following publication of the approved summary of the Notice of Intent to Redevelop a Brownfields Property required by N.C.G.S. § 130A-310 34 in a newspaper of general circulation serving the area in which the Property is located, conspicuous posting of a copy of said summary at the Property, and mailing or delivery of a copy of the summary to each owner of property contiguous to the Property After expiration of that period, or following a public meeting if DENR holds one pursuant to N.C.G.S. § 130A-310 34(c), DENR may modify or withdraw its consent to this Agreement if comments received

disclose facts or considerations which indicate that this Agreement is inappropriate, improper or inadequate.

IT IS SO AGREED:

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

By:


Linda M. Culpepper
Deputy Director, Division of Waste Management

December 5, 2011
Date

IT IS SO AGREED:

PENDER COUNTY

By


George Brown, Jr.
Chairman, Board of Commissioners

12-8-2011
Date

TO ALL WHOM THESE PRESENTS SHALL COME, I, THE REGISTER OF DEEDS, DO HEREBY GIVE NOTICE THAT THE FOLLOWING PLAT MAP HAS BEEN FILED FOR RECORD IN THE OFFICE OF THE REGISTER OF DEEDS, PENDER COUNTY, NORTH CAROLINA, THIS 15TH DAY OF DECEMBER, 2011.

PLAT MAP NO. 111
SUBJECT: BROWNFIELD'S PROPERTY PLAT
OWNER: BROWNFIELD'S, INC.
PREPARED BY: BROWNFIELD'S, INC.
DATE: 12/15/2011

THIS PLAT MAP IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. THE PLAT MAP IS NOT A CERTIFIED SURVEY AND HAS NOT BEEN REVIEWED BY A LOCAL GOVERNMENT AGENCY FOR COMPLIANCE WITH ANY APPLICABLE LAND DEVELOPMENT REGULATIONS.

2. THE PLAT MAP IS NOT A LEGAL INSTRUMENT AND DOES NOT CREATE OR CONVEY ANY INTEREST IN REAL ESTATE.

3. THE PLAT MAP IS NOT A SUBSTITUTE FOR A PROFESSIONAL SURVEY.

4. THE PLAT MAP IS NOT A SUBSTITUTE FOR A PROFESSIONAL ENGINEERING DESIGN.

5. THE PLAT MAP IS NOT A SUBSTITUTE FOR A PROFESSIONAL ARCHITECTURAL DESIGN.

6. THE PLAT MAP IS NOT A SUBSTITUTE FOR A PROFESSIONAL LANDSCAPE ARCHITECTURAL DESIGN.

7. THE PLAT MAP IS NOT A SUBSTITUTE FOR A PROFESSIONAL ENVIRONMENTAL DESIGN.

8. THE PLAT MAP IS NOT A SUBSTITUTE FOR A PROFESSIONAL HISTORIC PRESERVATION DESIGN.

9. THE PLAT MAP IS NOT A SUBSTITUTE FOR A PROFESSIONAL PLANNING DESIGN.

10. THE PLAT MAP IS NOT A SUBSTITUTE FOR A PROFESSIONAL PUBLIC WORKS DESIGN.

11. THE PLAT MAP IS NOT A SUBSTITUTE FOR A PROFESSIONAL TRANSPORTATION DESIGN.

12. THE PLAT MAP IS NOT A SUBSTITUTE FOR A PROFESSIONAL UTILITIES DESIGN.

13. THE PLAT MAP IS NOT A SUBSTITUTE FOR A PROFESSIONAL WATER RESOURCES DESIGN.

14. THE PLAT MAP IS NOT A SUBSTITUTE FOR A PROFESSIONAL WASTE MANAGEMENT DESIGN.

15. THE PLAT MAP IS NOT A SUBSTITUTE FOR A PROFESSIONAL WEATHER AND CLIMATE DESIGN.

16. THE PLAT MAP IS NOT A SUBSTITUTE FOR A PROFESSIONAL ZONING DESIGN.

17. THE PLAT MAP IS NOT A SUBSTITUTE FOR A PROFESSIONAL OTHER DESIGN.

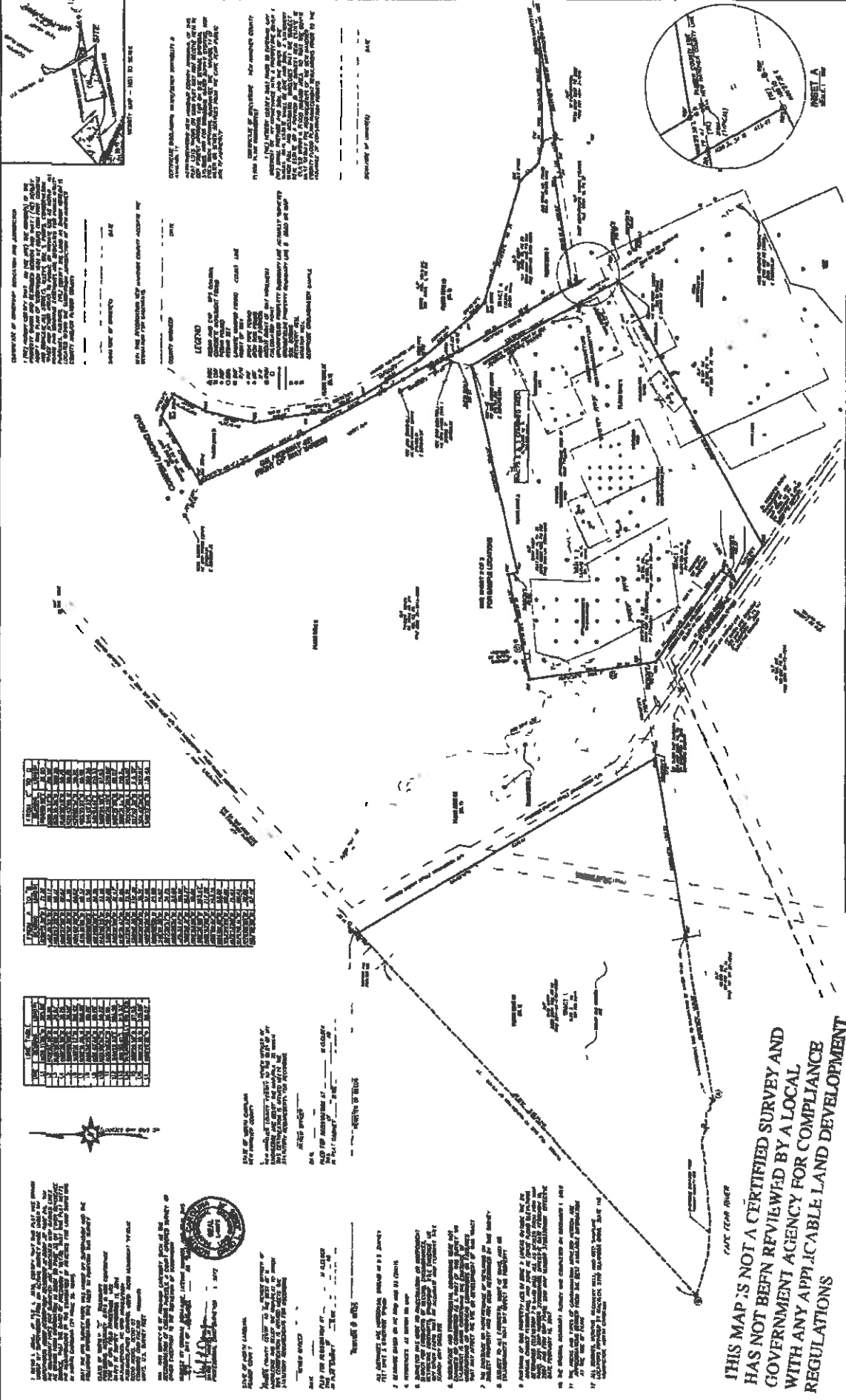


EXHIBIT 1



Exhibit 2

Groundwater contaminants (in micrograms per liter, the equivalent of parts per billion), the standards for which are contained in Title 15A of the North Carolina Administrative Code, Subchapter 2L, Rule .0202 (April 2011 update of January 2010 version)

Groundwater Contaminant	Sample Location	Date of Max. Concentration Sampling	Max Concentration above Unrestricted Use Std. (µg/L)	Unrestricted Use Std. (µg/L) (for reference only)
Acetone	MW-21D	3/25/1997	110000	6000
Acetone	MW-30D	6/28/1995	109000	6000
Acetone	MW-31D	9/24/1997	300000	6000
Acetone	MW-33D	6/28/1995	558000	6000
Acetone	MW-34	9/21/2000	120000	6000
Acetone	MW-34D	12/14/2000	8600	6000
Acetone	MW-35	3/25/1997	38000	6000
Acetone	MW-37	6/26/1997	9100	6000
Acetone	MW-3D	9/21/2000	8900	6000
Acetone	RW-17	9/21/2000	12000	6000
Acetone	RW-3	3/25/1997	7200	6000
Antimony	PS-RW-17	6/3/2009	14.9	1
Arsenic	CP-MW13D	6/4/2009	31.4	10
Arsenic	CP-RW11	6/4/2009	27.6	10
Arsenic	CP-RW12	6/4/2009	14.9	10
Arsenic	PS-MW-31D	8/11/2009	14.9	10
Arsenic	PS-RW-17	6/3/2009	751	10
Arsenic	SB-MW-2D	6/3/2009	173	10
Arsenic	SB-MW-8D	8/11/2009	12.5	10
Arsenic	SL-MW21D	6/3/2009	130	10
Arsenic	SL-MW5	6/3/2009	13.4	10
Arsenic	SL-MW7	8/11/2009	13.9	10
Arsenic	SL-RW10	8/11/2009	31.8	10
Benzene	MW-10D	9/24/1997	28	1
Benzene	MW-11D	9/24/1997	77	1
Benzene	MW-12D	6/28/1995	8.2	1
Benzene	MW-13D	6/28/1995	15.1	1
Benzene	MW-14D	6/28/1995	295	1
Benzene	MW-15D	12/16/1997	19	1
Benzene	MW-16D	9/17/2008	1.81	1



Benzene	MW-19D	6/28/1995	87 3	1
Benzene	MW-21D	3/25/1997	390	1
Benzene	MW-27D	6/8/2000	3	1
Benzene	MW-2D	6/8/2000	2.0	1
Benzene	MW-30D	9/24/1997	37	1
Benzene	MW-31D	6/28/1995	8950	1
Benzene	MW-34	9/21/2000	210	1
Benzene	MW-34D	6/8/2000	6	1
Benzene	MW-35	12/16/1997	24	1
Benzene	MW-38D	12/14/2000	6	1
Benzene	MW-39D	7/7/2004	17 8	1
Benzene	MW-3D	12/16/1997	300	1
Benzene	MW-8D	12/16/1997	26	1
Benzene	RW-10	9/24/1997	350	1
Benzene	RW-11	12/16/1997	89	1
Benzene	RW-12	3/25/1997	20	1
Benzene	RW-14	3/3/2004	24	1
Benzene	RW-15	7/7/2004	98 20	1
Benzene	RW-16	3/3/2004	350	1
Benzene	RW-17	3/3/2004	470	1
Benzene	RW-18	9/21/2000	6	1
Benzene	RW-19	12/14/2000	5	1
Benzene	RW-2	6/28/1995	10.6	1
Benzene	RW-3	9/21/2000	30	1
Benzene	RW-4	6/28/1995	18	1
Benzene	RW-5	6/28/1995	27 1	1
Benzene	RW-6	6/28/1995	43.3	1
Benzene	RW-7	6/28/1995	22.9	1
Benzene	RW-8	6/28/1995	13.9	1
Benzene	RW-9	9/24/1997	310	1
Benzene	W-1903B	6/28/1995	19 7	1
Cadmium	PS-RW-17	6/3/2009	191	2
Chloride	MW-10D	12/16/1997	1520000	250000
Chloride	MW-11D	9/21/2000	4240000	250000
Chloride	MW-12D	3/1/2000	326000	250000
Chloride	MW-13D	6/26/1997	1214000	250000
Chloride	MW-14D	9/24/1997	7660000	250000
Chloride	MW-15D	12/16/1997	482000	250000
Chloride	MW-16D	3/20/2008	586000	250000
Chloride	MW-21D	12/16/1997	1040000	250000



B4003 P0217

12-15-2011
11 27 47 001
Faye Teachey Prevatte PROP

Pender County, NC Register of Deeds page 27 of 33

Chloride	MW-24D	3/3/2004	630000	250000
Chloride	MW-2D	9/21/2000	5605000	250000
Chloride	MW-30D	6/26/1997	413000	250000
Chloride	MW-31D	6/26/1997	1530000	250000
Chloride	MW-32D	3/25/1997	530000	250000
Chloride	MW-33D	3/25/1997	1500000	250000
Chloride	MW-34	9/24/1997	1390000	250000
Chloride	MW-34D	6/26/1997	1068000	250000
Chloride	MW-35	12/16/1997	281000	250000
Chloride	MW-36	9/21/2000	356000	250000
Chloride	MW-37	6/26/1997	1117000	250000
Chloride	MW-38D	9/21/2000	845000	250000
Chloride	MW-3D	6/28/1995	90,000,000	250,000
Chloride	MW-42	12/14/2000	372000	250000
Chloride	MW-42D	3/3/2004	444000	250000
Chloride	MW-7	12/14/2000	1021000	250000
Chloride	MW-8D	9/24/1997	4879000	250000
Chloride	RW-10	9/21/2000	515000	250000
Chloride	RW-11	12/16/1997	566000	250000
Chloride	RW-12	6/26/1997	342000	250000
Chloride	RW-13	3/25/1997	630000	250000
Chloride	RW-14	9/21/2000	280000	250000
Chloride	RW-15	9/21/2000	699000	250000
Chloride	RW-16	12/14/2000	1025000	250000
Chloride	RW-17	12/14/2000	1523000	250000
Chloride	RW-18	3/3/2004	1360000	250000
Chloride	RW-19	9/21/2000	908000	250000
Chloride	RW-2	12/14/2000	264000	250000
Chloride	RW-3	3/25/1997	370000	250000
Chloride	RW-3	9/21/2000	670000	250000
Chloride	RW-4	9/21/2000	928000	250000
Chloride	RW-5	12/16/1997	2060000	250000
Chloride	RW-6	3/25/1997	2300000	250000
Chloride	RW-7	12/16/1997	464000	250000
Chloride	RW-8	12/14/2000	457000	250000
Chloride	RW-9	3/20/2008	491000	250000
Chloride	W-1903B	6/28/1995	830000	250000
Chloroform	MW-13D	6/28/1995	99 6	70
Chloroform	MW-31D	6/28/1995	520	70
Chloroform	MW-33D	6/28/1995	176	70



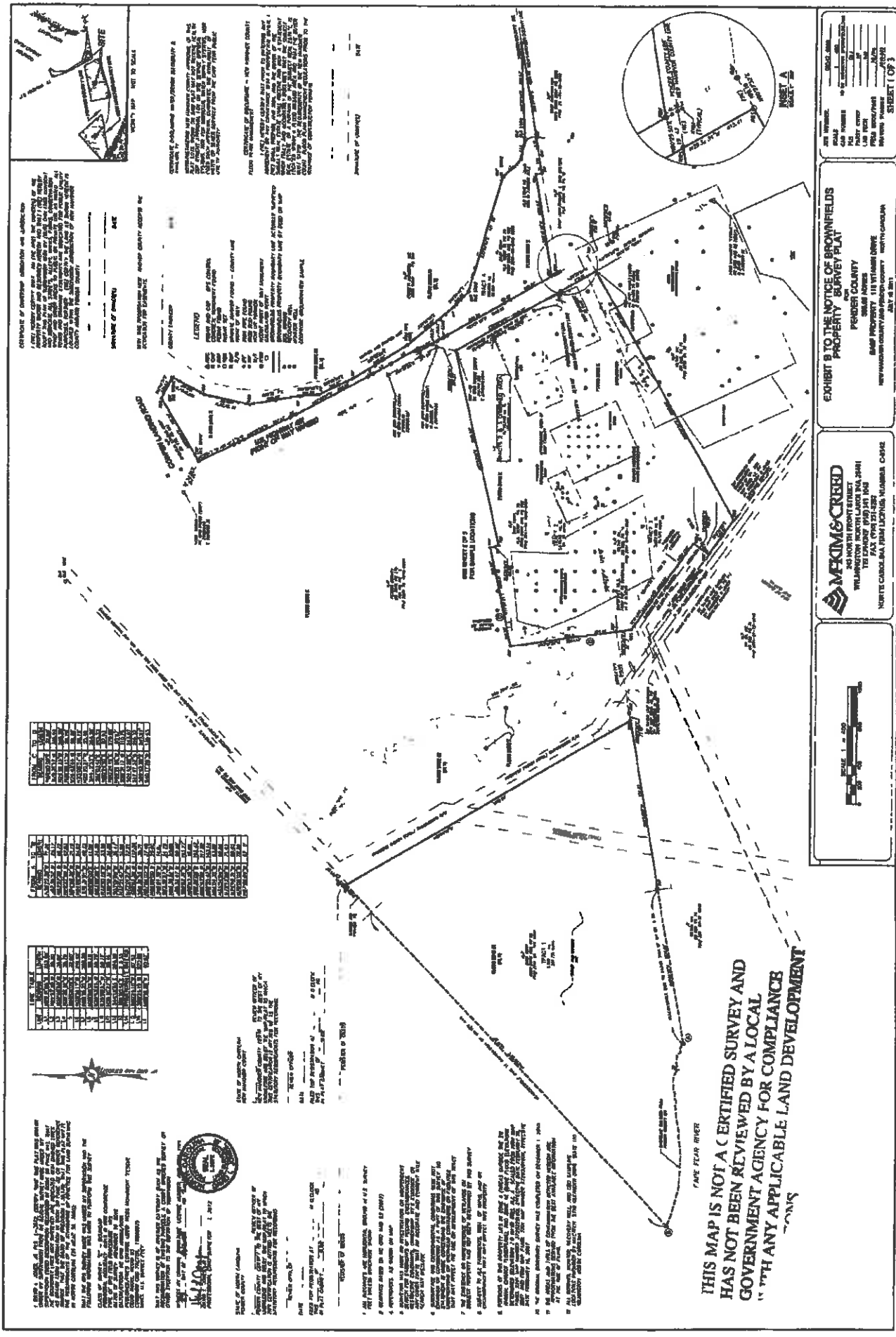
Chloroform	W-1903B	6/28/1995	357	70
Chromium	PS-RW-17	6/3/2009	78.4	10
Chromium	SL-MW5	6/3/2009	51.9	10
Fluorotrichloromethane	W-1903B	6/28/1995	2250	2000
Lead	PS-RW-17	6/3/2009	38.7	15
Methyl Isobutyl Ketone	MW-21D	6/28/1995	9180	100
Methyl Isobutyl Ketone	MW-31D	6/28/1995	5530	100
Methyl Isobutyl Ketone	MW-3D	6/28/1995	551	100
Methylene Chloride	MW-13D	6/28/1995	66 4	5
Methylene Chloride	MW-31D	6/28/1995	3200	5
Selenium	PS-RW-17	6/3/2009	36 1	20
Thallium	CP-RW11	6/4/2009	14 2	0.2
Thallium	CP-RW12	6/4/2009	16 0	0.2
Thallium	DP-6	8/14/2009	3.8	0.2
Thallium	PS-MW-32D	6/3/2009	3.5	0.2
Thallium	PS-MW-33D	6/2/2009	3 0	0.2
Thallium	PS-MW-34DA	6/2/2009	3.6	0.2
Thallium	PS-RW-17	6/3/2009	12 1	0.2
Thallium	PW-MW-43	8/12/2009	5 3	0.2
Thallium	SB-MW-2D	6/3/2009	4.4	0.2
Toluene	MW-13D	9/24/1997	9400	600
Toluene	MW-21D	6/28/1995	6770	600
Toluene	MW-30D	6/28/1995	26900	600
Toluene	MW-31D	12/16/1997	51000	600
Toluene	MW-33D	6/28/1995	29400	600
Toluene	MW-34	6/26/1997	310000	600
Toluene	MW-34D	9/24/1997	39000	600
Toluene	MW-35	6/26/1997	9200	600
Toluene	MW-3D	6/28/1995	2150	600
Toluene	RW-10	9/24/1997	810	600
Toluene	RW-11	3/25/1997	3600	600
Toluene	RW-16	12/14/2000	6700	600
Toluene	RW-17	3/3/2004	7600	600
Toluene	RW-9	12/16/1997	710	600
Trichloroethene	MW-3D	6/28/1995	5.7	3
Zinc	PS-RW-17	6/3/2009	37400	1000



Soil contaminants (in milligrams per kilogram, the equivalent of parts per million), the screening levels for which are derived using the Preliminary Unrestricted Use Health Based Remediation Goals (January 2010 version) of the Inactive Hazardous Sites Branch of DENR's Superfund Section

Soil Contaminant	Sample Location	Depth	Date of Max. Concentration Sampling	Max. Concentration above Unrestricted Use Screening Level (mg/kg)	Unrestricted Use Screening Level ¹ (mg/kg) (for reference only)
Arsenic	PW-SS1	1-1.5 ft.	5/29/2009	8.2	4.4
Thallium	PW-SS1	1-1.5 ft.	5/29/2009	2.2	1
Thallium	PW-SS8	1-1.5 ft.	5/29/2009	1.1	1
Mercury	SBSS-5 1	1-1.5 ft.	5/28/2009	7.4	1.1

¹ Screening levels for carcinogens are for 1E-06 risk target; for non-carcinogens they are for 0.2 hazard index



WOMEN'S RIGHTS

[illegible][illegible]

Mid-Centennial	City	Date of Min. Convention	Min. Conventions since National (for National only)	Unexpired Term (months) (only for National)
Alaska	Juneau	1939	10	18
Arizona	Tucson	1939	10	18
California	San Francisco	1939	10	18
Colorado	Denver	1939	10	18
Connecticut	Hartford	1939	10	18
Delaware	Dover	1939	10	18
Florida	Tallahassee	1939	10	18
Georgia	Atlanta	1939	10	18
Idaho	Boise	1939	10	18
Illinois	Chicago	1939	10	18
Indiana	Indianapolis	1939	10	18
Iowa	Des Moines	1939	10	18
Kansas	Topeka	1939	10	18
Kentucky	Louisville	1939	10	18
Louisiana	Baton Rouge	1939	10	18
Maine	Portland	1939	10	18
Maryland	Baltimore	1939	10	18
Massachusetts	Boston	1939	10	18
Michigan	Lansing	1939	10	18
Minnesota	St. Paul	1939	10	18
Mississippi	Jackson	1939	10	18
Missouri	St. Louis	1939	10	18
Montana	Helena	1939	10	18
Nebraska	Lincoln	1939	10	18
Nevada	Carson City	1939	10	18
New Hampshire	Manchester	1939	10	18
New Jersey	Trenton	1939	10	18
New Mexico	Santa Fe	1939	10	18
New York	Albany	1939	10	18
North Carolina	Raleigh	1939	10	18
North Dakota	Bismarck	1939	10	18
Ohio	Columbus	1939	10	18
Oklahoma	Norman	1939	10	18
Oregon	Portland	1939	10	18
Pennsylvania	Harrisburg	1939	10	18
Rhode Island	Providence	1939	10	18
South Carolina	Columbia	1939	10	18
South Dakota	Spearhead	1939	10	18
Tennessee	Nashville	1939	10	18
Texas	Austin	1939	10	18
Vermont	Montpelier	1939	10	18
Virginia	Richmond	1939	10	18
Washington	Olympia	1939	10	18
West Virginia	Charleston	1939	10	18
Wisconsin	Madison	1939	10	18
Wyoming	Cheyenne	1939	10	18

40. **DO NOT** EAT substances such as, or feeding the animals, any material other than the designated feed. Do not touch or feed the fish, and do not feed the fish any material that is not part of the diet. Do not feed the fish any material that is not part of the diet.

Line Item	Description	Unit	Quantity	Unit Price	Total Price	Remarks
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Case Number	Case Name	Case Type	Case Status	Case Date	Case Time	Case Location	Case Description	Case Notes	Case Comments	Case Actions	Case Results	Case Summary
1	Case 1	Case 1 Type	Case 1 Status	Case 1 Date	Case 1 Time	Case 1 Location	Case 1 Description	Case 1 Notes	Case 1 Comments	Case 1 Actions	Case 1 Results	Case 1 Summary
2	Case 2	Case 2 Type	Case 2 Status	Case 2 Date	Case 2 Time	Case 2 Location	Case 2 Description	Case 2 Notes	Case 2 Comments	Case 2 Actions	Case 2 Results	Case 2 Summary
3	Case 3	Case 3 Type	Case 3 Status	Case 3 Date	Case 3 Time	Case 3 Location	Case 3 Description	Case 3 Notes	Case 3 Comments	Case 3 Actions	Case 3 Results	Case 3 Summary
4	Case 4	Case 4 Type	Case 4 Status	Case 4 Date	Case 4 Time	Case 4 Location	Case 4 Description	Case 4 Notes	Case 4 Comments	Case 4 Actions	Case 4 Results	Case 4 Summary
5	Case 5	Case 5 Type	Case 5 Status	Case 5 Date	Case 5 Time	Case 5 Location	Case 5 Description	Case 5 Notes	Case 5 Comments	Case 5 Actions	Case 5 Results	Case 5 Summary
6	Case 6	Case 6 Type	Case 6 Status	Case 6 Date	Case 6 Time	Case 6 Location	Case 6 Description	Case 6 Notes	Case 6 Comments	Case 6 Actions	Case 6 Results	Case 6 Summary
7	Case 7	Case 7 Type	Case 7 Status	Case 7 Date	Case 7 Time	Case 7 Location	Case 7 Description	Case 7 Notes	Case 7 Comments	Case 7 Actions	Case 7 Results	Case 7 Summary
8	Case 8	Case 8 Type	Case 8 Status	Case 8 Date	Case 8 Time	Case 8 Location	Case 8 Description	Case 8 Notes	Case 8 Comments	Case 8 Actions	Case 8 Results	Case 8 Summary
9	Case 9	Case 9 Type	Case 9 Status	Case 9 Date	Case 9 Time	Case 9 Location	Case 9 Description	Case 9 Notes	Case 9 Comments	Case 9 Actions	Case 9 Results	Case 9 Summary
10	Case 10	Case 10 Type	Case 10 Status	Case 10 Date	Case 10 Time	Case 10 Location	Case 10 Description	Case 10 Notes	Case 10 Comments	Case 10 Actions	Case 10 Results	Case 10 Summary
11	Case 11	Case 11 Type	Case 11 Status	Case 11 Date	Case 11 Time	Case 11 Location	Case 11 Description	Case 11 Notes	Case 11 Comments	Case 11 Actions	Case 11 Results	Case 11 Summary
12	Case 12	Case 12 Type	Case 12 Status	Case 12 Date	Case 12 Time	Case 12 Location	Case 12 Description	Case 12 Notes	Case 12 Comments	Case 12 Actions	Case 12 Results	Case 12 Summary
13	Case 13	Case 13 Type	Case 13 Status	Case 13 Date	Case 13 Time	Case 13 Location	Case 13 Description	Case 13 Notes	Case 13 Comments	Case 13 Actions	Case 13 Results	Case 13 Summary
14	Case 14	Case 14 Type	Case 14 Status	Case 14 Date	Case 14 Time	Case 14 Location	Case 14 Description	Case 14 Notes	Case 14 Comments	Case 14 Actions	Case 14 Results	Case 14 Summary
15	Case 15	Case 15 Type	Case 15 Status	Case 15 Date	Case 15 Time	Case 15 Location	Case 15 Description	Case 15 Notes	Case 15 Comments	Case 15 Actions	Case 15 Results	Case 15 Summary
16	Case 16	Case 16 Type	Case 16 Status	Case 16 Date	Case 16 Time	Case 16 Location	Case 16 Description	Case 16 Notes	Case 16 Comments	Case 16 Actions	Case 16 Results	Case 16 Summary
17	Case 17	Case 17 Type	Case 17 Status	Case 17 Date	Case 17 Time	Case 17 Location	Case 17 Description	Case 17 Notes	Case 17 Comments	Case 17 Actions	Case 17 Results	Case 17 Summary
18	Case 18	Case 18 Type	Case 18 Status	Case 18 Date	Case 18 Time	Case 18 Location	Case 18 Description	Case 18 Notes	Case 18 Comments	Case 18 Actions	Case 18 Results	Case 18 Summary
19	Case 19	Case 19 Type	Case 19 Status	Case 19 Date	Case 19 Time	Case 19 Location	Case 19 Description	Case 19 Notes	Case 19 Comments	Case 19 Actions	Case 19 Results	Case 19 Summary
20	Case 20	Case 20 Type	Case 20 Status	Case 20 Date	Case 20 Time	Case 20 Location	Case 20 Description	Case 20 Notes	Case 20 Comments	Case 20 Actions	Case 20 Results	Case 20 Summary
21	Case 21	Case 21 Type	Case 21 Status	Case 21 Date	Case 21 Time	Case 21 Location	Case 21 Description	Case 21 Notes	Case 21 Comments	Case 21 Actions	Case 21 Results	Case 21 Summary
22	Case 22	Case 22 Type	Case 22 Status	Case 22 Date	Case 22 Time	Case 22 Location	Case 22 Description	Case 22 Notes	Case 22 Comments	Case 22 Actions	Case 22 Results	Case 22 Summary
23	Case 23	Case 23 Type	Case 23 Status	Case 23 Date	Case 23 Time	Case 23 Location	Case 23 Description	Case 23 Notes	Case 23 Comments	Case 23 Actions	Case 23 Results	Case 23 Summary
24	Case 24	Case 24 Type	Case 24 Status	Case 24 Date	Case 24 Time	Case 24 Location	Case 24 Description	Case 24 Notes	Case 24 Comments	Case 24 Actions	Case 24 Results	Case 24 Summary
25	Case 25	Case 25 Type	Case 25 Status	Case 25 Date	Case 25 Time	Case 25 Location	Case 25 Description	Case 25 Notes	Case 25 Comments	Case 25 Actions	Case 25 Results	Case 25 Summary
26	Case 26	Case 26 Type	Case 26 Status	Case 26 Date	Case 26 Time	Case 26 Location	Case 26 Description	Case 26 Notes	Case 26 Comments	Case 26 Actions	Case 26 Results	Case 26 Summary
27	Case 27	Case 27 Type	Case 27 Status	Case 27 Date	Case 27 Time	Case 27 Location	Case 27 Description	Case 27 Notes	Case 27 Comments	Case 27 Actions	Case 27 Results	Case 27 Summary
28	Case 28	Case 28 Type	Case 28 Status	Case 28 Date	Case 28 Time	Case 28 Location	Case 28 Description	Case 28 Notes	Case 28 Comments	Case 28 Actions	Case 28 Results	Case 28 Summary

NC BROWNFIELDS LAND USE RESTRICTIONS ("LUR") UPDATE

Certification Year: 2019

Name: BASF Facility Pender County
Project #: 14031-10-71

Address: 101 Vitamin Drive
County: Pender / New Hanover

Property Owner (In part or whole): PENDER COUNTY

Read the following LURs and mark each restriction accordingly. Additional remarks may be added for compliance status clarification. Attach any required or supplemental documentation, sign, notarize and submit to the following address:

Attn: Brownfields Staff
NC Department of Environmental Quality
DWM - Brownfields Program
1646 Mail Service Center
Raleigh, NC 27699-1646

LUR 1: No use may be made of the Brownfields Property other than for a commercial/industrial park with related water/sewer infrastructure, and as part of a hiking trail (with a restroom facility and parking lot) along the former railroad right-of-way adjacent to the west side of U.S. 421. For purposes of this restriction, Commercial/Industrial Park Development is defined as a form of development characterized by a unified site designed for a variety of commercial and industrial uses, open space, buffers, and a mix of building types in which flexibility is given to the project planning by allowing for the specific land uses to be determined as the market need arises, so long as the Department of Environment and Natural Resources ("DENR") does not determine that any of the other LURs are being violated and that any of the conditions referenced in N.C.G.S. 130A-310.33(a) and (c) are present.

☒ In compliance ☐ Out of compliance

Remarks: _____

LUR 2: Groundwater at the Brownfields Property may not be used for any purpose without the prior written approval of DENR.

☒ In compliance ☐ Out of compliance

Remarks: _____

LUR 3: Other than in connection with demolition/removal of certain structures and utilities by June 7, 2013 pursuant to section 12.1 of the Prospective Developer/BASF Corporation purchase agreement regarding the Brownfields Property, soil on the Brownfields Property may not be disturbed unless and until DENR states in writing, in advance of the proposed disturbance, that the disturbance may proceed, if carried out along with any measures DENR deems necessary in connection with the proposed disturbance to avoid rendering the Brownfields Property unsuitable for the uses specified in LUR 1 above or public health or the environment less than fully protected.

☒ In compliance ☐ Out of compliance

Remarks: _____

LUR 4: No building may be constructed on the Brownfields Property until:

- a. DENR determines in writing, based on submittals from the building's proponent, that the building's users, and public health and the environment, would not be at risk from the Brownfields Property's volatile contaminant plume; or
- b. vapor mitigation measures approved in writing by DENR in advance are installed to the satisfaction of a professional engineer licensed in North Carolina, as evidenced by said engineer's seal, and photographs illustrating the installation and a brief narrative describing it are submitted to DENR and deemed satisfactory in writing by that agency.

☒ In compliance ☐ Out of compliance

Remarks: _____

LUR 5: None of the contaminants known to be present in the environmental media at the Brownfields Property, including those appearing on the plat component of the Notice of Brownfields Property ("Notice"), may be used or stored at the Brownfields Property without the prior written approval of DENR, except in *de minimis* amounts for cleaning and other routine housekeeping activities.

☒ In compliance ☐ Out of compliance

Remarks: _____

LUR 6: The Brownfields Property may not be used as a park or for sports of any kind, including, but not limited to, golf, football, soccer and baseball, without the prior written approval of DENR.

☒ In compliance ☐ Out of compliance

Remarks: _____

LUR 7: The Brownfields Property may not be used as a playground, or for child care centers, preschools or kindergarten through 12th grade schools.

☒ In compliance ☐ Out of compliance

Remarks: _____

LUR 8: The Brownfields Property may not be used for kennels, private animal pens or horse-riding.

☒ In compliance ☐ Out of compliance

Remarks: _____

LUR 9: The owner of any portion of the Brownfields Property where any existing, or subsequently installed, DENR-approved monitoring well is damaged shall be responsible for repair of any such wells to DENR's written satisfaction and within a time period acceptable to DENR.

☒ In compliance ☐ Out of compliance

Remarks: _____

LUR 10: Neither DENR, nor any party conducting environmental assessment or remediation at the Brownfields Property at the direction of, or pursuant to a permit, order or agreement issued or entered into by DENR, may be denied access to the Brownfields Property for purposes of conducting such assessment or remediation, which is to be conducted using reasonable efforts to minimize interference with authorized uses of the Brownfields Property.

☒ In compliance ☐ Out of compliance

Remarks: _____

LUR 11: During January of each year after the year in which the Notice is recorded, the owner of any part of the Brownfields Property as of **January 1st** of that year shall submit a notarized Land Use Restrictions Update ("LURU") to DENR, and to the chief public health and environmental officials of Pender County and New Hanover County, certifying that, as of said January 1st, the Notice of Brownfields Property containing these land use restrictions remains recorded at the Pender County and New Hanover County Register of Deeds offices and the land use restrictions are being complied with, and stating:

- a. the name, mailing address, telephone and facsimile numbers, and contact person's e-mail address of the owner submitting the LURU if said owner acquired any part of the Brownfields Property during the previous calendar year.

- b. the transferee's name, mailing address, telephone and facsimile numbers, and contact person's e-mail address, if said owner transferred any part of the Brownfields Property during the previous calendar year.

☐ In compliance ☒ Out of compliance

Remarks: Notice was inadvertently not filed by January 1, 2020 due to an oversight caused by changes in personnel. This notice is provided dated October 19, 2020, and is otherwise in full compliance.

Notarized signing and submittal of this Land Use Restrictions Update constitutes certification that the Notice of Brownfields Property remains recorded at the Pender and New Hanover County Register of Deeds office and that the Land Use Restrictions are being complied with.

This Land Use Restrictions Update is certified by George R. Brown, Chairman – Pender County Board of Commissioners, owner of at least part of the Brownfields Property.

Name typed or printed of party making certification: Pender County

In the case of owners that are entities:

Signature of individual signing: _____
Name typed or printed: Kenny Keel, PE
Title: Director of Utilities/Solid Waste

In the case of all owners:

Date: October 19, 2020

Pender County

By: _____
Name typed or printed: George R. Brown
Title typed or printed: Chairman

NORTH CAROLINA
_____ COUNTY

I, _____, a Notary Public of the county and state aforesaid, certify that George R. Brown personally came before me this day and acknowledged that he/she is the Chairman of Pender County Board of Commissioners, a North Carolina Local Government corporation, and that by authority duly given and as the act of the local government/corporation, the foregoing Land Use Restriction Update was signed in its name by its Director of Utilities/Property Manager and attested by him/her as its Chairman.

WITNESS my hand and official stamp or seal, this _____ day of _____,
20__.

Name:
Notary Public

My Commission expires: _____

[Stamp/Seal]



Exhibit C

LEGAL DESCRIPTION

Being all of Tract 1 containing 201.735 acres, Tract 2 containing 84.474 acres, Tract 3 containing 70.545 acres and Tract 4 containing 39.901 acres as shown on the map entitled "Boundary Survey for Pender County" dated November 1, 2010 prepared by McKim & Creed and recorded in Map Book 55, Page 258 of the New Hanover County Registry and Map Book 51, Page 70 of the Pender County Registry, reference to which is hereby made for a more complete and accurate description.



JENNIFER H MACNEISH
REGISTER OF DEEDS, NEW HANOVER
216 NORTH SECOND STREET

WILMINGTON, NC 28401

Filed For Registration: 12/16/2011 03:48:55 PM
Book: RE 5805 **Page:** 2255-2288
Document No.: 2011034815
34 PGS \$98.00

Recorder: CARTER, CAROLYN

State of North Carolina, County of New Hanover

PLEASE RETAIN YELLOW TRAILER PAGE WITH ORIGINAL DOCUMENT.

2011034815

2011034815

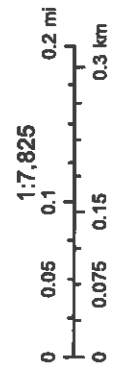


PIN: 2291-84-9960-0000
Owner: PENDER COUNTY
PO BOX 366
BURGAW, NC 28425
Deed Ref: 3859/338
Property Address: 101 VITAMIN DR
Description: TR 2 PB 53/19,20&21 PB 51/70 SURVEY

Sale Price:
Sale Date: LAST_SALE_DATE
Plat: 00530019
Account No: 894103
Township: GRADY
Subdivision:
Tax Codes: G01 F25 R40

Acres: 84.47
Land Value: \$504,005
Building Value: \$600,364
Total value: \$1,104,369
Deferred Value: \$0
Exempt Amount: 1104369
PCL Class: C
Heated Sq Feet:

Pender County



1 inch = 652 feet
November 19, 2020

Basic Map

204



11/19/2020, 3:53:17 PM

- Parcels
- City Limits
- Cemeteries
- Parks
- Landmarks
- Schools
- Addresses
- Roads
- Major Roads

1:4,514

0 175 350 7

0 50 100 200

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus
USGS, AeroGRID, IGN, and the GIS User Community, New Ham
NC

NHC
New Harrove

3 of 4



434



SYMBOL LEGEND

●	MONITORING WELL LOCATIONS
▲	MONITORING WELL LOCATIONS
●	MONITORING WELL LOCATIONS

ANALYTE

CHLORIDE

Concentrations reported in milligrams per liter (mg/L)

Concentrations in blue exceed the 2L Standard.

CONCENTRATION LEGEND

10 mg/L	100 mg/L
50 mg/L	200 mg/L
100 mg/L	250 mg/L
200 mg/L	250 mg/L
250 mg/L	250 mg/L
250 mg/L	250 mg/L

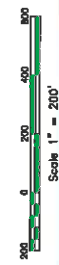


Figure 4

Chloride Concentrations in Groundwater
December 2019
Former BASF Facility
101 Vernal Drive
Wilmington, North Carolina

ELM SITE SOLUTIONS

ENVIRONMENTAL & DEVELOPMENT

101 Vernal Drive
Wilmington, NC 28404
Phone: (910) 792-5174
Fax: (910) 792-5175

DATE: 02/09/2019
PROJECT: 1" = 200'

NO. DATE
DESCRIPTION

PLAN REVISIONS

Attachment C

Groundwater Monitoring Report

**BASF CORPORATION
101 Vitamin Drive
WILMINGTON, NORTH CAROLINA
NONCD0002575**

Prepared for:

**BASF Corporation
101 Campus Drive
Florham Park, New Jersey**

Prepared by:



**ELM Site Solutions, Inc.
Raleigh, North Carolina
(919) 792-3733**

March 2015

Groundwater Monitoring Report

**BASF CORPORATION
101 Vitamin Drive
WILMINGTON, NORTH CAROLINA
NONCD0002575**

Prepared for:

**BASF Corporation
101 Campus Drive
Florham Park, New Jersey**

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Raleigh, North Carolina
(919) 792-3733**



Roland B. Norris, PE, PLS, RSM

Table of Contents

Section 1 Site Background Information.....	4
Section 2 Site Topography, Hydrology, Hydrogeology and Geology.....	5
Section 3 Field Investigation Methods	6
3.1. Introduction	6
3.2. Groundwater Monitoring Event – December 18, 2014.....	7
3.3. Laboratory Analysis of Groundwater Samples.....	7
Section 4 Findings	8
4.1. Status of Site Groundwater	8
Tables	
Figures	

List of Tables

Table 1 Groundwater Elevations and Well Construction Details – December 9, 2014
Table 2 Water Quality Parameters
Table 3 Summary of Constituents Detected in Groundwater

List of Figures

Figure 1 Site Location Map
Figure 2 Site Plan
Figure 3 Groundwater Potentiometric Map – December 9, 2014
Figure 4 Exceedances of the 2L Groundwater Standards (Arsenic and Chloride)

List of Appendices

Appendix A Field Data Sheets
Appendix B Laboratory Analytical Results
Appendix C Chloride Trend Graphs

Section 1

Site Background Information

The BASF Facility is located at 101 Vitamin Drive, just west of U.S. Highway 421, approximately seven (7) miles north of Wilmington, North Carolina. The BASF property and facility straddles the New Hanover and Pender County boundary, and has UTM coordinates of approximately 34°20'05.91"N; 78°00'24.58.58W. The BASF property is comprised of approximately 1,100 acres, with the developed portions of the facility being less than 100 acres of the site. Most of the property is undeveloped upland forest and wetlands. The property is bound by the Cape Fear River and extensive associated floodplain wetlands to the west, the Northeast Cape Fear River and extensive associated floodplain wetlands to the east, and by Fishing Creek to the southeast. Undeveloped forestland bounds the BASF property to the north and south. U.S. Highway 421, oriented north and south, intersects the property east of the developed portions of the facility. A sand mining operation is present to the south on the adjacent property. The New Hanover County Solid Waste Landfill is located approximately 1 mile to the southeast of the facility and its northern boundary shares the Fishing Creek boundary with BASF. A Site Location Map is included as **Figure 1**. **Figure 2** depicts monitoring well locations and other site features.

The BASF facility ceased operations in March 2009 and was decommissioned. Pender County now owns a portion of the site. The manufacturing facility was used as a vitamin granulation, formulation and packaging facility. From 1985 to 2003, the facility was used for the synthesis of vitamins B and C. The Vitamin C production line began operation in 1989. The facility was originally constructed and operated by Takeda Chemical Products USA, and subsequently purchased and operated by BASF in 2001.

BASF Corporation entered into an Administrative Agreement for Registered Environmental Consultant (REC)-Directed Assessment and Remedial Action (Document Number 09-SF-303) on August 19, 2009. ELM Site Solutions is the REC for program work. Historical work, and portions of REC Program work, was completed by Mactec (now AMEC) and ENSR (now AECOM).

The most recent groundwater monitoring event was conducted between December 9 and 12, 2014 and was designed to meet requirements of the North Carolina Department of Environment and Natural Resources' (NCDENR) Inactive Hazardous Waste Sites Branch (IHSB) Registered Environmental Consultant (REC) Program Rules (15A NCAC 13C .0300) and Guidelines. Project work was conducted as described in accordance with the Remedial Investigation Work Plan (MACTEC, November 20, 2009). The work completed does not deviate significantly from that described in the RI Work Plan.

Section 2

Site Topography, Hydrology, Hydrogeology and Geology

The Site lies within the Coastal Plain physiographic province of North Carolina. The Geologic Map of North Carolina, prepared by the North Carolina Geological Survey, indicates the site is underlain by coastal plain sediments of recent and Cretaceous age, specifically the Pee Dee Formation. The Pee Dee Formation is described as marine sand, clayey sand and clay. Based on geologic borings conducted on the site, upper subsurface deposits consist of unconsolidated fine to coarse quartzose sands, containing some pea gravels and occasional thin discontinuous clayey bands. These sands generally extend to depths of 40 to 70 feet below land surface depending partially on elevation. The sands tend to become coarser in texture in the lower part of the section. These sands are thought to have been deposited in a fluvial environment, probably related to ancient channels of the nearby Cape Fear and Northeast Cape Fear Rivers.

The sands overlie a thick layer of dark, greenish gray clayey, silty, fine to very fine sand. The greenish color results from glauconite indicating the sediments are of marine origin. This lithology is typical of the Pee Dee Formation.

The upper sands represent the main useable aquifer at the site and surrounding area. This is an unconfined, very productive shallow aquifer with high transmissivity and hydraulic conductivities. The Pee Dee Formation beneath the upper sand aquifer is reportedly not useable in this area as a significant groundwater supply because it contains a very thick section of silty, clayey fine to very sands. The first permeable zone below the upper sand aquifer reportedly contains saline groundwater. The water table within the upper sand aquifer typically ranges from 5 to 20 feet in depth. Groundwater flow from the facility area is generally south to southeast towards the Northeast Cape Fear River. West of the facility, groundwater tends to flow in a more westerly direction towards the Cape Fear River. Both rivers systems are major regional groundwater discharges areas.

Based on groundwater elevations measured during the December 2014 monitoring event, the groundwater depth ranges from 3.13 feet below top of casing (btoc) in RW-8 to 27.20 feet btoc in MW-28D. Water level measurements from the Site wells indicate that the water table slopes generally toward the southeast towards the Northeast Cape Fear River.

Section 3

Field Investigation Methods

3.1. Introduction

Field Investigation methods for the December 2014 groundwater monitoring event were conducted in compliance with the U.S. Environmental Protection Agency (EPA) Region IV Field Branches' Quality System and Technical Procedures (USEPA Procedures). The field investigation was designed to determine the presence or absence of constituents of interest in site-wide groundwater in accordance with the Monitored Natural Attenuation (MNA) groundwater remedy outlined in the Remedial Action Plan (RAP) for the site. Groundwater samples were collected from the following monitoring wells in December 2014 and were analyzed for the following parameters:

DP-2	Thallium
DP-6	Thallium and Arsenic
MW-2D	Chloride, Arsenic
MW-3D	Chloride, Arsenic, Thallium
MW-4	Arsenic
MW-5 (Attempted to Sample, Dry)	Antimony, Arsenic, Chromium
MW-6	Arsenic
MW-7	Arsenic, Chloride, Thallium
MW-8D	Arsenic, Chloride
MW-11D	Chloride
MW-12D	Chloride
MW-13D	Arsenic
MW-14D	Chloride
MW-15D	Chloride
MW-17D	Chloride
MW-18D	Chloride
MW-21D	Arsenic
MW-24D	Thallium
MW-28D	Thallium
MW-30D	Thallium
MW-31D	Antimony, Arsenic, Thallium
MW-32D	Thallium
MW-33D	Thallium
MW-34DA	Thallium
MW-39D	Thallium
MW-43	Thallium
MW-46	Thallium
RW-1	Arsenic, Chloride
RW-4	Chloride
RW-6	Chloride
RW-8	Chloride
RW-10	Chloride
RW-11	Thallium
RW-12	Thallium
RW-18	Chloride
RW-19	Chloride

Monitoring program wells include current and previously impacted wells along with sentinel wells around the perimeter of the identified plumes. The samples were analyzed for select metals (antimony, arsenic, chromium and thallium) and chloride. Details of the fieldwork are provided below.

3.2. Groundwater Monitoring Event – December 2014

Thirty-six on-site groundwater monitoring wells (see table above) were sampled between December 9 and 12, 2014. This monitoring event included measuring groundwater elevations, measuring water quality parameters and collecting groundwater samples from the monitoring wells. The locations of the monitoring wells are presented on **Figure 2**.

Water levels were measured at each well prior to sampling using a Testwell water level meter. Purging was accomplished by using a variable speed peristaltic pump with the pumping rate adjustable to equal the approximate recharge rate of the well. Indicator parameters of pH, temperature, specific conductance, and turbidity were measured regularly during purging with a YSI 6920 water quality meter until the measured values stabilized within an approximate 10% tolerance. This method targets the collection of groundwater samples that have the least total suspended solid count obtainable without filtering in the field, thus giving a more accurate indication of dissolved constituents present in the aquifer. **Table 1** summarizes monitoring well construction details and relative groundwater elevations for the December 2014 monitoring event. **Table 2** summarizes the groundwater quality parameters that were obtained in the field prior to sampling each monitoring well. Field data sheets are attached as **Appendix A**.

Groundwater samples were collected after the field parameters had stabilized. Sample collection was performed directly from the outlet of the peristaltic pump discharge tubing once the flow rate from the pump had been reduced.

3.3. Laboratory Analysis of Groundwater Samples

Groundwater samples collected during the December 2014 quarterly monitoring event were secured in coolers, placed on ice and hand-delivered to SGS for analysis. Laboratory work orders and chain-of-custody documents, which included project and sample identification information, were placed within each cooler for shipment. The samples were analyzed for antimony, arsenic, and thallium by EPA Method 6020A and chloride by EPA Method 300.0. **Table 3** summarizes the groundwater analytical results and compares the detected constituents to their respective 15A NCAC 2L Groundwater Standards.

Section 4

Findings

4.1. Status of Site Groundwater

4.1.1 Site Hydrogeology

The top of casing elevations and depths to groundwater were used to calculate groundwater elevations at each monitoring well location (**Table 1**). The groundwater elevations were used to determine the groundwater flow direction at the Site. Water level measurements from the Site wells indicate that the water table slopes generally toward the southeast towards the Northeast Cape Fear River as shown in **Figure 3** (potentiometric surface December 9, 2014).

4.1.2 Laboratory Results

Table 3 provides a summary of analytical results for groundwater during this sampling event, with the complete laboratory report included as **Appendix B**. The only remaining site constituents above 15A NCAC 2L standards are arsenic (MW-3D, MW-13D, MW-21D and MW-31D) and chloride (MW-3D, MW-11D, MW-12D, MW-14D, RW-4, RW-6 and RW-18). The current 15A NCAC 2L groundwater exceedances are depicted on **Figure 4**. The arsenic exceedances appear to be isolated to the vicinity of monitoring wells MW-3D, MW-13D, MW-21D and MW-31D. Arsenic was not used in manufacturing processes on the site and is a naturally occurring element, likely present above 15A NCAC 2L standards due to mobilization in a reducing biogeochemical environment as indicated by a low oxidation reduction potential and a low pH in some site wells. As these conditions return to ambient, it is expected that metals concentrations will attenuate as was historically observed in other site wells. Chloride exceedances continue to be present in monitoring wells MW-3D, MW-11D, MW-12D, MW-14D, RW-4, RW-6 and RW-18. The highest chloride concentrations remain in RW-18 and MW-14D, which lie in the southwest portion of the site, at 2,550 milligrams per liter (mg/L) and 1,250 mg/L, respectively. Most of the elevated chloride concentrations (with the exception of MW-3D, stormwater basin) appear to be part of a narrow plume trending in an east-west fashion across the southern portion of the site.

Concentration graphs of key wells showing the length of time it will take the wells to attenuate using linear regression are attached as **Appendix C**. Linear and logarithmic curves were fitted to the data and the most appropriate was chosen for display on the graph. Monitoring has historically been conducted quarterly or semi-annually. Within one year, most of the wells (15

out of 23) in the monitoring plan are expected to have constituents below the 2L standards and can be removed from the monitoring program. However, seven (7) wells are estimated to take three (3) or more years to achieve their respective 2L standards. The attenuation curve for RW-6 indicates the potential for a long attenuation period.

TABLES

TABLE 1
GROUNDWATER ELEVATION DATA SUMMARY
DECEMBER 9, 2014
BASF CORPORATION
WILMINGTON, NORTH CAROLINA

Well Identification	Well Depth (feet bgs)	Reference Elevation (Feet)	Depth to Groundwater (12/09/2014) Feet BTOC	Groundwater Elevation (12/09/2014)
DP-2	27.80	RNA	8.92	RNA
DP-6	33.00	RNA	17.86	RNA
MW-1SF	12.60	19.80	NM	NM
MW-4SF	11.70	12.63	NM	NM
MW-2D	39.00	15.18	10.20	4.98
MW-3	20.35	14.19	NM	NM
MW-3D	41.30	15.04	9.32	5.72
MW-4	RNA	RNA	11.23	RNA
MW-5	19.80	25.58	DRY	RNA
MW-6	23.50	19.23	13.64	5.59
MW-7	34.90	27.78	22.55	5.23
MW-8D	56.40	29.28	23.62	5.66
MW-9	22.10	16.66	NM	NM
MW-11D	37.10	13.31	7.67	5.64
MW-12D	31.70	12.67	9.14	3.53
MW-13D	39.80	17.10	11.60	5.50
MW-14D	30.00	12.15	6.24	5.91
MW-15D	NA	11.04	5.38	5.66
MW-17D	NA	14.11	9.46	4.65
MW-18D	26.90	9.53	5.76	3.77
MW-19D	30.20	11.40	NM	NM
MW-21D	37.50	22.88	17.85	5.03
MW-24D	36.90	17.21	10.28	6.93
MW-26D	36.10	15.01	NM	NM
MW-28D	33.55	32.24	27.20	5.04
MW-30D	36.40	22.83	16.45	6.38
MW-31D	36.50	21.66	15.43	6.23
MW-32D	34.00	22.06	15.56	6.50
MW-33D	34.30	22.48	15.76	6.72
MW-34DA	45.60	25.03	18.35	6.68
MW-39D	32.60	8.96	3.72	5.24
MW-43	27.00	21.31	14.27	7.04
MW-46	27.60	21.68	14.82	6.86
RW-1	RNA	RNA	12.67	RNA
RW-4	31.90	8.28	4.45	3.83
RW-6	32.30	9.60	4.34	5.26
RW-7	34.20	RNA	NM	NM
RW-8	RNA	RNA	3.13	RNA
RW-9	44.00	RNA	NM	NM
RW-10	44.20	RNA	21.24	RNA
RW-11	39.20	RNA	15.71	RNA
RW-12	49.00	RNA	22.04	RNA
RW-18	48.50	RNA	5.10	RNA
RW-19	RNA	RNA	4.70	RNA

NM - Not measured

bgs = Below ground surface

BTOC = Below Top of casing

MSL = Mean Sea Level

NM - Not Measured

RNA = Reference Elevation Not Available

Reference elevations obtained from 2008 Groundwater Monitoring Report (MACTEC)

TABLE 2

**STABILIZED GROUNDWATER FIELD PARAMETER MEASUREMENTS - DECEMBER 9 TO 12, 2014
BASF CORPORATION, WILMINGTON, NC**

Well ID	Temperature (degrees C)	pH (STU)	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Oxidation- Reduction Potential (mV)
DP-2	18.62	6.18	0.095	3.2	10.62	49.9
DP-6	18.45	6.77	0.401	4.6	0.73	-3.9
MW-2D	18.93	6.78	0.426	7.1	0.66	-63.7
MW-3D	19.07	7.15	2.379	7.3	0.11	-158.0
MW-4	17.70	6.94	0.234	8.8	2.44	24.2
MW-6	19.95	6.97	0.165	1.2	2.82	-8.6
MW-7	19.37	5.02	0.039	2.0	10.59	115.0
MW-8D	19.29	6.59	0.454	4.3	2.52	7.7
MW-11D	17.28	7.14	2.122	12.3	1.11	-147.0
MW-12D	16.59	7.14	1.713	8.4	0.03	-129.0
MW-13D	20.06	7.33	0.720	6.7	0.04	-142.0
MW-14D	17.57	7.00	4.113	18.9	0.84	-144.0
MW-15D	19.40	5.74	0.213	0.1	1.29	80.0
MW-17D	18.86	6.06	0.303	3.8	0.06	60.4
MW-18D	18.94	5.64	0.070	3.8	0.14	80.7
MW-21D	18.79	7.09	0.446	82.2	0.11	-111.0
MW-24D	18.42	4.77	0.089	0.4	0.18	90.1
MW-28D	17.85	6.34	0.068	1.0	0.19	8.1
MW-30D	19.17	7.03	0.241	1.8	0.03	-102.7
MW-31D	18.97	7.29	0.222	7.3	0.12	-140.0
MW-32D	19.50	7.66	0.129	0.1	0.85	-132.0
MW-33D	20.26	7.12	0.355	4.7	0.39	-89.4
MW-34DA	19.76	7.23	0.251	4.2	4.09	-4.9
MW-39D	16.83	5.65	0.183	1.3	0.12	76.2
MW-43	21.24	6.89	0.122	2.8	7.56	30.6
MW-46	20.09	6.32	0.103	1.2	6.58	8.5
RW-1	19.26	6.79	0.179	8.6	0.55	-53.9
RW-4	16.79	6.96	1.013	5.2	0.08	-7.3
RW-6	18.29	6.65	2.140	9.7	0.69	52.5
RW-8	17.68	6.63	0.627	3.8	1.47	49.1
RW-10	18.40	6.60	0.149	4.4	0.14	0.9
RW-11	19.26	7.09	0.396	1.8	0.14	17.9
RW-12	18.02	6.73	0.258	26.4	0.04	-9.5
RW-18	18.78	6.96	7.422	46.8	0.10	-159.0
RW-19	17.54	6.53	0.222	0.1	2.36	82.4

Notes:

C = Degrees celsius.

mS/cm = Millisiemens per centimeter.

STU = Standard units.

mg/L = Milligrams per liter.

mV = Millivolts.

NTU = Nephelometric Turbidity Units.

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

Monitoring Well and Surface Water ID.		Sample Date	Units							
			Benzene	Acetone	Antimony	Arsenic	Chloride	Chromium	Selenium	Thallium
			ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
15A NCAC 2L Standard			1	6000	0.501	0.01	250	0.01	0.02	0.0002
DP-2		12/17/2010	NM	NM	NM	<0.01	NM	NM	NM	<0.01
DP-2		7/7/2011	NM	NM	NM	NM	NM	NM	NM	NM
DP-2		9/15/2011	NM	NM	NM	<0.0005	NM	NM	NM	<0.0005
DP-2		12/20/2011	NM	NM	NM	NM	NM	NM	NM	NM
DP-2		3/30/2012	NM	NM	NM	<0.0007	NM	NM	NM	<0.0003
DP-2		8/7/2012	NM	NM	NM	<0.000699	NM	NM	NM	<0.000128
DP-2		12/19/2012	NM	NM	NM	<0.000699	NM	NM	NM	<0.000641
DP-2		6/20/2013	NM	NM	NM	0.000200 J	NM	NM	NM	<0.000128
DP-2		12/5/2013	NM	NM	NM	<0.0000339	NM	NM	NM	<0.0000641
DP-2		6/10/2014	NM	NM	NM	NM	NM	NM	NM	<0.000287
DP-2		12/10/2014	NM	NM	NM	NM	NM	NM	NM	<0.000287
DP-6		12/17/2010	NM	NM	NM	NM	NM	NM	NM	<0.01
DP-6		7/7/2011	NM	NM	NM	NM	NM	NM	NM	<0.0005
DP-6		8/15/2011	NM	NM	NM	NM	NM	NM	NM	<0.0005
DP-6		12/20/2011	NM	NM	NM	NM	NM	NM	NM	0.0005 J
DP-6		3/30/2012	NM	NM	NM	NM	NM	NM	NM	<0.00003
DP-6		6/7/2012	NM	NM	NM	NM	NM	NM	NM	<0.000128

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

DP-5	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
DP-5	6/20/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
DP-5	12/5/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
DP-5	6/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000297
DP-5	12/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000297
MW-2D	12/17/2010	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-2D	7/1/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-2D	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-2D	12/20/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-2D	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-2D	8/7/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-2D	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-2D	12/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-3D	12/17/2010	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.01
MW-3D	7/7/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
MW-3D	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
MW-3D	12/20/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.0007 J
MW-3D	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.00003
MW-3D	8/7/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
MW-3D	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

MW-3D	6/20/2013	NM	NM	NM	0.395	529	NM	NM	<0.000128
MW-3D	12/5/2013	NM	NM	NM	0.462	605	NM	NM	<0.000641
MW-3D	6/10/2014	NM	NM	NM	0.578	627	NM	NM	<0.000287
MW-3D	12/10/2014	NM	NM	NM	0.873	719	NM	NM	<0.000287
MW-3S5F	12/17/2010	NM	NM	NM	NM	NM	NM	NM	<0.01
MW-3S5F	7/7/2011	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-3S5F	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM
MW-3S5F	12/20/2011	NM	NM	NM	NM	NM	NM	NM	NM
MW-4	12/10/2014	NM	NM	NM	0.000650	NM	NM	NM	NM
MW-5	12/17/2010	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-5	7/7/2011	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-5	9/15/2011	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-5	12/20/2011	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-5	3/30/2012	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-5	6/7/2012	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-5	12/10/2012	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-5	6/20/2013	NM	NM	<0.000286	0.000620 J	NM	0.000650 J	NM	NM
MW-5	12/5/2013	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-5	6/10/2014	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-5	12/10/2014	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

MW-6	12/10/2014	NM	NM	NM	0.00160 J	NM	NM	NM	NM	NM
MW-7	12/17/2010	NM	NM	NM	<0.01	NM	NM	NM	NM	NM
MW-7	7/7/2011	NM	NM	NM	<0.01	3.43	<0.01	NM	<0.0005	<0.0005
MW-7	9/15/2011	NM	NM	NM	<0.0005	NM	0.0024 J	NM	<0.0005	<0.0005
MW-7	12/20/2011	NM	NM	NM	0.0016 J	3.62	<0.001	NM	8.9807 J	8.9807 J
MW-7	3/30/2012	NM	NM	NM	0.00008 J	NM	0.0007	NM	<0.0003	<0.0003
MW-7	6/7/2012	NM	NM	NM	NM	NM	NM	NM	<0.000128	<0.000128
MW-7	12/10/2012	NM	NM	NM	NM	NM	NM	NM	<0.00041	<0.00041
MW-7	6/20/2013	NM	NM	NM	NM	NM	NM	NM	<0.000128	<0.000128
MW-7	12/16/2013	NM	NM	NM	NM	NM	NM	NM	<0.000541	<0.000541
MW-7	6/10/2014	NM	NM	NM	NM	NM	NM	NM	<0.0000297	<0.0000297
MW-7	12/10/2014	NM	NM	NM	0.0000800 J	5.29	NM	NM	<0.0000297	<0.0000297
MW-8D	12/17/2010	NM	NM	NM	<0.01	50.4	NM	NM	NM	NM
MW-8D	7/7/2011	NM	NM	NM	<0.01	73.0	NM	NM	NM	NM
MW-8D	9/15/2011	NM	NM	NM	<0.0005	NM	NM	NM	NM	NM
MW-8D	12/20/2011	NM	NM	NM	0.0008 J	28.3	NM	NM	NM	NM
MW-8D	3/30/2012	NM	NM	NM	0.00032 J	NM	NM	NM	NM	NM
MW-8D	6/7/2012	NM	NM	NM	0.00110 J	69.9	NM	NM	NM	NM
MW-8D	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-8D	12/10/2014	NM	NM	NM	0.00194	74.6	NM	NM	NM	NM

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

MMW-10D	12/17/2010	NM	NM	NM	NM	52.9	NM	NM	NM	NM
MMW-10D	7/7/2011	NM	NM	NM	NM	21.7	NM	NM	NM	NM
MMW-10D	8/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM
MMW-10D	12/20/2011	NM	NM	NM	NM	21.5	NM	NM	NM	NM
MMW-10D	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM
MMW-11D	12/17/2010	<1	42.9	NM	NM	314	NM	NM	NM	NM
MMW-11D	7/7/2011	<1	NM	NM	NM	271	NM	NM	NM	NM
MMW-11D	8/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM
MMW-11D	12/20/2011	<0.113	NM	NM	NM	284	NM	NM	NM	NM
MMW-11D	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM
MMW-11D	6/7/2012	NM	NM	NM	NM	193	NM	NM	NM	NM
MMW-11D	12/10/2012	NM	NM	NM	NM	891	NM	NM	NM	NM
MMW-11D	6/20/2013	NM	NM	NM	NM	280	NM	NM	NM	NM
MMW-11D	12/5/2013	NM	NM	NM	NM	249	NM	NM	NM	NM
MMW-11D	6/10/2014	NM	NM	NM	NM	177	NM	NM	NM	NM
MMW-11D	12/10/2014	NM	NM	NM	NM	561	NM	NM	NM	NM
MMW-12D	12/17/2010	NM	NM	NM	NM	NM	NM	NM	NM	NM
MMW-12D	7/7/2011	NM	NM	NM	0.0184	112	NM	NM	NM	NM
MMW-12D	8/15/2011	NM	NM	NM	<0.0005	NM	NM	NM	NM	NM
MMW-12D	12/20/2011	NM	NM	NM	0.0086	174	NM	NM	NM	NM

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

MW-12D	3/30/2012	NM	NM	NM	NM	0.00141	NM	NM	NM	NM
MW-12D	6/7/2012	NM	NM	NM	NM	<0.000889	NM	NM	NM	NM
MW-12D	12/10/2012	NM	NM	NM	NM	NM	207	NM	NM	NM
MW-12D	6/20/2013	NM	NM	NM	NM	NM	50.2	NM	NM	NM
MW-12D	12/5/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-12D	12/10/2014	NM	NM	NM	NM	NM	506	NM	NM	NM
MW-13D	12/17/2010	NM	NM	NM	NM	<0.01	112	NM	NM	NM
MW-13D	7/7/2011	<1	NM	NM	NM	<0.01	50.4	NM	NM	NM
MW-13D	9/15/2011	NM	NM	NM	NM	<0.0005	NM	NM	NM	NM
MW-13D	12/20/2011	<0.113	NM	NM	NM	0.0078	9.48	NM	NM	NM
MW-13D	3/30/2012	NM	NM	NM	NM	0.00167	NM	NM	NM	NM
MW-13D	6/7/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-13D	12/10/2014	NM	NM	NM	NM	0.05140	NM	NM	NM	NM
MW-14D	12/17/2010	<1	NM	NM	NM	NM	676	NM	NM	NM
MW-14D	7/7/2011	<1	NM	NM	NM	NM	896	NM	NM	NM
MW-14D	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-14D	12/20/2011	0.015 J	NM	NM	NM	NM	1819	NM	NM	NM
MW-14D	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-14D	6/7/2012	NM	NM	NM	NM	NM	676	NM	NM	NM
MW-14D	12/10/2012	NM	NM	NM	NM	NM	1339	NM	NM	NM

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

MW-14D	8/20/2013	NM	NM	NM	NM	NM	976	NM	NM	NM
MW-14D	12/5/2013	NM	NM	NM	NM	NM	1679	NM	NM	NM
MW-14D	8/10/2014	NM	NM	NM	NM	NM	914	NM	NM	NM
MW-14D	12/10/2014	NM	NM	NM	NM	NM	1280	NM	NM	NM
MW-15D	12/17/2010	NM	NM	NM	NM	<0.01	NM	NM	NM	<0.01
MW-16D	7/7/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-16D	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-16D	12/20/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-16D	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-16D	12/10/2014	NM	NM	NM	NM	NM	19.5	NM	NM	NM
MW-16D	12/17/2010	<1	NM	NM	NM	NM	268	NM	NM	NM
MW-16D	7/7/2011	<1	NM	NM	NM	NM	160	NM	NM	NM
MW-16D	8/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-16D	12/20/2011	<0.113	NM	NM	NM	NM	136	NM	NM	NM
MW-16D	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-16D	8/7/2012	NM	NM	NM	NM	NM	155	NM	NM	NM
MW-16D	12/10/2012	NM	NM	NM	NM	NM	170	NM	NM	NM
MW-16D	8/20/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-17D	12/17/2010	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-17D	7/7/2011	NM	NM	NM	NM	NM	83.9	NM	NM	NM

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

MW-17D	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-17D	12/20/2011	NM	NM	NM	NM	107	NM	NM	NM	NM	NM	NM
MW-17D	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-17D	12/10/2014	NM	NM	NM	NM	71.0	NM	NM	NM	NM	NM	NM
MW-18D	12/1/2010	NM	NM	NM	NM	<0.01	NM	NM	NM	NM	<0.01	NM
MW-18D	7/7/2011	NM	NM	NM	NM	5.20	NM	NM	NM	NM	NM	NM
MW-18D	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-18D	12/20/2011	NM	NM	NM	NM	7.42	NM	NM	NM	NM	NM	NM
MW-18D	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-18D	12/10/2014	NM	NM	NM	NM	14.8	NM	NM	NM	NM	NM	NM
MW-19D	12/17/2010	NM	NM	NM	NM	<0.01	NM	NM	NM	NM	<0.01	NM
MW-19D	7/7/2011	NM	NM	NM	NM	27.3	NM	NM	NM	NM	NM	NM
MW-19D	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-19D	12/20/2011	NM	NM	NM	NM	18.3	NM	NM	NM	NM	NM	NM
MW-19D	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-20D	12/1/2010	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-20D	7/7/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-20D	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-20D	12/20/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-20D	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

MW-21D	12/17/2010	NM	NM	NM	NM	0.00214	NM	NM	NM	NM
MW-21D	7/7/2011	NM	NM	NM	NM	<0.01	45.6	NM	NM	NM
MW-21D	9/15/2011	NM	NM	NM	NM	0.0048 J	NM	NM	NM	NM
MW-21D	12/20/2011	NM	NM	NM	NM	0.0092	66.3	NM	NM	NM
MW-21D	3/30/2012	NM	NM	NM	NM	0.00599	NM	NM	NM	NM
MW-21D	6/7/2012	NM	NM	NM	NM	0.00910	NM	NM	NM	NM
MW-21D	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-21D	12/10/2014	NM	NM	NM	NM	0.0290	NM	NM	NM	NM
MW-24D	12/17/2010	NM	NM	NM	NM	NM	NM	NM	NM	<0.01
MW-24D	7/7/2011	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
MW-24D	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
MW-24D	12/20/2011	NM	NM	NM	NM	NM	NM	NM	NM	<0.000297
MW-24D	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	0.00003 J
MW-24D	6/7/2012	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
MW-24D	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
MW-24D	6/20/2013	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
MW-24D	12/5/2013	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
MW-24D	6/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	<0.000297
MW-24D	12/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	<0.000297
MW-27D	12/17/2010	NM	NM	NM	NM	NM	NM	NM	NM	NM

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

MW-27D	7/1/2011	NM	NM	NM	NM	<0.01	25.2	NM	NM	NM	NM	NM
MW-27D	8/15/2011	NM	NM	NM	NM	<0.0005	NM	NM	NM	NM	NM	NM
MW-27D	12/29/2011	NM	NM	NM	NM	0.0014 J	21.9	NM	NM	NM	NM	NM
MW-27D	3/30/2012	NM	NM	NM	NM	0.00017 J	NM	NM	NM	NM	NM	NM
MW-27D	6/7/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-28D	12/17/2010	NM	NM	NM	NM	<0.01	NM	NM	NM	NM	NM	<0.01
MW-28D	7/7/2011	NM	NM	NM	NM	<0.01	NM	NM	NM	NM	NM	<0.0005
MW-28D	9/16/2011	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-28D	12/20/2011	NM	NM	NM	NM	0.0024	NM	NM	NM	NM	NM	<0.000297
MW-28D	3/30/2012	NM	NM	NM	NM	<0.00007	NM	NM	NM	NM	NM	<0.00003
MW-28D	8/7/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
MW-28D	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
MW-28D	6/20/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
MW-28D	12/5/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0000641
MW-28D	6/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0000297
MW-28D	12/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0000297
MW-30D	12/17/2010	NM	NM	NM	NM	<0.01	NM	NM	NM	NM	NM	<0.01
MW-30D	7/7/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
MW-30D	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
MW-30D	12/20/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000297

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

MW-30D	3/30/2012	NM	NM	NM	NM	NM	NM	NM	<0.00003
MW-30D	6/7/2012	NM	NM	NM	NM	NM	NM	NM	<0.000128
MW-30D	12/10/2012	NM	NM	NM	NM	NM	NM	NM	<0.000641
MW-30D	6/20/2013	NM	NM	NM	NM	NM	NM	NM	<0.000128
MW-30D	12/5/2013	NM	NM	NM	NM	NM	NM	NM	<0.000641
MW-30D	6/10/2014	NM	NM	NM	NM	NM	NM	NM	<0.0000297
MW-30D	12/10/2014	NM	NM	NM	NM	NM	NM	NM	<0.0000297
MW-31D	12/17/2010	NM	NM	NM	NM	0.6137	NM	NM	NM
MW-31D	7/7/2011	NM	NM	NM	NM	<0.0005	NM	NM	<0.0005
MW-31D	9/15/2011	NM	NM	<0.005	0.6181	NM	NM	<0.0005	<0.0005
MW-31D	12/10/2011	NM	NM	<0.000437	0.0270	NM	NM	<0.000824	<0.000297
MW-31D	3/20/2012	NM	NM	<0.00004	0.0954	NM	NM	0.00021 J	<0.00003
MW-31D	6/7/2012	NM	NM	NM	0.0934	NM	NM	NM	<0.000128
MW-31D	12/10/2012	NM	NM	<0.00133	0.0301	NM	NM	<0.00143	<0.000641
MW-31D	6/20/2013	NM	NM	<0.000266	0.0437	NM	NM	NM	0.000128
MW-31D	12/5/2013	NM	NM	<0.000268	0.0340	NM	NM	NM	<0.000641
MW-31D	8/10/2014	NM	NM	<0.000317	0.0236	NM	NM	NM	<0.0000297
MW-31D	12/10/2014	NM	NM	<0.000317	0.0176	NM	NM	NM	<0.0000297
MW-32D	12/17/2010	NM	NM	NM	NM	NM	NM	NM	<0.01
MW-32D	7/7/2011	NM	NM	NM	NM	NM	NM	NM	<0.0005

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

MW-32D	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
MW-32D	12/20/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000297
MW-32D	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.00003
MW-32D	6/7/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
MW-32D	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
MW-32D	6/20/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
MW-32D	12/5/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
MW-32D	6/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000297
MW-32D	12/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000297
MW-33D	12/17/2010	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.01
MW-33D	7/7/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
MW-33D	9/16/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
MW-33D	12/20/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000297
MW-33D	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.00003
MW-33D	6/7/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
MW-33D	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
MW-33D	6/20/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
MW-33D	12/5/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
MW-33D	6/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000297
MW-33D	12/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000297

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

MW-34DA	12/17/2010	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.01
MW-34DA	7/7/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
MW-34DA	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
MW-34DA	12/20/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000297
MW-34DA	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.00003
MW-34DA	8/7/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
MW-34DA	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
MW-34DA	8/20/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
MW-34DA	12/5/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
MW-34DA	6/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000297
MW-34DA	12/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000297
MW-38D	12/17/2010	NM	NM	NM	NM	NM	NM	NM	80.5	NM	NM	NM
MW-38D	7/7/2011	NM	NM	NM	NM	NM	NM	NM	70.6	NM	NM	NM
MW-38D	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-38D	12/20/2011	NM	NM	NM	NM	NM	NM	NM	169	NM	NM	NM
MW-38D	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-38D	8/7/2012	NM	NM	NM	NM	NM	NM	NM	235	NM	NM	NM
MW-38D	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-38D	12/17/2010	NM	NM	NM	NM	NM	NM	<0.01	NM	NM	NM	<0.01
MW-38D	7/7/2011	NM	NM	NM	NM	NM	NM	NM	66.3	NM	NM	<0.0005

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

MW-39D	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
MW-39D	12/20/2011	NM	NM	NM	NM	NM	72.7	NM	NM	NM	NM	<0.000297
MW-39D	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.00006 J
MW-39D	6/7/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
MW-39D	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
MW-39D	6/20/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
MW-39D	12/5/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
MW-39D	6/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.0000300 J
MW-39D	12/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0000297
MW-43	12/17/2010	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.01
MW-43	7/7/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
MW-43	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
MW-43	12/20/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000297
MW-43	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.00003
MW-43	6/7/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
MW-43	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
MW-43	6/20/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
MW-43	12/5/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
MW-43	6/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0000297
MW-43	12/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000297

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

MW-46	12/17/2010	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.01
MW-46	7/7/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
MW-46	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
MW-46	12/20/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000297
MW-46	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.00003
MW-46	6/7/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.00128
MW-46	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
MW-46	6/20/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.00128
MW-46	12/5/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0000641
MW-46	6/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.0000460 J
MW-46	12/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0000297
RW-1	12/10/2014	NM	NM	NM	NM	NM	NM	0.000820	6.38	NM	NM
RW-3	12/17/2010	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-3	7/7/2011	NM	NM	NM	NM	NM	NM	<0.01	22.0	<0.01	NM
RW-3	9/15/2011	NM	NM	NM	NM	NM	NM	<0.0005	NM	0.0016 J	NM
RW-3	12/20/2011	NM	NM	NM	NM	NM	NM	0.0018 J	3.23	<0.00147	NM
RW-3	3/30/2012	NM	NM	NM	NM	NM	NM	<0.00007	NM	0.00037 J	NM
RW-3	8/7/2012	NM	NM	NM	NM	NM	NM	NM	49.8	NM	NM
RW-3	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-4	12/17/2010	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

RW-4	7/1/2011	NM	NM	NM	NM	NM	NM	378	NM	NM	NM
RW-4	8/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-4	12/20/2011	NM	NM	NM	NM	NM	NM	361	NM	NM	NM
RW-4	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-4	6/7/2012	NM	NM	NM	NM	NM	NM	366	NM	NM	NM
RW-4	12/10/2012	NM	NM	NM	NM	NM	NM	339	NM	NM	NM
RW-4	6/20/2013	NM	NM	NM	NM	NM	NM	470	NM	NM	NM
RW-4	12/5/2013	NM	NM	NM	NM	NM	NM	322	NM	NM	NM
RW-4	6/10/2014	NM	NM	NM	NM	NM	NM	324	NM	NM	NM
RW-4	12/10/2014	NM	NM	NM	NM	NM	NM	290	NM	NM	NM
RW-5	12/17/2010	NM	NM	NM	NM	NM	NM	507	NM	NM	NM
RW-5	7/1/2011	NM	NM	NM	NM	NM	NM	532	NM	NM	NM
RW-5	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-5	12/20/2011	NM	NM	NM	NM	NM	NM	666	NM	NM	NM
RW-5	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-5	6/7/2012	NM	NM	NM	NM	NM	NM	429	NM	NM	NM
RW-5	12/10/2012	NM	NM	NM	NM	NM	NM	366	NM	NM	NM
RW-5	6/20/2013	NM	NM	NM	NM	NM	NM	464	NM	NM	NM
RW-5	12/5/2013	NM	NM	NM	NM	NM	NM	410	NM	NM	NM
RW-5	6/10/2014	NM	NM	NM	NM	NM	NM	1390	NM	NM	NM

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

RW-6	12/10/2014	NM	NM	NM	NM	NM	617	NM	NM	NM
RW-7	12/17/2010	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-7	7/7/2011	NM	NM	NM	NM	<0.01	6.64	NM	NM	NM
RW-7	8/15/2011	NM	NM	NM	NM	<0.0005	NM	NM	NM	NM
RW-7	12/20/2011	NM	NM	NM	NM	0.0025 J	6.08	NM	NM	NM
RW-7	3/20/2012	NM	NM	NM	NM	0.0005	NM	NM	NM	NM
RW-7	6/7/2012	NM	NM	NM	NM	<0.000699	37.4	NM	NM	NM
RW-7	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-8	12/17/2010	NM	NM	NM	NM	NM	233	NM	NM	NM
RW-8	7/7/2011	NM	NM	NM	NM	NM	249	NM	NM	NM
RW-8	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-8	12/20/2011	NM	NM	NM	NM	NM	214	NM	NM	NM
RW-8	3/20/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-8	12/10/2014	NM	NM	NM	NM	NM	143	NM	NM	NM
RW-8	12/17/2010	NM	NM	NM	NM	NM	46.9	NM	NM	NM
RW-9	7/7/2011	NM	NM	NM	NM	<0.01	77.8	NM	NM	NM
RW-9	8/15/2011	NM	NM	NM	NM	<0.0005	NM	NM	NM	NM
RW-9	12/20/2011	NM	NM	NM	NM	0.0016 J	40.7	NM	NM	NM
RW-9	3/20/2012	NM	NM	NM	NM	0.0002 J	NM	NM	NM	NM
RW-9	6/7/2012	NM	NM	NM	NM	0.00270 J	59.0	NM	NM	NM

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

RW-9	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-10	12/17/2010	NM	NM	NM	<0.01	NM	NM	NM	NM	NM	NM	NM
RW-10	7/7/2011	NM	NM	NM	<0.01	NM	NM	NM	NM	NM	NM	<0.0005
RW-10	9/15/2011	NM	NM	NM	<0.0005	NM	NM	NM	NM	NM	NM	<0.0005
RW-10	12/20/2011	NM	NM	NM	0.0016 J	NM	NM	NM	NM	NM	NM	0.0006 J
RW-10	3/30/2012	NM	NM	NM	0.00013 J	NM	NM	NM	NM	NM	NM	<0.00003
RW-10	6/7/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
RW-10	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
RW-10	6/20/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
RW-10	12/5/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0000641
RW-10	6/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0000297
RW-10	12/10/2014	NM	NM	NM	NM	NM	NM	3.43	NM	NM	NM	NM
RW-11	12/17/2010	NM	NM	NM	<0.01	NM	NM	NM	NM	NM	NM	<0.01
RW-11	7/7/2011	NM	NM	NM	<0.01	NM	NM	NM	NM	NM	NM	<0.0005
RW-11	8/15/2011	NM	NM	NM	<0.0005	NM	NM	NM	NM	NM	NM	<0.0005
RW-11	12/20/2011	NM	NM	NM	0.0035 J	NM	NM	NM	NM	NM	NM	<0.000297
RW-11	3/30/2012	NM	NM	NM	0.0006	NM	NM	NM	NM	NM	NM	<0.00003
RW-11	6/7/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
RW-11	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
RW-11	6/20/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

RW-11	12/5/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
RW-11	8/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000257
RW-11	12/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000257
RW-12	12/17/2010	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.01
RW-12	7/7/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
RW-12	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
RW-12	12/20/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000257
RW-12	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.00003
RW-12	6/7/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
RW-12	12/10/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
RW-12	6/20/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000128
RW-12	12/5/2013	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000641
RW-12	8/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000257
RW-12	12/10/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.000257
RW-16	12/17/2010	<1	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-16	7/7/2011	<1	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-16	8/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-16	12/20/2011	<0.113	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-16	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-17	12/17/2010	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.01

Table 3
Historical Groundwater Analytical Results
Wilmington, North Carolina

RW-17	7/1/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	<0.0005
RW-17	9/15/2011	NM	NM	<0.0005	NM	NM	NM	NM	NM	NM	<0.0005	<0.0005
RW-17	12/20/2011	NM	NM	<0.000437	NM	NM	NM	NM	NM	NM	<0.00024	<0.000287
RW-17	3/30/2012	NM	NM	<0.00004	NM	NM	NM	NM	NM	NM	0.00017 J	<0.00003
RW-17	6/7/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-18	12/17/2010	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-18	7/7/2011	NM	NM	NM	NM	NM	NM	2230	NM	NM	NM	NM
RW-18	9/15/2011	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-18	12/20/2011	NM	NM	NM	NM	NM	NM	3080	NM	NM	NM	NM
RW-18	3/30/2012	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
RW-18	6/7/2012	NM	NM	NM	NM	NM	NM	2380	NM	NM	NM	NM
RW-18	12/10/2012	NM	NM	NM	NM	NM	NM	2000	NM	NM	NM	NM
RW-18	8/20/2013	NM	NM	NM	NM	NM	NM	2620	NM	NM	NM	NM
RW-18	12/5/2013	NM	NM	NM	NM	NM	NM	2890	NM	NM	NM	NM
RW-18	6/10/2014	NM	NM	NM	NM	NM	NM	2730	NM	NM	NM	NM
RW-18	12/10/2014	NM	NM	NM	NM	NM	NM	2550	NM	NM	NM	NM
RW-19	12/10/2014	NM	NM	NM	NM	NM	NM	13.1	NM	NM	NM	NM

Notes:
For non-detect measurements (<), the detection limit (Practical Quantitation Limit or PQL) is listed.
ug/L - micrograms per liter or parts per billion (ppb)
mg/L - milligrams per liter or parts per million (ppm)
J - Indicates the analytical result is an estimated concentration between the method detection limit and the laboratory method reporting limit.
NM - Not measured

FIGURES



Figure 1 – Site Location Map

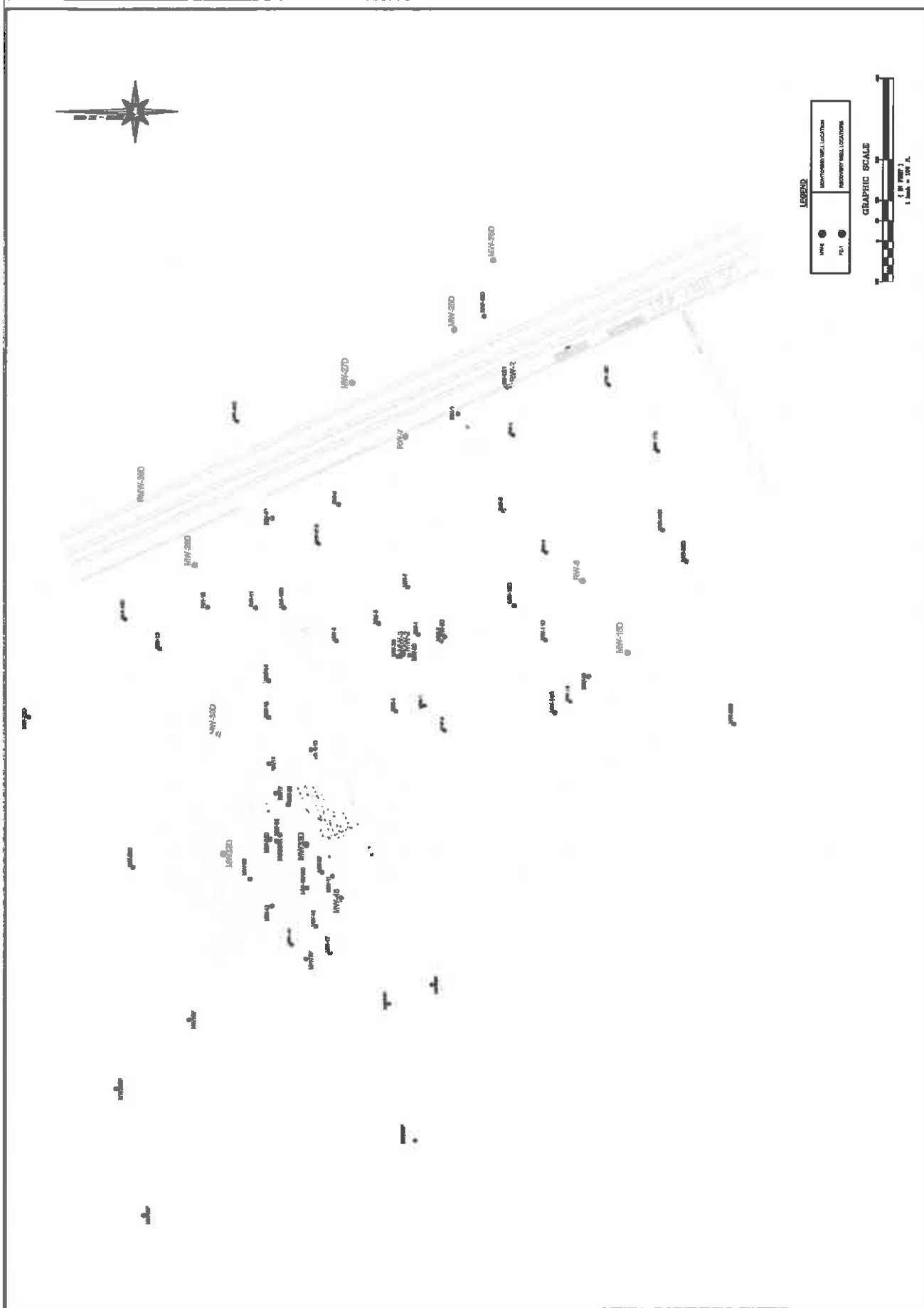
Source: USGS 7.5 Minute Topographic Map
Leland, NC 1984

Scale: 1:24,000



Site Name:

**BASF Corporation
Wilmington, North Carolina**





ELM 8th Station, Inc.
P.O. Box 9707
Raleigh, North Carolina 27624
Phone: (919) 782-4753



By the use of this plan, the user assumes all liability for any and all errors or omissions in the data or information provided. The user agrees to hold ELM harmless from and against all claims, damages, costs, and expenses, including reasonable attorneys' fees, arising from or due to the use of this plan.

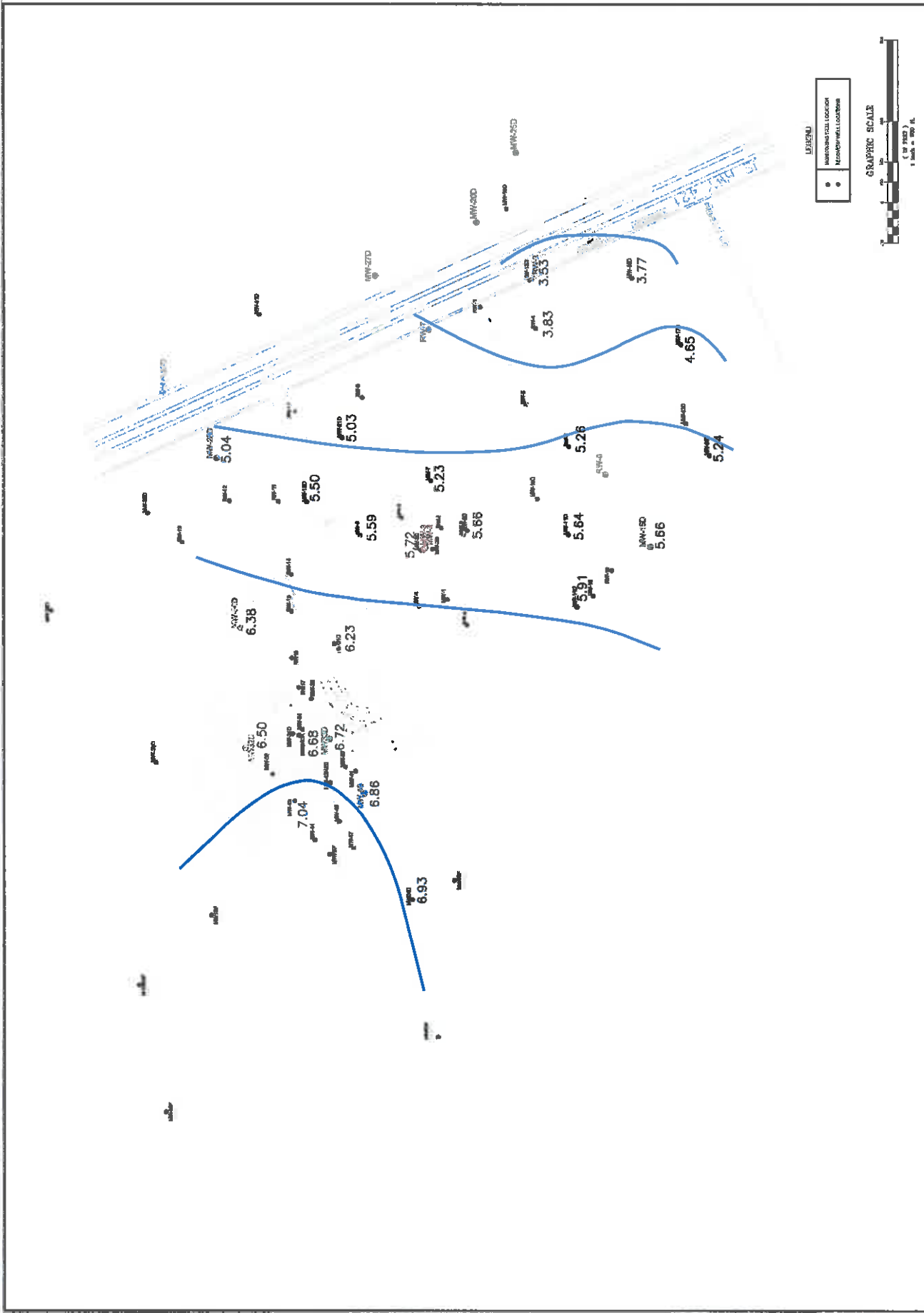
DATE: 12/08/14
SCALE: 1"=100'
PROJECT:

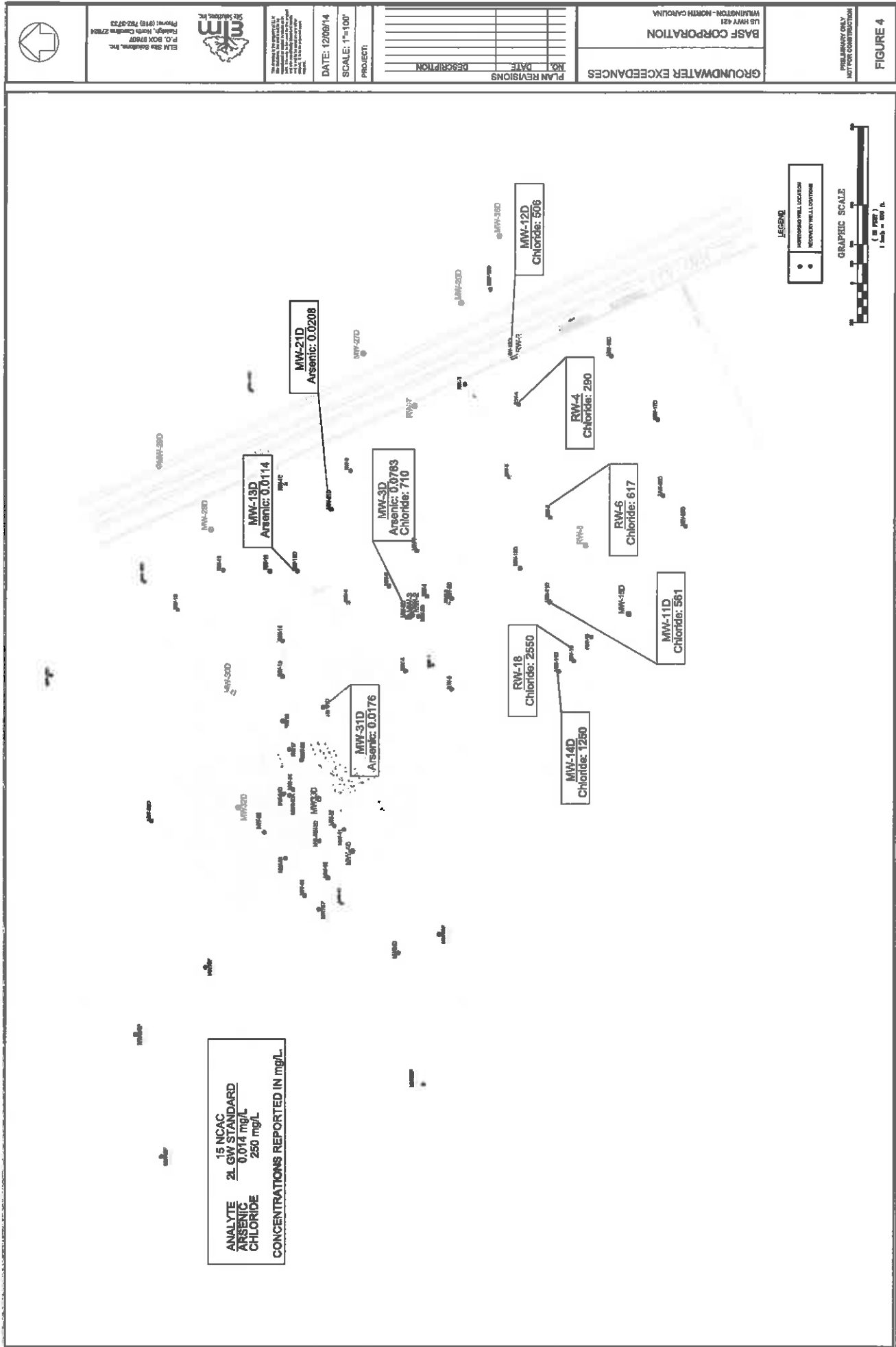
NO.	DATE	DESCRIPTION

POTENTIOMETRIC SURFACE
MAP
BASF CORPORATION
168 HAY 421
WILMINGTON - NORTH CAROLINA

THIS DRAWING IS NOT FOR CONSTRUCTION

FIGURE 3





APPENDICES

Appendix A

Field Data Sheets



Well/Piezo ID: DF-2

Ground Water Sample Collection Record

Client: DAVE

Date: 12-11-14

Project Name: _____

Project Number: _____

Site Location: WILMINGTON

Start: 1045 am/pm

Weather Conditions: CLEAR, 40's, LIGHT WIND

Finish: 1105 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 8.92 d. Casing Diameter: 1" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model 6020 Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1050	2	17.62	6.71	0.402	2.6	12.35	-41.9	CLEAR		
1053		18.60	6.11	0.088	6.8	13.33	20.5	"		
1056		18.56	6.15	0.084	2.2	11.63	36.4	"		
1059		18.55	6.16	0.087	0.9	16.82	14.9	"		
1102	1.5	18.62	6.18	0.075	3.2	10.62	49.9	"		

e. Acceptance criteria pass/fail

Has required volume been removed	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A - Explain below _____

SAMPLE COLLECTION: Method: PERI PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
DF-2	500 ML	1	HNO ₃	THALLIUM	1105

Additional Comments: _____

Signature: [Signature] Date: 12-11-14



Well/Piezo ID: DP-6

Ground Water Sample Collection Record

Client: FASIF Date: 12-12-14
 Project Name: _____ Project Number: _____
 Site Location: WILMINGTON Start: 08:55 am/pm
 Weather Conditions: CLEAR, WIND 30'S, LIGHT WIND Finish: 09:20 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 17.80 d. Casing Diameter: 1" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ X/A well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model 6920 Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
0903	0	17.92	6.77	0.421	25.9	0.64	-5.8	CLEAR		
0908		18.13	6.77	0.410	12.6	0.70	-4.0	"		
0913		18.41	6.77	0.402	4.6	0.74	-3.2	"		
0916	1.5	18.45	6.77	0.401	4.6	0.73	-3.9	"		

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A - Explain below

SAMPLE COLLECTION: Method: PERI PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>DP-6</u>	<u>500 ML</u>	<u>1</u>	<u>HNO3</u>	<u>TRACIUM II AF2000</u>	<u>0920</u>

Additional Comments: _____

Signature: LOUNT Date: 12-12-14



Well/Piezo ID: MW-2D

Ground Water Sample Collection Record

Client: BASF
 Project Name: _____
 Site Location: WILMINGTON
 Weather Conditions: CLEAR, 50's, CALM

Date: 12-11-14
 Project Number: _____
 Start: 1520 am/pm
 Finish: 1605 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC
 b. Water Table Depth: 10.20 d. Casing Diameter: 2" e. Water Column Length (a-b): _____
 f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW - FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1547	0	19.06	6.78	0.398	37.6	2.37	16.6	CLEAR		
1550		19.07	6.78	0.387	24.3	2.20	16.7	"		
1553		19.06	6.77	0.377	17.6	1.97	15.7	"		
1559		18.98	6.76	0.405	7.9	0.89	-45.3	"		
1602	2.0	18.93	6.78	0.426	7.1	0.66	-63.7	"		

e. Acceptance criteria pass/fail
 Has required volume been removed Yes ☐ No ☐ N/A ☒
 Has required turbidity been reached Yes ☒ No ☐ N/A ☐
 Have parameters stabilized Yes ☒ No ☐ N/A ☐
 If No or N/A - Explain below _____

SAMPLE COLLECTION: Method: PCC-1 PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
MW-2D	500 ML	1	HNO3	ARSENIC	1605
	125 ML	1	NONE	CHLORINE	

Additional Comments: _____

Signature: TOMT Date: 12-11-14



Well/Piezo ID: MW-3D

Ground Water Sample Collection Record

Client: BASE
 Project Name: _____
 Site Location: WILMINGTON
 Weather Conditions: CLEAR, 40's, CALM

Date: 12-11-14
 Project Number: _____
 Start: 1610 am/pm
 Finish: 1652 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC
 b. Water Table Depth: 9.32 d. Casing Diameter: 2"
 e. Water Column Length (a-b): _____
 f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ N/A well volumes)
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1621	0	19.72	7.17	1.761	13.9	0.26	-146	1000		
1624		19.75	7.14	1.942	17.5	0.18	-144	"		
1632		19.64	7.13	2.081	27.5	0.11	-154	"		
1636		19.32	7.14	2.279	26.3	0.10	-156	"		
1641		19.19	7.14	2.357	14.5	0.10	-156	"		
1644		19.12	7.14	2.376	10.9	0.10	-156	"		
1647	2.0	19.07	7.15	2.379	7.3	0.11	-158	"		

c. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A - Explain below

SAMPLE COLLECTION: Method: PERI PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
MW-3D	500 ML	1	HNO3	ARGENTUM	1652
	500 ML	1	NONE	CHLORIDE	

Additional Comments: _____

Signature: TWYLL Date: 12-11-14

NOTE →



Well/Piezo ID: MW-4

Ground Water Sample Collection Record

Client: BASE

Date: 12-12-14

Project Name: _____

Project Number: _____

Site Location: WILMINGTON

Start: 0925 am/pm

Weather Conditions: CLEAR, LIGHT 30%, LIGHT WIND

Finish: 1000 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 11.23 d. Casing Diameter: 2" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
0940	0	17.62	6.98	0.194	27.3	2.45	3.3	CLEAR		
0945		17.70	6.97	0.213	19.1	2.43	4.0	"		
0950		17.76	6.95	0.226	16.2	2.38	14.3	"		
0956		17.71	6.93	0.232	12.5	2.40	28.4	"		
1001	2.0	17.70	6.94	0.234	8.8	2.44	24.2	"		

c. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A - Explain below

SAMPLE COLLECTION: Method: PER-1 PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>MW-4</u>	<u>500 ML</u>	<u>1</u>	<u>HNO3</u>	<u>ARSENIC</u>	<u>1000</u>

Additional Comments: _____

Signature: TCMT

Date: 12-12-14



Well/Piezo ID: MLW-6

Ground Water Sample Collection Record

Client: BASF
 Project Name: _____
 Site Location: WILMINGTON
 Weather Conditions: CLEAR, 40's, LIGHT WIND

Date: 12-12-14
 Project Number: _____
 Start: 1140 am/pm
 Finish: 1200 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 13.64 d. Casing Diameter: 2" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ N/A well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1150	0	19.61	7.06	0.166	2.7	2.46	-41.7	CLEAR		
1153		19.93	6.97	0.165	0.1	2.58	-22.5	"		
1156		19.94	6.94	0.165	0.4	2.59	-12.6	"		
1159	1.0	19.95	6.97	0.165	1.2	2.82	-8.6	"		

c. Acceptance criteria pass/fail

Has required volume been removed ☐
 Has required turbidity been reached ☒
 Have parameters stabilized ☒
 If No or N/A - Explain below

Yes No N/A
☐ ☐ ☒
☒ ☐ ☐
☒ ☐ ☐

SAMPLE COLLECTION:

Method: PERC PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>MLW-6</u>	<u>500 ML</u>	<u>1</u>	<u>HNO3</u>	<u>ARSENIC</u>	<u>1200</u>

Additional Comments: _____

Signature: [Signature]

Date: 12-12-14



Well/Piezo ID: MW-7

Ground Water Sample Collection Record

Client: BASF
 Project Name: _____
 Site Location: WILMINGTON
 Weather Conditions: _____

Date: 12-11-14
 Project Number: _____
 Start: 12:45 am/pm
 Finish: 1:30 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 22.55 d. Casing Diameter: 2" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
12:52	0	19.80	5.17	0.036	2.5	10.77	92.4	Clear		
12:56		19.41	5.10	0.035	1.8	10.76	102.7	"		
13:00		19.37	5.04	0.042	0.6	10.66	103.8	"		
13:03	1.5	19.37	5.06	0.039	2.0	10.54	115	"		

e. Acceptance criteria pass/fail

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If No or N/A - Explain below

Yes	No	N/A
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAMPLE COLLECTION: Method: PERC PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>MW-7</u>	<u>500 mL</u>	<u>1</u>	<u>14203</u>	<u>ARSENIC THALAM</u>	<u>13:05</u>
	<u>125 mL</u>	<u>1</u>	<u>NINE</u>	<u>CHLORIDE</u>	

Additional Comments: _____

Signature: TOM

Date: 12-11-14



Well/Piezo ID: MW-8D

Ground Water Sample Collection Record

Client: BASF
 Project Name: WILKINSON
 Site Location: WILKINSON
 Weather Conditions: Mostly Cloudy, 40% humidity

Date: 12-11-14
 Project Number: 1205
 Start: 1235 am/pm
 Finish: 1235 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: 23.61 c. Casing Material: PVC e. Water Column Length (a-b):
 b. Water Table Depth: 23.61 d. Casing Diameter: 2" f. Calculated Well Volume:

WELL PURGING DATA:

a. Purge Method: LOW-Flow
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes)
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model Serial Number
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1217	0	18.57	6.70	0.476	31.4	2.84	16.7	Clear		
1220		18.85	6.64	0.465	1.7	2.70	-2.9	"		
1225		19.01	6.61	0.460	1.7	2.49	8.0	"		
1228		19.34	6.59	0.454	2.0	2.41	12.3	"		
1232	2.0	19.29	6.59	0.454	4.3	2.52	7.7	"		

a. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A - Explain below

SAMPLE COLLECTION: Method: Peri Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>MW-8D</u>	<u>500 ML</u>	<u>1</u>	<u>H2O2</u>	<u>ARSENIC</u>	<u>1235</u>
	<u>125 ML</u>	<u>1</u>	<u>NONE</u>	<u>CHLORINE</u>	

Additional Comments:

Signature: [Signature]

Date: 12-11-14



Well/Piezo ID: MW-11D

Ground Water Sample Collection Record

Client: BASF

Date: 12-11-14

Project Name: WILMINGTON

Project Number: 1110

Site Location: WILMINGTON

Start: 1110 am/pm

Weather Conditions: MOIST, CLEAR, 40°, LIGHT WIND

Finish: 1200 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: 7.67 c. Casing Material: ALC e. Water Column Length (a-b):
 b. Water Table Depth: d. Casing Diameter: 2" f. Calculated Well Volume:

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes)
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model Serial Number
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1118	0	16.32	6.64	0.894	18.5	2.49	-238	1500		
1122		16.31	6.61	0.933	11.7	1.32	-104	"		
1126		17.62	6.88	0.751	11.3	1.32	-99.4	"		
1130		17.61	7.01	0.962	26.8	1.27	-119	"		
1135		17.26	7.10	1.401	24.9	1.17	-138	"		
1140		17.36	7.12	1.656	26.7	1.15	-144	"		
1145		17.28	7.13	1.916	24.0	1.13	-145	"		
1150		17.55	7.14	1.988	26.3	1.13	-146	"		
1156	2.5	17.28	7.14	2.122	12.3	1.11	-147			

e. Acceptance criteria pass/fail

Has required volume been removed ☐ Yes ☐ No ☒ N/A
 Has required turbidity been reached ☐ Yes ☒ No ☐ N/A
 Have parameters stabilized ☒ Yes ☐ No ☐ N/A
 If No or N/A - Explain below

SAMPLE COLLECTION:

Method: Per. Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
MW-11D	125 ML	1	NONE	CHLORIDE	1200

Additional Comments:

Signature: [Signature]

Date: 12-11-14



Well/Piezo ID: MW-12-D

Ground Water Sample Collection Record

Client: BASF
 Project Name: WILMINGTON
 Site Location: _____
 Weather Conditions: CLEAR, 40's

Date: 12-10-14
 Project Number: _____
 Start: 0925 am/pm
 Finish: 1000 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 9.14 d. Casing Diameter: 2" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes)
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
0730	0	16.92	6.68	0.159	11.6	0.08	-12.7	CLEAR		
0734		17.49	6.72	0.172	11.3	0.06	-12.1	"		
0740		17.33	6.64	0.338	12.5	0.09	-11.9	"		
0745		17.56	6.96	0.7						
0748		16.98	7.53	1.295	14.2	0.05	-11.3	"		
0753		16.73	7.12	1.633	12.2	0.02	-13.1	"		
0756		16.60	7.14	1.705	9.3	0.02	-13.0	"		
0759	1.0	16.59	7.14	1.713	8.4	0.03	-12.9	"		

a. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A - Explain below

SAMPLE COLLECTION: Method: PERI PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
MW-12-D	125 ML	1	NONE	CALCINE	1000

Additional Comments:

Signature: TOMMY

Date: 12-10-14



Well/Piezo ID: MW-13D

Ground Water Sample Collection Record

Client: BASE
 Project Name: WILMINGTON
 Site Location: _____
 Weather Conditions: _____

Date: 12-9-14
 Project Number: _____
 Start: 1605 am/pm
 Finish: 1640 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 11.60 d. Casing Diameter: 2" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1618	0	20.06	7.19	0.255	33.4	0.13	-4.1	Clear		
1621		20.07	7.15	0.263	21.4	0.12	-48	"		
1624		20.24	7.17	0.275	20.6	0.11	-68.4	"		
1629		20.28	7.24	0.681	10.1	0.06	-121	"		
1634		20.24	7.31	0.730	9.2	0.05	-140	"		
1637	2.0	20.06	7.33	0.720	6.7	0.04	-142	"		

e. Acceptance criteria pass/fail

Yes	No	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If No or N/A -- Explain below

SAMPLE COLLECTION: Method: PERI PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
MW-13D	500 ML	1	HTO'S	ARSENIC	1640

Additional Comments: _____

Signature: TCMT

Date: 12-9-14



Well/Piezo ID: MW-14D

Ground Water Sample Collection Record

Client: BASF
 Project Name: WILKINSON
 Site Location: WILKINSON
 Weather Conditions: CLEAR, 40's, LIGHT BREEZE

Date: 12-11-14
 Project Number: 0950
 Start: 0950 am/pm
 Finish: 1040 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: 6.24 c. Casing Material: PVC e. Water Column Length (a b):
 b. Water Table Depth: d. Casing Diameter: 2 f. Calculated Well Volume:

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes)
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make: YSI Model: Serial Number:
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
0957	0	16.05	6.62	1.204	30.6	0.32	-87	CLEAR		
1002		16.50	6.66	1.214	17.3	1.42	-100	"		
1007		16.60	6.73	4.249	38.4	0.73	-135	"		
1012		17.05	6.98	4.348	39.9	0.65	-143	"		
1017		17.61	6.99	4.255	40.8	0.69	-144	"		
1022		17.63	7.00	4.225	30.7	0.72	-145	"		
1027		17.59	6.99	4.170	21.9	0.78	-143	"		
1032		17.53	7.00	4.140	16.9	0.83	-143	"		
1037	4.0	17.57	7.00	4.113	18.9	0.84	-144	"		

c. Acceptance criteria pass/fail

Has required volume been removed ☐ Yes ☒ No ☒
 Has required turbidity been reached ☐ Yes ☒ No ☐
 Have parameters stabilized ☒ Yes ☐ No ☐
 If No or N/A - Explain below

SAMPLE COLLECTION: Method: PERC PLUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
MW-14D	125 ML	1	NONE	CHLORINE	1040

Additional Comments:

Signature: T. E. W. W.

Date: 12-11-14



Well/Piezo ID: MW-150

Ground Water Sample Collection Record

Client: BASF
 Project Name: WILMINGTON
 Site Location: _____
 Weather Conditions: MOSTLY CLOUDY, SUN, BREEZY

Date: 12-10-14
 Project Number: _____
 Start: 1420 am/pm
 Finish: 1435 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: AC e. Water Column Length (a-b): _____
 b. Water Table Depth: 5.38 d. Casing Diameter: 2" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model 602C Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1425	0	19.44	5.76	0.177	2.3	1.06	68.3	CLEAR		
1430		19.39	5.74	0.209	1.1	1.18	72.6	"		
1433		19.47	5.74	0.209	0.2	1.27	70.2	"		
1436	1.5	19.40	5.74	0.213	0.1	1.29	60.0	"		

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A - Explain below

SAMPLE COLLECTION: Method: PERI PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>MW-150</u>	<u>125 ML</u>	<u>1</u>	<u>NONE</u>	<u>CHLORIDE</u>	<u>1435</u>

Additional Comments: _____

Signature: T. W. W. Date: 12-10-14



Well/Piezo ID: MW-17D

Ground Water Sample Collection Record

Client: BASF
Project Name: WATER TREATMENT
Site Location: _____
Weather Conditions: Clear, 50°

Date: 12-10-14
Project Number: _____
Start: 1110 am/pm
Finish: 1130 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a b): _____
b. Water Table Depth: 7.46 d. Casing Diameter: 4" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: Low-flow
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ NA well volumes)
- Maximum Allowable Turbidity 12 NTUs
- Stabilization of Parameters 10 %
c. Field Testing Equipment Used
Make YSI Model _____ Serial Number _____
d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1127	0	18.70	6.06	0.303	6.7	0.06	63.2	Clear		
1131		18.82	6.06	0.303	5.4	0.05	59.4	"		
1134		18.84	6.06	0.303	5.7	0.06	59.7	"		
1137	1.5	18.86	6.06	0.303	3.8	0.06	60.4	"		

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A - Explain below

SAMPLE COLLECTION:

Method: Perc Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
MW-17D	125 ML	1	NONE	CHLORINE	1130

Additional Comments: _____

Signature: [Signature]

Date: 12-10-14



Well/Piezo ID: MW-1RD

Ground Water Sample Collection Record

Client: BASF
 Project Name: Wilmington
 Site Location: _____
 Weather Conditions: Clear, 50°

Date: 12-10-14
 Project Number: _____
 Start: 1145 am/pm
 Finish: 1245 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 5.76 d. Casing Diameter: 6" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: Low-Flow
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation _____

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1152	0	18.44	5.99	0.101	5.7	0.12	58.3	CLEAR		
1158		18.83	5.68	0.071	4.0	0.14	73.9	"		
1158		18.93	5.63	0.071	4.0	0.13	74.4	"		
1201	1.0	18.74	5.64	0.070	3.8	0.14	80.7	"		

e. Acceptance criteria pass/fail

Has required volume been removed	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A - Explain below _____

SAMPLE COLLECTION: Method: _____

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
MW-1RD	125 mL	1	NONE	CHEM-FINE	1205

Additional Comments: _____

Signature: [Signature]

Date: 12-10-14



Well/Piezo ID: MLW-21D

Ground Water Sample Collection Record

Client: BASF
 Project Name: _____
 Site Location: WILMINGTON
 Weather Conditions: CLEAR, 40's, LIGHT WIND

Date: 12-12-14
 Project Number: _____
 Start: 1015 am/pm
 Finish: 1130 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 17.65 d. Casing Diameter: 2" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes)
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make LISI Model L1020 Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1117	6	18.7E	7.10	0.445	111.3	0.11	-112	Pale ORANGE		
1124		18.80	7.09	0.446	97.6	0.11	-104	"		
1127		18.7E	7.09	0.448	93.6	0.11	-107	"		
1130	8.5	18.79	7.09	0.446	82.2	0.11	-111	"		

c. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A - Explain below

SAMPLE COLLECTION: Method: Peri Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>MLW-21D</u>	<u>500 ML</u>	<u>1</u>	<u>HNO3</u>	<u>ARSENIC</u>	<u>1130</u>

Additional Comments: _____

Signature: [Signature]

Date: 12-12-14



Well/Piezo ID: MW-242

Ground Water Sample Collection Record

Client: BASF
 Project Name: WILMINGTON
 Site Location: _____
 Weather Conditions: OVERCAST, 40s, BREEZY

Date: 12-9-14
 Project Number: _____
 Start: 1300 am/pm
 Finish: 1325 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 10.28 d. Casing Diameter: 2" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes)
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1305	0	17.75	5.64	0.083	0.4	0.17	46.6	ELITE		
1310		18.33	5.63	0.087	0.6	0.20	73.7	"		
1315		18.47	4.78	0.087	0.4	0.20	138.4	"		
1322	3.0	18.42	4.77	0.089	0.4	0.18	70.1	"		

e. Acceptance criteria pass/fail

Has required volume been removed	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Has required turbidity been reached	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Have parameters stabilized	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>

If No or N/A - Explain below

SAMPLE COLLECTION: Method: PERC PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>MW-242</u>	<u>500 ML</u>	<u>1</u>	<u>PHOS</u>	<u>THALAM</u>	<u>1325</u>

Additional Comments: _____

Signature: JOHN Date: 12-9-14



Well/Piezo ID: MW-2ED

Ground Water Sample Collection Record

Client: BASF
 Project Name: WILMINGTON
 Site Location: _____
 Weather Conditions: OVERCAST, 40's, BREEZY

Date: 12-9-14
 Project Number: _____
 Start: 1405 am/pm
 Finish: 1430 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 27.20 d. Casing Diameter: 2" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes)
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 *
 c. Field Testing Equipment Used
 Make YSI Model 6020 Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1415	0	17.11	6.61	0.062	3.3	0.14	-24.7	u200		
1420		17.57	6.43	0.066	3.50	0.17	-5.4	"		
1423		17.71	6.38	0.067	0.4	0.18	2.3	"		
1426		17.83	6.36	0.068	0.4	0.19	7.8	"		
1429	1.5	17.85	6.34	0.068	1.0	0.19	8.1	"		

c. Acceptance criteria pass/fail

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If No or N/A -- Explain below

Yes	No	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAMPLE COLLECTION:

Method: Peri Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
MW-2ED	500 mL	1	100%	THM200	1430

Additional Comments: _____

Signature: TGM

Date: 12-9-14



Well/Piezo ID: MIN-300

Ground Water Sample Collection Record

Client: BASF Date: 12-9-14
 Project Name: WILKINSON Project Number: _____
 Site Location: _____ Start: 1340 am/pm
 Weather Conditions: OVERCAST, 40's, BREEZY Finish: 1400 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 16.45' d. Casing Diameter: 2" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ N/A well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1340	0	19.0	6.67	0.136	3.9	0.10	74.7	CLAR		
1345		19.3	6.70	0.206	5.6	0.04	25.7	"		
1350		17.2	6.93	0.239	3.2	0.03	-53.2	"		
1355		19.2	7.01	0.241	2.1	0.03	-102	"		
1400	2.0	19.17	7.03	0.241	1.8	0.03	-102.7	"		

e. Acceptance criteria pass/fail

Has required volume been removed	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A - Explain below

SAMPLE COLLECTION: Method: PUMP - PERM

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>MIN-300</u>	<u>500 mL</u>	<u>1</u>	<u>HNO3</u>	<u>THALLIUM</u>	<u>1400</u>

Additional Comments: _____

Signature: LOM Date: 12-9-14



Well/Piezo ID: MW-31D

Ground Water Sample Collection Record

Client: BASF Date: 12-9-14
 Project Name: WILMINGTON Project Number: _____
 Site Location: _____ Start: 1125 am/pm
 Weather Conditions: Overcast, 40's, Breezy Finish: 1200 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 15.43 d. Casing Diameter: 2" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ N/A well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10' %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1120	0	19.33	7.46	0.186	38.6	4.12	-64.9	CLEAR		
1141		19.25	7.35	0.222	15.0	0.31	-134	"		
1146		19.06	7.30	0.234	12.9	0.19	-135	"		
1150		18.95	7.29	0.233	12.3	0.14	-136	"		
1155	1.5	18.77	7.27	0.232	7.3	0.12	-140	"		

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A - Explain below

SAMPLE COLLECTION: Method: Perc - Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>MW-31D</u>	<u>500 ML</u>	<u>1</u>	<u>HNO3</u>	<u>AMMONIUM</u> <u>ARSENIC</u> <u>THALLIUM</u>	<u>1200</u>

Additional Comments: _____

Signature: TAMC Date: 12-9-14



Well/Piezo ID: MW-32D

Ground Water Sample Collection Record

Client: BASF Date: 12-9-14
 Project Name: WILKINSON Project Number: _____
 Site Location: _____ Start: 1005 am/pm
 Weather Conditions: OVERCAST, 40's, F20-24 Finish: 1025 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 15.56 d. Casing Diameter: 2" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs _____
 - Stabilization of Parameters 10 % _____
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation _____

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1008	0	18.23	7.30	0.120	0.7	7.11	23.2	CLEAR		
1011		19.68	7.44	0.124	0.7	7.12	-19.5	"		
1014		19.57	7.60	0.126	0.2	7.53	-78.2	"		
1017		19.54	7.62	0.127	0.2	6.92	-124	"		
1020		19.52	7.65	0.127	0.1	6.88	-130	"		
1023	1.0	19.50	7.66	0.129	0.1	6.85	-132	"		

c. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A - Explain below _____

SAMPLE COLLECTION: Method: FOR - Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>MW-32D</u>	<u>500 mL</u>	<u>1</u>	<u>HNO3</u>	<u>TRACUM</u>	<u>1025</u>

Additional Comments: _____

Signature: T. Evans Date: 12-9-14



Well/Piezo ID: MW-330

Ground Water Sample Collection Record

Client: DASF
 Project Name: WILMINGTON
 Site Location: _____
 Weather Conditions: OVERCAST, 40%, Breezy

Date: 12-9-14
 Project Number: _____
 Start: 1055 am/pm
 Finish: 1110 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 15.74 d. Casing Diameter: 2" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ N/A well volumes)
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model 6000 Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1057	0	19.44	7.20	0.295	3.5	2.94	-3.5	CLEAR		
1101		20.50	7.14	0.320	3.1	0.67	-72.4	"		
1105		20.20	7.12	0.354	3.3	0.42	-87.4	"		
1110		20.26	7.12	0.355	4.7	0.31	-82.4	"		

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A - Explain below

SAMPLE COLLECTION: Method: peristaltic pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
MW-330	500 mL	1	PHOS	THSium	1:10

Additional Comments: _____

Signature: TOM

Date: 12-9-14



Well/Piezo ID: MW-34-DA

Ground Water Sample Collection Record

Client: BASF
Project Name: WILKINSON
Site Location: _____
Weather Conditions: OVERCAST, 40's, Breezy

Date: 12-9-14
Project Number: _____
Start: 1030 am/pm
Finish: 1050 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
b. Water Table Depth: 18.35 d. Casing Diameter: 6" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
b. Acceptance Criteria:
- Minimum Required Purge Volume (@ NA well volumes) _____
- Maximum Allowable Turbidity 10 NTUs
- Stabilization of Parameters 10 %
c. Field Testing Equipment Used
Make YSI Model _____ Serial Number _____
d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1037	0	19.60	7.25	0.219	3.9	4.13	-16.4	CLEAR		
1040		19.76	7.27	0.250	4.7	4.21	-11.8	"		
1044		19.74	7.25	0.253	4.0	4.10	-5.6	"		
1047	1.5	19.76	7.23	0.251	4.2	4.09	-4.9	"		

e. Acceptance criteria: pass/fail
Has required volume been removed ☐ Yes ☐ No ☒ N/A
Has required turbidity been reached ☒ Yes ☐ No ☐ N/A
Have parameters stabilized ☒ Yes ☐ No ☐ N/A
If No or N/A - Explain below

SAMPLE COLLECTION:

Method: Peristaltic Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>MW-34-DA</u>	<u>500 mL</u>	<u>1</u>	<u>HNO3</u>	<u>THAM</u>	<u>1050</u>

Additional Comments: _____

Signature: TCM Date: 12-9-14



Well/Piezo ID: MW-39D

Ground Water Sample Collection Record

Client: BASF
 Project Name: WILKINSON
 Site Location: _____
 Weather Conditions: Clear, 40's

Date: 12-10-14
 Project Number: _____
 Start: 1040 am/pm
 Finish: 1100 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 3.72 d. Casing Diameter: 2" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSE Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1040	0	15.90	7.22	0.237	5.7	0.07	-4.0	Clear		
1051		16.46	6.17	0.201	3.5	0.08	43.7	"		
1054		16.60	5.88	0.190	1.3	0.09	57.6	"		
1057		16.77	5.74	0.185	0.9	0.11	62.5	"		
1100	1.5	16.63	5.65	0.183	1.3	0.12	78.2	"		

e. Acceptance criteria pass/fail

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If No or N/A - Explain below

Yes	No	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAMPLE COLLECTION:

Method: Peri Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>MW-39D</u>	<u>500ML</u>	<u>1</u>	<u>HNO3</u>	<u>TOTAL</u>	<u>1100</u>

Additional Comments: _____

Signature: TCM

Date: 12-10-14



Well/Piezo ID: MW-43

Ground Water Sample Collection Record

Client: BASF Date: 12-9-14
 Project Name: WILMINGTON Project Number: _____
 Site Location: _____ Start: 0940 am/pm
 Weather Conditions: CLOUDY, 40s, BREEZY Finish: 1000 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column length (a-b): _____
 b. Water Table Depth: 14.27 d. Casing Diameter: 2" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
0942	0	20.19	6.95	0.034	5.2	10.54	24.1	CLAR		
0945		21.32	6.80	0.040	4.7	9.52	25.3	"		
0948		21.22	6.82	0.056	4.7	8.68	34.7	"		
0952		21.26	6.83	0.021	2.4	7.90	31.8	"		
0956	1.5	21.24	6.87	0.122	2.8	7.56	30.0	"		

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A - Explain below

SAMPLE COLLECTION: Method: PERM - PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
MW-43	2 L	1	10% HCl	1000	1000

Additional Comments:

Signature: [Signature] Date: 12-9-14



Well/Piezo ID: MW-46

Ground Water Sample Collection Record

Client: BASF
 Project Name: WILMINGTON
 Site Location: _____
 Weather Conditions: OVERCAST, 40's, FREEZE

Date: 12-9-14
 Project Number: _____
 Start: 0916 am/pm
 Finish: 0930 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 14.82 d. Casing Diameter: 2" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 Stabilization of Parameters 10 *
 c. Field Testing Equipment Used
 Make YSI Model 6820 Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
0914	0	18.83	6.21	0.043	2.1	7.05	-17.9	0.00		
0917		19.04	6.27	0.072	1.8	6.55	-14.9	"		
0920		20.04	6.27	0.114	1.2	6.45	-5.5	"		
0923		20.05	6.31	0.111	0.1	6.34	3.6	"		
0926	1.5	20.07	6.36	0.103	1.2	6.58	13.5	"		

e. Acceptance criteria pass/fail

Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If No or N/A - Explain below

Yes	No	N/A
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAMPLE COLLECTION:

Method: PER-1 - PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
MW-46	500 ml	1	HNO ₃	Asbestos	0930

Additional Comments: _____

Signature: [Signature]

Date: 12-9-14



Well/Piezo ID: RW-1

Ground Water Sample Collection Record

Client: BASF
 Project Name: _____
 Site Location: WILMINGTON
 Weather Conditions: CLEAR, SUN, LIGHT BREEZE

Date: 12-11-14
 Project Number: _____
 Start: 1410 am/pm
 Finish: 1515 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC
 b. Water Table Depth: 12.61 d. Casing Diameter: 4"
 e. Water Column Length (a-b): _____
 f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1448	0	20.11	6.77	0.196	38.4	0.60	-52.0	PALE CRAN		
1453		19.93	6.77	0.187	28.3	0.59	-52.3	CLEAR		
1458		19.61	6.76	0.182	22.4	0.57	-52.9	"		
1503		19.46	6.76	0.180	18.1	0.55	-52.6	"		
1509		19.44	6.75	0.179	11.8	0.56	-53.4	"		
1513	2.5	19.26	6.74	0.179	6.6	0.55	-53.9	"		

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A – Explain below

SAMPLE COLLECTION:

Method: Perc AMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>RW-1</u>	<u>500 ML</u> <u>125 mL</u>	<u>1</u> <u>1</u>	<u>HNO3</u> <u>NONE</u>	<u>ARSENIC</u> <u>CHLORIDE</u>	<u>1515</u>

Additional Comments: _____

Signature: DMC

Date: 12-11-14



Well/Piezo ID: RW-4

Ground Water Sample Collection Record

Client: BASF
 Project Name: Wilmington
 Site Location: _____
 Weather Conditions: Clear 40's

Date: 12-10-14
 Project Number: _____
 Start: 1005 am/pm
 Finish: 1025 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC
 b. Water Table Depth: 4.45 d. Casing Diameter: 4"
 e. Water Column Length (a-b): _____
 f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes)
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T° (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1010	0	16.74	7.02	1.078	10.7	0.07	-46.7	CLEAR		
1013		16.68	7.00	1.038	8.9	0.06	-36.3	"		
1016		16.73	6.97	1.025	7.2	0.07	-24.5	"		
1019		16.78	6.98	1.016	5.4	0.08	-14.9	"		
1022	1.5	16.79	6.96	1.013	5.2	0.08	-7.3	"		

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A - Explain below

SAMPLE COLLECTION: Method: Perist Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>RW-4</u>	<u>125 mL</u>	<u>1</u>	<u>NONE</u>	<u>CHLORINE</u>	<u>1025</u>

Additional Comments: _____

Signature: T. W. L.

Date: 12-10-14



Well/Piezo ID: RW-6

Ground Water Sample Collection Record

Client: BASF
 Project Name: WILMINGTON
 Site Location: _____
 Weather Conditions: MOSTLY CLEAR, SOL, BREEZY

Date: 12-10-14
 Project Number: _____
 Start: 1315 am/pm
 Finish: 1350 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PC e. Water Column Length (a-b): _____
 b. Water Table Depth: 4.34 d. Casing Diameter: 4" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1330	0	18.46	6.64	2.174	13.4	0.23	52.2	CLEAR		
1333		18.48	6.64	2.175	16.7	0.24	53.2	"		
1336		18.33	6.65	2.172	19.0	0.37	52.7	"		
1337		18.23	6.65	2.163	16.0	0.46	52.7	"		
1342		18.24	6.65	2.156	13.4	0.56	52.7	"		
1345		18.36	6.65	2.142	11.8	0.64	52.5	"		
1348	2.0	18.29	6.65	2.140	9.7	0.69	52.5			

c. Acceptance criteria pass/fail

Has required volume been removed ☐
 Has required turbidity been reached ☒
 Have parameters stabilized ☒
 If No or N/A - Explain below

Yes No N/A
☐ ☐ ☒
☒ ☐ ☐
☒ ☐ ☐

SAMPLE COLLECTION:

Method: PERI PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>RW-6</u>	<u>125 ML</u>	<u>1</u>	<u>NONE</u>	<u>CUTTER-ONE</u>	<u>1350</u>

Additional Comments: _____

Signature: TOMMY

Date: 12-10-14



Well/Piezo ID: RW-8

Ground Water Sample Collection Record

Client: FAIR Date: 12-16-14
 Project Name: WILMINGTON Project Number: 1405
 Site Location: _____ Start: 1400 am/pm
 Weather Conditions: MISTY CLOUDY, 52°F, BREEZY Finish: 1415 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 3.13 d. Casing Diameter: 4" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1400	0	17.43	6.80	0.661	17.2	0.93	38.3	10.0		
1405		17.64	6.65	0.628	6.0	1.21	45.7	"		
1408		17.67	6.64	0.628	4.4	1.35	46.8	"		
1411	2.0	17.68	6.63	0.627	3.0	1.47	49.1	"		

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A – Explain below

SAMPLE COLLECTION: Method: PERI PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>RW-8</u>	<u>125 ML</u>	<u>1</u>	<u>NONE</u>	<u>FLUORIDE CHLORINE</u>	<u>1415</u>

Additional Comments: _____

Signature: T. GUNT Date: 12-16-14



Well/Piezo ID: PW-12

Ground Water Sample Collection Record

Client: BASF Date: 12-10-14
 Project Name: WILKINSON Project Number: _____
 Site Location: _____ Start: 0845 am/pm
 Weather Conditions: CLEAR, 40's, LIGHT BREEZE Finish: 0910 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: ALC e. Water Column Length (a-b): _____
 b. Water Table Depth: 21.24 d. Casing Diameter: 6" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs _____
 - Stabilization of Parameters 10 % _____
 c. Field Testing Equipment Used
 Make YSI Model 6000 Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
0855	0	18.42	6.72	0.144	6.7	0.12	-33.5	CLEAR		
0858		18.37	6.63	0.149	1.5	0.13	-10.3	"		
0901		18.35	6.63	0.147	1.8	0.13	-10.3	"		
0905		18.38	6.61	0.149	3.4	0.14	-3.1	"		
0908	1.0	18.40	6.60	0.149	4.4	0.14	0.7	"		

e. Acceptance criteria pass/fail

Has required volume been removed	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Has required turbidity been reached	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Have parameters stabilized	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>

If No or N/A—Explain below

SAMPLE COLLECTION: Method: PERISTALTIC PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>PW-12</u>	<u>125 ML</u>	<u>1</u>	<u>NOISE</u>	<u>CHLORINE</u>	<u>0910</u>

Additional Comments: _____

Signature: [Signature] Date: 12-10-14



Well/Piezo ID: PW-11

Ground Water Sample Collection Record

Client: BS&SF

Date: 12-9-14

Project Name: WILMINGTON

Project Number: _____

Site Location: _____

Start: 1540 am/pm

Weather Conditions: OVERCAST, 40's, BREEZE

Finish: 1600 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 15.71 d. Casing Diameter: 6" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs _____
 - Stabilization of Parameters 10 % _____
 c. Field Testing Equipment Used
 Make YST Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation _____

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1547	0	18.05	7.06	0.357	0.96	0.17	16.7	CLEAR		
1552		18.65	7.06	0.394	0.95	0.14	16.0	"		
1553		19.02	7.07	0.375	2.2	0.14	17.3	"		
1556	1.0	19.26	7.07	0.376	1.6	0.14	17.9	"		

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A - Explain below

SAMPLE COLLECTION: Method: PERISTALTIC PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>PW-11</u>	<u>500 ML</u>	<u>1</u>	<u>HTSS</u>	<u>THM</u>	<u>1600</u>

Additional Comments: _____

Signature: TCM

Date: 12-9-14



Well/Piezo ID: PW-12

Ground Water Sample Collection Record

Client: BADF
 Project Name: WALWORTH
 Site Location: OVERCA ST, 403, Broomfield
 Weather Conditions: OVERCAST, 40's, Broomfield

Date: 12-9-14
 Project Number: _____
 Start: 14:40 am/pm
 Finish: 15:35 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC
 b. Water Table Depth: 22.04 d. Casing Diameter: 6"
 e. Water Column Length (a-b): _____
 f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10' %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1510	0	18.39	6.70	0.258	31.1	0.03	-1.5	PALE ORANGE		
1515		18.21	6.70	0.257	31.2	0.03	-3.5	"		
1523		17.80	6.74	0.249	29.0	0.06	-4.2	"		
1528		17.97	6.73	0.250	27.0	0.05	-9.0	CLEAR		
1533	2.5	18.02	6.73	0.258	26.4	0.04	-4.5	"		

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A—Explain below _____

SAMPLE COLLECTION:

Method: PERC PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>PW-12</u>	<u>500 ML</u>	<u>1</u>	<u>ACID'S</u>	<u>TRACIA</u>	<u>1535</u>

Additional Comments: _____

Signature: T. V. M. Date: 12-9-14



Well/Piezo ID: 2W-1E

Ground Water Sample Collection Record

Client: BASE
 Project Name: WILKINGTON
 Site Location: _____
 Weather Conditions: DRIZZLE, SUN, LIGHT WIND

Date: 12-10-14
 Project Number: _____
 Start: 1505 am/pm
 Finish: 1610 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC e. Water Column Length (a-b): _____
 b. Water Table Depth: 5.10 d. Casing Diameter: 6" f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ N/A well volumes) _____
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation _____

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1548	4.0	18.75	6.89	7.504	62.1	0.51	-131	PALE ORANGE		
1553		18.76	6.93	7.475	59.4	0.18	-125	"		
1558		18.71	6.94	7.477	55.6	0.13	-151	CLEAR		
1602		18.68	6.95	7.451	56.4	0.11	-155	"		
1607	7.5	18.78	6.96	7.422	46.8	0.10	-159	"		

e. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A – Explain below

SAMPLE COLLECTION: Method: Force Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>2W-1E</u>	<u>125 ML</u>	<u>1</u>	<u>NONE</u>	<u>CHLORINE</u>	<u>1610</u>

Additional Comments: _____

Signature: TCM

Date: 12-10-14



Well/Piezo ID: RW-19

Ground Water Sample Collection Record

Client: BASE
 Project Name: WILMINGTON
 Site Location: _____
 Weather Conditions: OVERCAST, SUN, BREEZY

Date: 12-10-14
 Project Number: _____
 Start: 1445 am/pm
 Finish: 1500 am/pm

WATER LEVEL DATA: (measured from top of casing)

a. Total Well Length: _____ c. Casing Material: PVC
 b. Water Table Depth: 4.70 d. Casing Diameter: 6"
 e. Water Column Length (a-b): _____
 f. Calculated Well Volume: _____

WELL PURGING DATA:

a. Purge Method: LOW-FLOW
 b. Acceptance Criteria:
 - Minimum Required Purge Volume (@ NA well volumes)
 - Maximum Allowable Turbidity 10 NTUs
 - Stabilization of Parameters 10 %
 c. Field Testing Equipment Used
 Make YSI Model _____ Serial Number _____
 d. Field Testing Equipment Calibration Documentation

Time	Volume Removed (gal)	T (C/F)	pH	Specific Conductivity	Turbidity (NTUs)	Dissolved Oxygen	Oxygen Reduction Potential	Color	Odor	Other
1445	0	17.63	6.47	0.221	0.1	2.09	85.9	CLEAR		
1453		17.55	6.52	0.222	0.1	2.22	84.2	"		
1457		17.52	6.53	0.222	0.1	2.35	83.1	"		
1500	1.25	17.54	6.53	0.222	0.1	2.36	82.4	"		

c. Acceptance criteria pass/fail

Has required volume been removed	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If No or N/A - Explain below _____

SAMPLE COLLECTION:

Method: PERI PUMP

Sample ID	Container Type	No. of Containers	Preservation	Analysis	Time
<u>RW-19</u>	<u>125 ML</u>	<u>1</u>	<u>NONE</u>	<u>CHLORIDE</u>	<u>1500</u>

Additional Comments: _____

Signature: _____

Date: 12-10-14



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SPECIAL INSTRUCTIONS/COMMENTS:

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NOTES

Philippe

References

11. 12. 13.

State of Oregon

0-2-4-6-8-10-12-14-16-18-20-22-24-26-28-30-32-34-36-38-40-42-44-46-48-50-52-54-56-58-60-62-64-66-68-70-72-74-76-78-80-82-84-86-88-90-92-94-96-98-100-102-104-106-108-110-112-114-116-118-120-122-124-126-128-130-132-134-136-138-140-142-144-146-148-150-152-154-156-158-160-162-164-166-168-170-172-174-176-178-180-182-184-186-188-190-192-194-196-198-200-202-204-206-208-210-212-214-216-218-220-222-224-226-228-230-232-234-236-238-240-242-244-246-248-250-252-254-256-258-260-262-264-266-268-270-272-274-276-278-280-282-284-286-288-290-292-294-296-298-300-302-304-306-308-310-312-314-316-318-320-322-324-326-328-330-332-334-336-338-340-342-344-346-348-350-352-354-356-358-360-362-364-366-368-370-372-374-376-378-380-382-384-386-388-390-392-394-396-398-400-402-404-406-408-410-412-414-416-418-420-422-424-426-428-430-432-434-436-438-440-442-444-446-448-450-452-454-456-458-460-462-464-466-468-470-472-474-476-478-480-482-484-486-488-490-492-494-496-498-500-502-504-506-508-510-512-514-516-518-520-522-524-526-528-530-532-534-536-538-540-542-544-546-548-550-552-554-556-558-560-562-564-566-568-570-572-574-576-578-580-582-584-586-588-590-592-594-596-598-600-602-604-606-608-610-612-614-616-618-620-622-624-626-628-630-632-634-636-638-640-642-644-646-648-650-652-654-656-658-660-662-664-666-668-670-672-674-676-678-680-682-684-686-688-690-692-694-696-698-700-702-704-706-708-710-712-714-716-718-720-722-724-726-728-730-732-734-736-738-740-742-744-746-748-750-752-754-756-758-760-762-764-766-768-770-772-774-776-778-780-782-784-786-788-790-792-794-796-798-800-802-804-806-808-810-812-814-816-818-820-822-824-826-828-830-832-834-836-838-840-842-844-846-848-850-852-854-856-858-860-862-864-866-868-870-872-874-876-878-880-882-884-886-888-890-892-894-896-898-900-902-904-906-908-910-912-914-916-918-920-922-924-926-928-930-932-934-936-938-940-942-944-946-948-950-952-954-956-958-960-962-964-966-968-970-972-974-976-978-980-982-984-986-988-990-992-994-996-998-1000-1002-1004-1006-1008-1010-1012-1014-1016-1018-1020-1022-1024-1026-1028-1030-1032-1034-1036-1038-1040-1042-1044-1046-1048-1050-1052-1054-1056-1058-1060-1062-1064-1066-1068-1070-1072-1074-1076-1078-1080-1082-1084-1086-1088-1090-1092-1094-1096-1098-1100-1102-1104-1106-1108-1110-1112-1114-1116-1118-1120-1122-1124-1126-1128-1130-1132-1134-1136-1138-1140-1142-1144-1146-1148-1150-1152-1154-1156-1158-1160-1162-1164-1166-1168-1170-1172-1174-1176-1178-1180-1182-1184-1186-1188-1190-1192-1194-1196-1198-1200-1202-1204-1206-1208-1210-1212-1214-1216-1218-1220-1222-1224-1226-1228-1230-1232-1234-1236-1238-1240-1242-1244-1246-1248-1250-1252-1254-1256-1258-1260-1262-1264-1266-1268-1270-1272-1274-1276-1278-1280-1282-1284-1286-1288-1290-1292-1294-1296-1298-1300-1302-1304-1306-1308-1310-1312-1314-1316-1318-1320-1322-1324-1326-1328-1330-1332-1334-1336-1338-1340-1342-1344-1346-1348-1350-1352-1354-1356-1358-1360-1362-1364-1366-1368-1370-1372-1374-1376-1378-1380-1382-1384-1386-1388-1390-1392-1394-1396-1398-1400-1402-1404-1406-1408-1410-1412-1414-1416-1418-1420-1422-1424-1426-1428-1430-1432-1434-1436-1438-1440-1442-1444-1446-1448-1450-1452-1454-1456-1458-1460-1462-1464-1466-1468-1470-1472-1474-1476-1478-1480-1482-1484-1486-1488-1490-1492-1494-1496-1498-1500-1502-1504-1506-1508-1510-1512-1514-1516-1518-1520-1522-1524-1526-1528-1530-1532-1534-1536-1538-1540-1542-1544-1546-1548-1550-1552-1554-1556-1558-1560-1562-1564-1566-1568-1570-1572-1574-1576-1578-1580-1582-1584-1586-1588-1590-1592-1594-1596-1598-1600-1602-1604-1606-1608-1610-1612-1614-1616-1618-1620-1622-1624-1626-1628-1630-1632-1634-1636-1638-1640-1642-1644-1646-1648-1650-1652-1654-1656-1658-1660-1662-1664-1666-1668-1670-1672-1674-1676-1678-1680-1682-1684-1686-1688-1690-1692-1694-1696-1698-1700-1702-1704-1706-1708-1710-1712-1714-1716-1718-1720-1722-1724-1726-1728-1730-1732-1734-1736-1738-1740-1742-1744-1746-1748-1750-1752-1754-1756-1758-1760-1762-1764-1766-1768-1770-1772-1774-1776-1778-1780-1782-1784-1786-1788-1790-1792-1794-1796-1798-1800-1802-1804-1806-1808-1810-1812-1814-1816-1818-1820-1822-1824-1826-1828-1830-1832-1834-1836-1838-1840-1842-1844-1846-1848-1850-1852-1854-1856-1858-1

INVOICE TO: - CHECK IF SAME

CC-BY-NC-ND 4.0

ADRESSES

7-0733

127

PRESERVATIVE

ANALYSIS & METHOD

REFERENCE

LAB ID	SAMPLE ID / DESCRIPTION	DATE	TIME	QC			TYPE	MATRIX	CONT. QTY	REMARKS
				MS	MSD	DUP				
	MSD-4A	12-9	1025				G	GM1	1 X	
	MSD-4A	12-9	1030				G	GM1	1 X	
	MSD-27D	12-9	1025				G	GM1	1 X	
	MSD-24DA	12-9	1025				G	GM1	1 X	
	MSD-28D	12-9	1030				G	GM1	1 X	
	MSD-28D	12-9	1030				G	GM1	1 X	
	MSD-24B	12-9	1025				G	GM1	1 X	
	MSD-30D	12-9	1030				G	GM1	1 X	
	MSD-28D	12-9	1030				G	GM1	1 X	
	MSD-11	12-9	1035				G	GM1	1 X	
COLLECTED/RELINQUISHED BY (1P)				RECEIVED BY:						
DATE:		TIME:		RECEIVED BY:						
12-12-14		14:47								
RELINQUISHED BY (2P)				RECEIVED BY:						
DATE:		TIME:		RECEIVED BY:						
NOTES				RECEIVED BY LABORATORY				DATE:		
COC SEAL				TWAC				BROKEN		
SAMPLE RECEIVED TEMP: 0°				TRACKING #:				ABSENT		
CARRIER										



CHAIN OF CUSTODY | CONVENTIONAL & SHALE

SPECIAL INSTRUCTIONS / COMMENTS:

PRESERVATIVE

20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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姓名	性别	年龄	职业	住址	联系电话
张明	男	35	教师	北京市朝阳区	13800138000
李华	女	28	医生	北京市海淀区	13900139000
王强	男	42	工程师	上海市浦东新区	13600136000
赵敏	女	31	记者	广州市天河区	13500135000
陈伟	男	25	学生	深圳市南山区	13400134000
周丽	女	38	律师	北京市西城区	13300133000
吴昊	男	22	程序员	杭州市西湖区	13200132000
郑芳	女	33	会计	武汉市江汉区	13100131000
孙伟	男	45	经理	南京市鼓楼区	13000130000
马娟	女	27	护士	成都市高新区	12900129000
徐强	男	36	司机	郑州市金水区	12800128000
黄丽	女	29	设计师	昆明市五华区	12700127000
周伟	男	41	教授	海口市琼山区	12600126000
赵敏	女	32	作家	贵阳市南明区	12500125000
陈伟	男	24	销售	海口市秀英区	12400124000
周丽	女	37	法官	贵阳市观山湖区	12300123000
吴昊	男	23	程序员	贵阳市云岩区	12200122000
郑芳	女	34	会计	贵阳市乌当区	12100121000
孙伟	男	46	经理	贵阳市花溪区	12000120000
马娟	女	26	护士	贵阳市白云区	11900119000
徐强	男	35	司机	贵阳市南明区	11800118000
黄丽	女	28	设计师	贵阳市观山湖区	11700117000
周伟	男	40	教授	贵阳市云岩区	11600116000
赵敏	女	31	作家	贵阳市乌当区	11500115000
陈伟	男	25	销售	贵阳市花溪区	11400114000
周丽	女	36	法官	贵阳市白云区	11300113000
吴昊	男	22	程序员	贵阳市南明区	11200112000
郑芳	女	33	会计	贵阳市观山湖区	11100111000
孙伟	男	44	经理	贵阳市云岩区	11000110000
马娟	女	27	护士	贵阳市乌当区	10900109000
徐强	男	34	司机	贵阳市花溪区	10800108000
黄丽	女	29	设计师	贵阳市白云区	10700107000
周伟	男	41	教授	贵阳市南明区	10600106000
赵敏	女	32	作家	贵阳市观山湖区	10500105000
陈伟	男	24	销售	贵阳市云岩区	10400104000
周丽	女	37	法官	贵阳市乌当区	10300103000
吴昊	男	23	程序员	贵阳市花溪区	10200102000
郑芳	女	34	会计	贵阳市白云区	10100101000
孙伟	男	45	经理	贵阳市南明区	10000100000

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Page	Author	Year	Journal	Volume	Issue	Pages
1	Smith	1998	Journal of Management	24	1	1-15
2	Johnson	2001	Strategic Management Journal	22	2	161-178
3	Williams	2005	Organization Science	16	3	311-325
4	Chen	2008	Academy of Management Review	33	4	1055-1075
5	Lee	2010	Strategic Management Journal	31	1	1-15
6	Kim	2012	Organization Science	23	2	211-225
7	Patel	2015	Journal of Management	41	3	451-465
8	Nguyen	2017	Strategic Management Journal	38	4	511-525
9	Wong	2019	Organization Science	30	1	1-15
10	Chen	2020	Academy of Management Review	45	2	311-325

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Journal of Management Inquiry 22(4) 399-414

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RECEIVED BY LABORATORY:	DATE:	TIME:
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REFLECTION	10/15	10/15
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COLLEGE:	WPI	BROKEN	ABSENT
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DATE RECEIVED: _____

CHINA	INDEXING
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Publications, *See* *Journal of Management Education*

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Appendix B

Laboratory Analytical Report

Laboratory Report of Analysis

To: Rusty Norris
ELM Site Solutions
P.O. Box 97607
Raleigh, NC 27624

Report Number: **31401993**

Client Project: **BASF Wilmington**

Dear Rusty Norris,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

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

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.



Digitally signed by: Michael Page
DN: CN = Michael Page C = US O = SGS North
America OU = Environmental Services
Date: 2014.12.17 10:11:19 -04'00'

Michael D. Page
Project Manager
michael.page@sgs.com

Date

Print Date: 12/17/2014

N.C. Certification # 441

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Laboratory Qualifiers

Report Definitions

DL	Method, Instrument, or Estimated Detection Limit per Analytical Method
CL	Control Limits for the recovery result of a parameter
LOQ	Reporting Limit
DF	Dilution Factor
RPD	Relative Percent Difference
LCS(D)	Laboratory Control Spike (Duplicate)
MS(D)	Matrix Spike (Duplicate)
MB	Method Blank

Qualifier Definitions

*	Recovery or RPD outside of control limits
B	Analyte was detected in the Lab Method Blank at a level above the LOQ
U	Undetected (Reported as ND or < DL)
J	Estimated Concentration.
E	Amount detected is greater than the Upper Calibration Limit
TIC	Tentatively Identified Compound
ND	Not Detected
P	RPD > 40% between results of dual columns
D	Spike or surrogate was diluted out in order to achieve a parameter result within instrument calibration range

Samples requiring manual integrations for various congeners and/or standards are marked and dated by the analyst. A code definition is provided below:

M1	Mis-identified peak
M2	Software did not integrate peak
M3	Incorrect baseline construction (i.e. not all of peak included; two peaks integrated as one)
M4	Pattern integration required (i.e. DRO, GRO, PCB, Toxaphene and Technical Chlordane)
M5	Other - Explained in case narrative

Note Results pages that include a value for "Solids (%)" have been adjusted for moisture content.

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
MW-46	31401993001	12/09/2014 09:30	12/12/2014 14:47	Water
MW-43	31401993002	12/09/2014 10:00	12/12/2014 14:47	Water
MW-32D	31401993003	12/09/2014 10:25	12/12/2014 14:47	Water
MW-34DA	31401993004	12/09/2014 10:50	12/12/2014 14:47	Water
MW-33D	31401993005	12/09/2014 11:10	12/12/2014 14:47	Water
MW-31D	31401993006	12/09/2014 12:00	12/12/2014 14:47	Water
MW-24D	31401993007	12/09/2014 13:25	12/12/2014 14:47	Water
MW-30D	31401993008	12/09/2014 14:00	12/12/2014 14:47	Water
MW-28D	31401993009	12/09/2014 14:30	12/12/2014 14:47	Water
RW-12	31401993010	12/09/2014 15:35	12/12/2014 14:47	Water
RW-11	31401993011	12/09/2014 16:00	12/12/2014 14:47	Water
MW-13D	31401993012	12/09/2014 16:40	12/12/2014 14:47	Water
RW-10	31401993013	12/10/2014 09:10	12/12/2014 14:47	Water
MW-12D	31401993014	12/10/2014 10:00	12/12/2014 14:47	Water
RW-4	31401993015	12/10/2014 10:25	12/12/2014 14:47	Water
MW-39D	31401993016	12/10/2014 11:00	12/12/2014 14:47	Water
MW-17D	31401993017	12/10/2014 11:30	12/12/2014 14:47	Water
MW-18D	31401993018	12/10/2014 12:05	12/12/2014 14:47	Water
RW-6	31401993019	12/10/2014 13:50	12/12/2014 14:47	Water
RW-8	31401993020	12/10/2014 14:15	12/12/2014 14:47	Water
MW-15D	31401993021	12/10/2014 14:35	12/12/2014 14:47	Water
RW-19	31401993022	12/10/2014 15:00	12/12/2014 14:47	Water
RW-18	31401993023	12/10/2014 16:10	12/12/2014 14:47	Water
MW-14D	31401993024	12/11/2014 10:40	12/12/2014 14:47	Water
DP-2	31401993025	12/11/2014 11:05	12/12/2014 14:47	Water
MW-11D	31401993026	12/11/2014 12:00	12/12/2014 14:47	Water
MW-8D	31401993027	12/11/2014 12:35	12/12/2014 14:47	Water
MW-7	31401993028	12/11/2014 13:05	12/12/2014 14:47	Water
RW-1	31401993029	12/11/2014 15:15	12/12/2014 14:47	Water
MW-2D	31401993030	12/11/2014 16:05	12/12/2014 14:47	Water
MW-3D	31401993031	12/11/2014 16:50	12/12/2014 14:47	Water
DP-6	31401993032	12/12/2014 09:20	12/12/2014 14:47	Water
MW-4	31401993033	12/12/2014 10:00	12/12/2014 14:47	Water
MW-21D	31401993034	12/12/2014 11:30	12/12/2014 14:47	Water
MW-6	31401993035	12/12/2014 12:00	12/12/2014 14:47	Water

Results of MW-46

Client Sample ID: **MW-46**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: 31401993001-A
 Lab Project ID: 31401993

Collection Date: 12/09/2014 09:30
 Received Date: 12/12/2014 14:47
 Matrix: Water

Results by SW-846 6020A

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>DL</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Thallium	ND	U	0.0000297	0.000500	mg/L	1	12/15/2014 16:30

Batch Information

Analytical Batch: MMS1399
 Analytical Method: SW-846 6020A
 Instrument: ICPMS2
 Analyst: PSW

Prep Batch: MXX3766
 Prep Method: SW-846 3010A
 Prep Date/Time: 12/15/2014 07:59
 Prep Initial Wt./Vol.: 50 mL
 Prep Extract Vol: 50 mL

Results of MW-46

Client Sample ID: **MW-46**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: 3140199300- A2
 Lab Project ID: 31401993

Collection Date: 1-/09/- 014 10:00
 Received Date: 1-/1/- 014 14:47
 Matrix: Water

Results by SW-840 02a2A

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>DL</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Thallium	ND	U	0.0000-97	0.000500	mg/L	1	1-/15/- 014 16:33

Bcthl fnroXnction

2nalytical Batch: MMS1699
 2nalytical Method: SW-840 02a2A
 Instrument: fCPMSa
 2nalyt: PSW

Prep Batch: M336700
 Prep Method: SW-840 6212A
 Prep Date/Time: 1a/15/a214 27:59
 Prep Initial Wt./Vol.: 52 mL
 Prep Extract Vol: 52 mL

veUtu ozMW-32D

Client Sample ID: **MW-32D**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: 31401993003-A
 Lab Project ID: 31401993

Collection Date: 12/09/2014 10:2R
 v eceide7 Date: 12/12/2014 14:4M
 x atrIW O ater

veUtu bf SW-846 6020A

Parameter	veUtu	s Ual	DL	LQs /CL	Fritu	Dy	Date Anal7 Te7
hNaliUm	gD	F	0500029M	0500R00	m. /L	1	12/1R/2014 16:43

Batch Information

Anal7 tical BatcN: MMS1399
 Anal7 tical x etNb7: SW-846 6020A
 InutrUment: ICPMS2
 Anal7 ut: PSW

Prep BatcN: MXX3766
 Prep x etNb7: SW-846 3010A
 Prep Date/hime: 12/15/2014 07:59
 Prep Initial Ot5Vol5: 50 mL
 Prep EVwact Vol: 50 mL

veulitu oz MW-32DB

Client Sample ID: **MW-32DB**
 Client Project ID: **ABSF Wilmington**
 Lab Sample ID: 31401993004-A
 Lab Project ID: 31401993

Collection Date: 12/09/2014 10:R0
 v eceide7 Date: 12/12/2014 14:4M
 x atriW O ater

veulitu bf SW-824 4606B

Parameter	veulit	s Ual	DL	LQs /CL	F nitu	Dy	Date Analif Te7
hNalliUm	g D	F	0000029M	0000R00	m. /L	1	12/1R/2014 16:46

Atatch Information

Analif tical BatcN: MMS1399
 Analif tical x etNb7: **SW-824 4606B**
 InutrUment: ICPMS0
 Analif ut: PSW

Prep BatcN: MXX3744
 Prep x etNb7: **SW-824 3616B**
 Prep Date/hime: 10/15/0612 67:59
 Prep Initial Ot5Vol5: 56 mL
 Prep EVWact Vol: 56 mL

veUtu oz MW-332

Client Sample ID: MW-332
 Client Project ID: DBASRW il mng m
 Lab Sample ID: 3140199300- A2
 Lab Project ID: 31401993

Collection Date: 1/ R9R014 11:10
 v eceide7 Date: 1/ R/ R014 14:4M
 x atriW O ater

veUtu bf AW-o84R606B

Parameter	veUtu	s Ual	DL	LQs RCL	Fnitu	Dy	Date 2nalF TeZ
hNallUm	gD	F	00000/ 9M	0000-00	m. RL	1	1/ R- R014 16:49

Dagchflnt rl agt m

2nalF tical BatcN: MMA1399
 2nalF tical x etNo7: AW-o84R606B
 InutrUment: ICPMA0
 2nalF ut: PAW

Prep BatcN: MXX3744
 Prep x etNo7: AW-o84R616B
 Prep DateRime: 10/15/0618R67:59
 Prep Initial Q (5Vol) 56R L
 Prep EVWact Vol: 56R L

veUtu oz MW-31D

Client Sample ID: **MW-31D**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: **3140199300-A2**
 Lab Project ID: **31401993**

Collection Date: 1/10/2014 11:00
 veceide7 Date: 1/10/2014 14:4M
 x atrW O ater

veUtu bf SW-846 6020A

Parameter	veUtu	s Ual	DL	LQs RCL	F nitu	Dy	Date 2nalf Te7
2ruenic	0.0176		0000gg4	000g00	mhRL	10	1/10-2014 11:/3
2ntimonf	D	F	000031M	0000g00	mhRL	1	1/10-2014 11:/1
56alliUm	D	F	00000/9M	0000g00	mhRL	1	1/10-2014 1-:g/

Batch Information

2nalf tical Batc6: **MMS1399**
 2nalf tical x et6o7: **SW-846 6020A**
 InutrUment: **ICPMS2**
 2nalf ut: **PSW**

Prep Batc6: **MX3766**
 Prep x et6o7: **SW-846 3010A**
 Prep DateTime: **12/15/2014 07:59**
 Prep Initial O tNVolM **50 mL**
 Prep EVWact Vol: **50 mL**

2nalf tical Batc6: **MMS1400**
 2nalf tical x et6o7: **SW-846 6020A**
 InutrUment: **ICPMS2**
 2nalf ut: **PSW**

Prep Batc6: **MX3766**
 Prep x et6o7: **SW-846 3010A**
 Prep DateTime: **12/15/2014 07:59**
 Prep Initial O tNVolM **50 mL**
 Prep EVWact Vol: **50 mL**

Identification

Client Sample ID: **MW-32D**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: **3140199300-A2**
 Lab Project ID: **31401993**

Collection Date: **1/19/2014 13:14**
 Date Received: **1/19/2014 14:45**
 Location: **Water**

Identification

Parameter	Unit	Substance	DL	LOQs	Result	Dy	Date of Test
Ammonium	gD	F	0.0000/9-	0.0000v00	m. R	1	1/19/2014 16:11

Batch Information

Batch Name: **MMS1X99**
 Batch Name: **SW-824 X616A**
 Instrument: **ICPMS3**
 Unit: **PSW**

Prep Batch Name: **Mr r X744**
 Prep Batch Name: **SW-824 X616A**
 Prep Date/Time: **13/15/3612 67:59**
 Prep Initial Volume: **56 mL**
 Prep EWact Vol: **56 mL**

Results of MW-32D

Client Sample ID: **MW-32D**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: 31401993008-A
 Lab Project ID: 31401993

Collection Date: 12/09/2014 14:00
 Received Date: 12/12/2014 14:47
 Matrix: Water

Results by SW-846 6202A

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>DL</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Thallium	ND	U	0.0000297	0.000500	mg/L	1	12/15/2014 16:58

Batch Information

Analytical Batch: MMS1399
 Analytical Method: **SW-846 6202A**
 Instrument: ICPMS0
 Analyst: PSW

Prep Batch: MXX3766
 Prep Method: **SW-846 3212A**
 Prep Date/Time: 10/15/2014 27:59
 Prep Initial Wt./Vol.: 52 mL
 Prep Extract Vol: 52 mL

Results of MW-32D

Client Sample ID: MW-32D
 Client Project ID: BASF Wilmington
 Lab Sample ID: 31401993009-A
 Lab Project ID: 31401993

Collection Date: 12/09/2014 14:30
 Received Date: 12/12/2014 14:47
 Matrix: Water

Results by SW-284 4636A

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Thallium	ND	U	0.0000297	0.000500	mg/L	1	12/15/2014 17:02

Batch Information

Analytical Batch: MMS1X99
 Analytical Method: SW-284 4636A
 Instrument: ICPMS3
 Analyst: PSW

Prep Batch: Mr r X744
 Prep Method: SW-284 X616A
 Prep Date/Time: 13/15/3618 67:59
 Prep Initial Wt./Vol.: 56 mL
 Prep Extract Vol: 56 mL

veulu ozRW-12

Client Sample ID: **RW-12**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: 31401993010-A
 Lab Project ID: 31401993

Collection Date: 12/09/2014 1R3R
 v eceide7 Date: 12/12/2014 14:4M
 x atriW O ater

veulu bf SW-846 6020A

Parameter	veulu	s Ual	DL	LQs /CL	F nitu	Dy	Date Anal f Te7
hNaliUm	g D	F	03000029M	03000R00	m. /L	1	12/1R/2014 1M0R

Batch Information

Anal f tical BatchN: **MMS1399**
 Anal f tical x etNb7: **SW-846 6020A**
 InutrUment: **ICPMS2**
 Anal f ut: **PSW**

Prep BatchN: **MXK3766**
 Prep x etNb7: **SW-846 3010A**
 Prep Date/hime: **12/15/2014 07:59**
 Prep Initial Ot5Vol5 **50 mL**
 Prep EVWact Vol: **50 mL**

Results of RW-11

Client Sample ID: RW-11
 Client Project ID: 2 BASFW il mg m
 Lab Sample ID: 314019930118
 Lab Project ID: 31401993

Collection Date: 1A2092A014 1/:00
 Received Date: 1A21A2A014 14:47
 Matrix: Water

Results by AW-c84R606B

Parameter	Result	Qual	DL	LOQCL	Units	DF	Date - nalyzed
Thallium	ND	U	0.0000A97	0.000500	mgL	1	1A2152A014 17:06

2 agchfnt rl agt m

- nalytical Batch: MMA1399
 - nalytical Method: AW-c84R606B
 Instrument: ICPMA0
 - nalyt: PAW

Prep Batch: MXX3744
 Prep Method: AW-c84R616B
 Prep DateTime: 10/15/0618R67:59
 Prep Initial Wt./Vol.: 56R L
 Prep Extract Vol: 56R L

veUtu ozMW-31D

Client Sample ID: **MW-31D**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: 3140199301- A2
 Lab Project ID: 31401993

Collection Date: 1- /09/- 014 1R40
 v eceide7 Date: 1- /1- /- 014 14:4M
 x atriW O ater

veUtu bf SW-846 6020A

Parameter	veUtu	s Ual	DL	LQs /CL	Fnitu	Dy	Date 2nalf Te7
2ruenic	0.0334		0000gg4	0000g00	mh/L	10	1- /1R/- 014 11:- g

B7tac Inlofm7tion

2nalf tical , atc5: MMS3400
 2nalf tical x et5o7: **SW-846 6020A**
 InutrUment: ICPMS2
 2nalf ut: PSW

Prep atc5: Mr r 1X66
 Prep x et5o7: **SW-846 1030A**
 Prep Date/6ime: 32/35/2034 0X:59
 Prep Initial O tNBolN 50 mL
 Prep VVract Bol: 50 mL

Results of RW-10

Client Sample ID: **RW-10**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: 31401993013-A
 Lab Project ID: 31401993

Collection Date: 12/10/2014 09:10
 Received Date: 12/12/2014 14:47
 Matrix: Water

Results by EPA 300.0

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>DL</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
CTloride	3.43		0.0314	1.00	mg/L	1	12/13/2014 14:1g

Batch Information

Analytical . atcT: INO3521
 Analytical MetTod: EPA 300.0
 Instrument: IC2
 Analyst: PSW

Prep . atcT: INO3521
 Prep MetTod: EPA 300.0
 Prep Date/Time: 12/13/2014 14:15
 Prep Initial Wt/BolN: 10 mL
 Prep Vxtract Bol: 10 mL

Results of MW-12D

Client Sample ID: **MW-12D**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: 31401993014-A
 Lab Project ID: 31401993

Collection Date: 12/10/2014 10:00
 Received Date: 12/12/2014 14:47
 Matrix: Water

Results by EPA 300.0

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>DL</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
CTloride	506		3M4	100	mg/L	100	12/19/2014 11:21

Batch Information

Analytical Site ID: INO3524
 Analytical Method: EPA 300.0
 Instrument: IC2
 Analyst: PSW

Prep Site ID: INO3524
 Prep Method: EPA 300.0
 Prep Date/Time: 12/16/2014 16:26
 Prep Initial Volume: 10 mL
 Prep Vxtract Vol: 10 mL

veulUtu ozRW-4

Client Sample ID: **RW-4**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: **3140199301-A2**
 Lab Project ID: **31401993**

Collection Date: **1/ R0R014 10:/ -**
 v ecede7 Date: **1/ R/ R014 14:4M**
 x atrIW O ater

veulUtu bf EPA 300.0

Parameter	veulUtu	s Ual	DL	LQs RCL	Fnitu	Dy	Date 2nalf Te7
Chlori7e	290		0gβ14	10g0	mNR	10	1/ R- R014 1M/ M

Batch Information

2nalf tical . atch: **INO3524**
 2nalf tical x etho7: **EPA 300.0**
 InutrUment: **IC2**
 2nalf ut: **PSW**

Prep .atch: **INO3524**
 Prep x etho7: **EPA 300.0**
 Prep Date7ime: **12/15/2014 17:27**
 Prep Initial OtgBolg: **10 mL**
 Prep VVfact Bol: **10 mL**

veUtu oz MW-32D

Client Sample ID: **MW-32D**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: **3140199301-A2**
 Lab Project ID: **31401993**

Collection Date: **1/ R0R014 11:00**
 v eceide7 Date: **1/ R/ R014 14:4M**
 x atriW O ater

v euUtu bf SW-846 60a0A

Parameter	v euUit	s Uai	DL	LQs RCL	F nitu	Dy	Date 2 nalf Te7
hNallUm	g D	F	05000/ 9M	0500600	m. R.	1	1/ R6R014 1M/ 4

Bcthl fnoXnction

2 nalf tical BatchN: **MMS/ 322**
 2 nalf tical x etNb7: **SW-846 60a0A**
 InstrUment: **ICPMSa**
 2 nalf ut: **PSW**

Prep BatchN: **M770161**
 Prep x etNb7: **SW-846 30/ 0A**
 Prep DateTime: **1 a5 : 50/ 4 0890/**
 Prep Initial OtRVolS : **0 mL**
 Prep EVWact Vol: **0 mL**

Results of MW-12D

Client Sample ID: MW-12D
 Client Project ID: BASF Wilmington
 Lab Sample ID: 3140199301-A2
 Lab Project ID: 31401993

Collection Date: 1/10/2014 11:30
 Received Date: 1/10/2014 14:4-
 Matrix: Water

Results by EPA 300.0

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
CTlori7e	21.0		0.14	10.0	mg/L	10	1/10/2014 14:4-

B5t6a m5t6n

2nalytical , etcT: d r 3NO4
 2nalytical MetTo7: EPA 300.0
 Instrument: CO
 2nalyst: PSW

Prep , etcT: d r 3NO4
 Prep MetTo7: EPA 300.0
 Prep Date/Time: 1/10/2014 12:42
 Prep Initial Wt/Bol: 10 mL
 Prep Vxtract Bol: 10 mL

veUtu oz MW-18D

Client Sample ID: **MW-18D**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: 31401993018-A
 Lab Project ID: 31401993

Collection Date: 12/10/2014 12:0R
 veceide7 Date: 12/12/2014 14:4M
 x atriW O ater

veUtu bf EPA 300.0

Parameter	veUtu	s Ual	DL	LQs /CL	F nitu	Dy	Date Anal7 Te7
Chlori7e	14.8		00314	100	mNL	1	12/13/2014 1.:3.

Batch Information

Anal7 tical 5atch: INO3521
 Anal7 tical x etho7: EPA 300.0
 InutrUment: IC2
 Anal7 ut: PSW

Prep 5atch: INO3521
 Prep x etho7: EPA 300.0
 Prep Date/6ime: 12/13/2014 16:36
 Prep Initial O tgBoig 10 mL
 Prep VVfract Bol: 10 mL

**Results of RW-6**

Client Sample ID: **RW-6**
Client Project ID: **BASF Wilmington**
Lab Sample ID: **31401993019-A**
Lab Project ID: **31401993**

Collection Date: **12/10/2014 13:50**
Received Date: **12/12/2014 14:47**
Matrix: **Water**

Results by EPA 300.0

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>DL</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Chloride	617		3.14	100	mg/L	100	12/15/2014 18:07

Batch Information

Analytical Batch: **INO3524**
Analytical Method: **EPA 300.0**
Instrument: **IC2**
Analyst: **PSW**

Prep Batch: **INO3524**
Prep Method: **EPA 300.0**
Prep Date/Time: **12/15/2014 18:07**
Prep Initial Wt./Vol : **10 mL**
Prep Extract Vol: **10 mL**

Results of RW-8

Client Sample ID: **RW-8**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: 314019930-0/2
 Lab Project ID: 31401993

Collection Date: 1-/10/-014 14:15
 Received Date: 1-/1/-014 14:47
 Matrix: Water

Results by EPA 300.0

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>DL</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Chloride	143		0.314	10.0	mg/L	10	1-/15/-014 18:-7

Batch Information

2nalytical Batch: **INO3524**
 2nalytical Method: **EPA 300.0**
 Instrument: **IC2**
 2nalyt: **PSW**

Prep Batch: **INO3524**
 Prep Method: **EPA 300.0**
 Prep Date/Time: **12/15/2014 18:27**
 Prep Initial Wt./Vol.: **10 mL**
 Prep Extract Vol: **10 mL**

Results of MW-15D

Client Sample ID: **MW-15D**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: **31401993081-A**
 Lab Project ID: **31401993**

Collection Date: **182102014 14:3/**
 Received Date: **182182014 14:47**
 Matrix: **Water**

Results by EPA 300.0

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>DL</u>	<u>LOQ</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
CTloride	19.5		0.0314	1.00	mg/L	1	182132014 1g:1.

Batch Information

Analytical Site: **INO3521**
 Analytical Method: **EPA 300.0**
 Instrument: **IC2**
 Analyst: **PSW**

Prep Site: **INO3521**
 Prep Method: **EPA 300.0**
 Prep Date/Time: **12/13/2014 18:16**
 Prep Initial Volume: **10 mL**
 Prep Vxtract Vol: **10 mL**

Results of RW-19

Client Sample ID: **RW-19**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: 314019930- - A2
 Lab Project ID: 31401993

Collection Date: 1-/10/- 014 15:00
 Received Date: 1-/1/- 014 14:47
 Matrix: Water

Results by EPA 300.0

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>DL</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Chloride	13.1		0.0314	1.00	mg/L	1	1-/13/- 014 18:37

Batch Information

2nalytical Batch: **INO3521**
 2nalytical Method: **EPA 300.0**
 Instrument: **IC2**
 2nalyt: **PSW**

Prep Batch: **INO3521**
 Prep Method: **EPA 300.0**
 Prep Date/Time: **12/13/2014 18:57**
 Prep Initial Wt./Vol.: **10 mL**
 Prep Extract Vol: **10 mL**

Results of RW-8B

Client Sample ID: RW-8B
 Client Project ID: ASF IWlm lgt dEg
 Lab Sample ID: 31401993083-A
 Lab Project ID: 31401993

Collection Date: 182102014 1/:10
 Received Date: 182182014 14:47
 Matrix: Water

Results by P3Si0..1

Parameter	Result	Qual	DL	LOQ2CL	Units	DF	Date Analyzed
CTloride	4aa.		3N4	100	mh2	100	1821g2014 1.:47

Acchl lfgreH cdEg

Analytical 5atcT: f05 0a42
 Analytical MetTod: P3Si0..1
 Instrument: fC4
 Analyst: 3FW

Prep 5atcT: f05 0a42
 Prep MetTod: P3Si0..1
 Prep Date2ime: 84/8a/4. 82118B:27
 Prep Initial Wt8BolN: 8. in L
 Prep Vxtract Bol: 8. in L

5eQsItQoyMW-14D

Client Sample ID: **MW-14D**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: 314019930-4/2
 Lab Project ID: 31401993

Collection Date: 1-/11/-014 10:40
 5eQsItRev Date: 1-/1/-014 14:4d
 7 atriM x ater

5eQsItQbF EPA 300.0

Parameter	5eQsIt	Qsal	DL	LWO/CL	unitQ	DU	Date 2nalFrev
Czlorive	1250		3g/4	100	mh/L	100	1-/1./-014 19:48

Batch Information

2nalFical Batcz: INQ3524
 2nalFical 7 etzov: EPA 300.0
 Increment: 102
 2nalFQ: PSW

Prep Batcz: INQ3524
 Prep 7 etzov: EPA 300.0
 Prep Date/Time: 12/15/2014 19:48
 Prep Initial x tg/Volg 10 mL
 Prep EMract Vol: 10 mL

veUtu ozMW3

Client Sample ID: MW3
 Client Project ID: 2DBAS il mg m
 Lab Sample ID: 314019930-AZ
 Lab Project ID: 31401993

Collection Date: 1-R-1R014 11:0A
 v eceide7 Date: 1-R-R014 14:4M
 x atrW Oater

veUtu bf BF -o849636D

Parameter	veUtu	s Ual	DL	LQs RCL	Fritu	Dy	Date / nalf Te7
hNallUm	g D	F	00000-9M	0000A00	m. R	1	1-R-1R014 1M33

20gc3nrt fl 0gt m

/ nalf tical BatcN r r B/ 70C
 / nalf tical x etNo7: BF -o849636D
 InstrUment: IPW B3
 / nalf ut: WBF

Prep BatcN r XX7141
 Prep x etNo7: BF -o8496/ 6D
 Prep DateRime: / 35 : 56/ 836o96/
 Prep Initial O t5Vol5 : 6\$ L
 Prep EVract Vol: : 6\$ L

Results of MW-118

Client Sample ID: **MW-118**
 Client Project ID: **DBASFW II mg m**
 Lab Sample ID: **3140199308- /2**
 Lab Project ID: **31401993**

Collection Date: **18/11/8014 18:00**
 Received Date: **18/18/8014 14:47**
 Matrix: **Water**

Results by oEBP3308

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>DL</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
CTloride	.41		3M4	100	mh/L	100	18/1g/8014 80:0.

Dagchflnft rl agt m

2nalytical 5atcT: **INOP. 52**
 2nalytical MetTod: **oEBP3308**
 Instrument: **IC5**
 2nalytst: **EAW**

Prep 5atcT: **INOP. 52**
 Prep MetTod: **oEBP3308**
 Prep Date/6ime: **15/1. /5312R5363:**
 Prep Initial WtNBolM **138 L**
 Prep Vxtract Bol: **138 L**

deuUtu oz MW-31

Client Sample ID: MW-31
 Client Project ID: DBASFW il mng m
 Lab Sample ID: 314019930-AZ
 Lab Project ID: 31401993

Collection Date: 1- R1R014 1-:3v
 decei7eMDate: 1- R- R014 14:4A
 x atriW Oater

deuUtu bf AW-3o8B464B

Parameter	deuUtu	s Uel	DL	LQs FCL	F nitu	Dy	Date Tnalf helM
Truenic	4042. o		0g000vv4	0g000v00	mNR	1	1- RvR014 1A:3.

D7gcRmt fl 7gt m

Tnalf tical / atc5: MMA2X
 Tnalf tical x et5oM AW-3o8B464B
 InutrUment: ICPMA6
 Tnalf ut: PAW

Prep / atc5: Mr r X/ 8/
 Prep x et5oM AW-3o8B424B
 Prep DateTime: 2652: 542oR43942
 Prep Initial OtgBolg : 4R L
 Prep VVfract Bol: : 4R L

Results of MW-8D

Client Sample ID: **MW-8D**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: **314019930-AZ**
 Lab Project ID: **31401993**

Collection Date: **1-31-2014 1:38R**
 Received Date: **1-31-2014 14:4A**
 Matrix: **Water**

Results by EPA 300.0

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date / Analyzed
Chloride	74.6		0.314	10.0	mg/L	10	1-31-2014 - 0:08

Batch Information

Analytical Batch: **INO3524**
 Analytical Method: **EPA 300.0**
 Instrument: **IC2**
 Analyst: **PSW**

Prep Batch: **INO3524**
 Prep Method: **EPA 300.0**
 Prep Date/Time: **12/15/2014 20:28**
 Prep Initial Wt./Vol.: **10 mL**
 Prep Extract Vol: **10 mL**

Results of MW-7

Client Sample ID: **MW-7**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: 31401993028-B
 Lab Project ID: 31401993

Collection Date: 12/11/2014 13:05
 Received Date: 12/12/2014 14:47
 Matrix: Water

Results by SW-846 6020A

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>DL</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Arsenic	0.0000800	J	0.0000554	0.000500	mg/L	1	12/15/2014 17:39
Thallium	ND	U	0.0000297	0.000500	mg/L	1	12/15/2014 17:39

Batch Information

Analytical Batch: MMS1399
 Analytical Method: SW-846 6020A
 Instrument: ICPMS2
 Analyst: PSW

Prep Batch: MXX3767
 Prep Method: SW-846 3010A
 Prep Date/Time: 12/15/2014 08:01
 Prep Initial Wt./Vol.: 50 mL
 Prep Extract Vol: 50 mL

ve uUtu ozMW-7

Client Sample ID: **MW-7**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: **314019930-AZ**
 Lab Project ID: **31401993**

Collection Date: 1-31-15 014 13:0R
 v eceide7 Date: 1-31-5 014 14:4M
 x atriW O ater

v euUtu bf EPA 300.0

Parameter	v euUtu	s Ual	DL	LQs 5CL	F nitu	Dy	Date / nalf he7
Cglori7e	5.29		080314	1800	m. 5L	1	1-31-15 014 --:3A

Batch Information

/ nalf tical Batog: **INO3521**
 / nalf tical x etgo7: **EPA 300.0**
 InstrUment: **SC2**
 / nalf ut: **PSW**

Prep Batog: **INO3521**
 Prep x etgo7: **EPA 300.0**
 Prep Date5Time: **12/13/2014 22:38**
 Prep Initial Ot8/oi8 **10 mL**
 Prep EV/ract Vol: **10 mL**

veUtu ozRW-1

Client Sample ID: **RW-1**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: 314019930-9/2
 Lab Project ID: 31401993

Collection Date: 1-/11/-014 1R1R
 v eceide7 Date: 1-/1/-/-014 14:4M
 x atrIW O ater

veUtu bf SW-846 6020A

Parameter	veUit	s Ual	DL	LQs /CL	Fnitu	Dy	Date Tnalf he7
Truenic	0.000820		0g000RR4	0g000RD0	mNL	1	1-/1R/-014 1M4-

Batch Information

Tnalf tical 2 atc. : MMS1399
 Tnalf tical x et. o7: SW-846 6020A
 InutrUment: ICPMS2
 Tnalf ut: PSW

Prep 2 atc. : MXX3767
 Prep x et. o7: SW-846 3010A
 Prep Date/5ime: 12/15/2014 08:01
 Prep Initial O tgBolg 50 mL
 Prep VVact Bol: 50 mL

Results of RW-1

Client Sample ID: **RW-1**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: 314019930-9A2
 Lab Project ID: 31401993

Collection Date: 1-/11/-014 15:15
 Received Date: 1-/1/-014 14:47
 Matrix: Water

Results by EPA 300.0

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>DL</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Chloride	5.38		0.0314	1.00	mg/L	1	1-/13/-014 --:58

Batch Information

Analytical Batch: **INO3521**
 Analytical Method: **EPA 300.0**
 Instrument: **IC2**
 Analyst: **PSW**

Prep Batch: **INO3521**
 Prep Method: **EPA 300.0**
 Prep Date/Time: **12/13/2014 22:58**
 Prep Initial Wt./Vol.: **10 mL**
 Prep Extract Vol: **10 mL**

deUFitUoTMW-31

Client Sample ID: MW-31
 Client Project ID: DBASFW il mng m
 Lab Sample ID: 31401993030-A
 Lab Project ID: 31401993

Collection Date: 12/11/2014 1R0v
 decei7eMDate: 12/12/2014 14:4x
 WatriQ Q ater

deUFitUbz AW-o84R636B

Parameter	deUFit	u Fal	DL	Ls u /CL	y nitU	Df	Date hnalzNeM
hrUenic	606344		0.0000vv4	0.000v00	mg/L	1	12/1v/2014 1x:4R

D2g 7Fand H 2gt m

hnalztical Aatc5: MMAX LL
 hnalztical Wet5oM AW-o84R636B
 InUtrFment: aCPMA3
 hnalzUt: PAW

Prep Aatc5: MI l fr4r
 Prep Wet5oM AW-o84R636B
 Prep Date/6ime: X3/X5/36X8R6o:6X
 Prep Initial Qt./Bol.: 56R 9
 Prep VQract Bol: 56R 9

veUtu oz MW-2D

Client Sample ID: **MW-2D**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: **314019930308**
 Lab Project ID: **31401993**

Collection Date: **1A2112A014 1/:0R**
 v eceide7 Date: **1A21A2A014 14:4M**
 x atriW O ater

veUtu bf EPA 300.0

Parameter	veUtu	s Ual	DL	LQs 2CL	F nitu	Dy	Date - nalf Te7
Chlori7e	31.0		0g314	1g00	mNL	1	1A2132A014 A3:1.

Batch Information

- nalf hnal 6atch: **INO3521**
 - nalf tical x etho7: **EPA 300.0**
 Inutritment: **IC2**
 - nalf ut: **PSW**

Prep 5atch: **INO3521**
 Prep x etho7: **EPA 300.0**
 Prep Date7ime: **12/13/2014 23:18**
 Prep Initial O t9Boig **10 mL**
 Prep VVact Bol: **10 mL**

deUFltUoTMW-31

Client Sample ID: MW-31
 Client Project ID: DBASRW il mng m
 Lab Sample ID: 31401993031-A
 Lab Project ID: 31401993

Collection Date: 12/11/2014 1Rv0
 d ecei7eMDate: 12/12/2014 14:4x
 WatriQ Q ater

deUFltUbz AW-o84R606B

Parameter	deUFlt	u Fel	DL	Ls u /CL	y nitU	Df	Date hnalzNm
hrUbnic	62.43		0.000vv4	0.00v00	mg/L	10	12/1R/2014 11:29
56aliFm	BD	y	0.000029x	0.000v00	mg/L	1	12/1v/2014 1x:49

D7gcFmrt fl 7gt m

hnalztical Aatc6: MMAX3LL
 hnalztical Wet6oM AW-o84R606B
 InUtrFment: ICPMA0
 hnalzUt: PAW

Prep Aatc6: Mr r 3. 4.
 Prep Wet6oM AW-o84R6X6B
 Prep Date/5ime: X0/X5/06X8R6o:6X
 Prep Initial Ql./Vol.: 56R 9
 Prep EQract Vol: 56R 9

hnalztical Aatc6: MMAX866
 hnalztical Wet6oM AW-o84R606B
 InUtrFment: ICPMA0
 hnalzUt: PAW

Prep Aatc6: Mr r 3. 4.
 Prep Wet6oM AW-o84R6X6B
 Prep Date/5ime: X0/X5/06X8R6o:6X
 Prep Initial Ql./Vol.: 56R 9
 Prep EQract Vol: 56R 9

veUtu ozMW-18

Client Sample ID: **MW-18**
 Client Project ID: **DBASW il mng m**
 Lab Sample ID: **314019930318**
 Lab Project ID: **31401993**

Collection Date: **1A212A014 1/:R0**
 v eceide7 Date: **1A21A2A014 14:4M**
 x atriW O ater

veUtu bf oEBMPP3

Parameter	veUtu	s Ual	DL	LQs 2CL	Fritu	Dy	Date - nalf Te7
Chlori7e	0. P		3gl4	100	mN2	100	1A21R2A014 A0:4.

D4gacflmt fl 4gt m

- nalf tical 5atch: **lr N1052**
 - nalf tical x etho7: **oEBMPP3**
 InstrUment: **IC5**
 - nalf ut: **EAW**

Prep 5atch: **lr N1052**
 Prep x etho7: **oEBMPP3**
 Prep Date2ime: **. 5/. Q5P. 2R5P62:**
 Prep Initial OtgBoig: **. PR L**
 Prep VVract Bol: **. PR L**

5eQsItQoyMW3

Client Sample ID: MW3
 Client Project ID: 1DBAS II mng m
 Lab Sample ID: 3140199303-A2
 Lab Project ID: 31401993

Collection Date: 1-/1-/014 09:-0
 5eQsItQoy Date: 1-/1-/014 14:4d
 7 atrIM x ater

5eQsItQbF BF -o83\$464D

Parameter	5eQsIt	Qsal	DL	LWO/CL	u nitQ	DU	Date 2nalFev
2rQenic	4044334		0h0000gg4	0h000g00	mz/L	1	1-/1g/-014 1d:g.
8Ballism	TD	u	0h0000-9d	0h000g00	mz/L	1	1-/1g/-014 1d:g.

12g 7\$mt H 2gt m

2nalFical VateB: I I B/ r CC
 2nalFical 7 etBov: BF -o83\$464D
 InQrsment: pW B6
 2nalFQ: WBF

Prep VateB: I f f r X3X
 Prep 7 etBov: BF -o83\$4/4D
 Prep Date/8ime: / 6\$: 5\$4/ 8\$8lo9/
 Prep Initial x th/Eolh : 4\$ L
 Prep NMtract Eol: : 4\$ L

5eQsItQoyMW-7

Client Sample ID: **MW-7**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: 31401993033-A
 Lab Project ID: 31401993

Collection Date: 12/12/2014 10:00
 5eceiRev Date: 12/12/2014 14:4d
 7 atrIM x ater

5eQsItQbF SW-874 4606A

<u>Parameter</u>	<u>5eQsIt</u>	<u>Qsal</u>	<u>DL</u>	<u>LWO/CL</u>	<u>unitQ</u>	<u>DU</u>	<u>Date AnalF ev</u>
ArQenic	62664.6		00000gg4	0000g00	mz/L	1	12/19/2014 1.:01

Batch Information

AnalFical 8 atcB: MMS/ 399
 AnalFical 7 etBov: SW-874 4606A
 InQrsment: ICPMS0
 AnalFQ: PSW

Prep 8 atcB: MXX3141
 Prep 7 etBov: SW-874 36/ 6A
 Prep Date/Time: / 05 . 06/ 7 68:6/
 Prep Initial x thV/etB: .6 mL
 Prep EMract Vol: .6 mL

Results of MW-21D

Client Sample ID: MW-21D
 Client Project ID: BASF Wilmington
 Lab Sample ID: 31401993034-A
 Lab Project ID: 31401993

Collection Date: 12/12/2014 11:30
 Received Date: 12/12/2014 14:47
 Matrix: Water

Results by SW-846 6020A

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Arsenic	0.0208		0.000NN4	0.000ND0	mg/L	10	12/19/2014 11:31

Batch Information

Analytical . atc5: MMS1400
 Analytical Met5od: SW-846 6020A
 Instrument: ICPMS2
 Analyst: PSW

Prep atc5: MXX3767
 Prep Met5od: SW-846 3010A
 Prep Date/time: 12/15/2014 08:01
 Prep Initial WithBolh: 50 mL
 Prep Vxtract Bol: 50 mL

5 eQsItQoyMW-7

Client Sample ID: **MW-7**
 Client Project ID: **BASF Wilmington**
 Lab Sample ID: 314019930328
 Lab Project ID: 31401993

Collection Date: 1B/1B/B014 1B:00
 5 eceiRev Date: 1B/1B/B014 14:4d
 7 atriM x ater

5 eQsItQbF SW-847 7606A

Parameter	5 eQsIt	Qsal	DL	LWO/CL	unitQ	DU	Date - nalFrev
- rQenic	6266.76	z	0g000224	0g000200	mAL	1	1B/12/B014 1J:0J

Batch Information

- nalFtical . atcT: MMS. 399
 - nalFtical 7 etTov: SW-847 7606A
 InQrsment: ICPMS0
 - nalFQ: PSW

Prep . atcT: MXX3171
 Prep 7 etTov: SW-847 36. 6A
 Prep Date/time: . 0/, 5/06. 4 68:6.
 Prep Initial x tgNolg 56 mL
 Prep VMtract Nol: 56 mL



CHAIN OF CUSTODY | CONVENTIONAL & SHALE

3140993

PROJECT INFO:

PROJECT: BASF WILMINGTON

PO #:

QUOTE #:

SITE REF:

TURB AROUND TIME: Normal

REPORT LEVEL: (see reverse) ☐ Level I ☐ Level II ☐ Level IV

SPECIAL DELIVERABLE: ☐ State of Origin: ☐ Other:

EDCA

SEND DOCUMENTATION / RESULTS TO:

COMPANY: ELM SITE SOLUTIONS

CONTACT: RUSTY NORRIS

ADDRESS:

PHONE: 919-792-3733

EMAIL:

INVOICE TO: ☐ (CHECK IF SAME)

COMPANY:

ADDRESS:

PHONE:

EMAIL:

SPECIAL INSTRUCTIONS / COMMENTS:

- DETECTION LIMITS MUST MEET NC DENR
2L GROUNDWATER STANDARDS

LAB ID	SAMPLE ID / DESCRIPTION	2014 DATE	TIME	QC			TYPE (C, G)	MATRIX	CONT. QTY	REMARKS
				MS	MSD	DUP				
	RW-11	12-9	1600				G	GW	1	
	MW-13D	12-9	1640				G	GW	1	
	RW-10	12-10	0910				G	GW	1	
	MW-12D	12-10	1000				G	GW	1	
	RW-4	12-10	1025				G	GW	1	
	MW-39D	12-10	1100				G	GW	1	
	MW-17D	12-10	1130				G	GW	1	
	MW-18D	12-10	1205				G	GW	1	
	RW-6	12-10	1350				G	GW	1	
	RW-8	12-10	1415				G	GW	1	

ANALYSIS & METHOD	THALIM	ARSENIC	CHLORIDE
PRESERVATIVE	None	None	None

RECEIVED BY LABORATORY	DATE	TIME
Robert Neelink	11/17	14:17

COC SEAL:	INTACT	BROKEN	ABSENT

SAMPLE RECEIPT TEMP	°C	°F
	0	

CARRIER	TRACKING #

NOTES



SPECIAL INSTRUCTIONS / COMMENTS:
DETECTION LIMITS MUST MEET NADENIC
ZL GROUNDWATER STANDARDS

SEND DOCUMENTATION / RESULTS TO:
COMPANY: ELM SITE SOLUTIONS
CONTACT: CUSTY NARRIS

PROJECT INFO:
PROJECT: BASF WILMINGTON
PO. #:
QUOTE #:
SITE REF:
TURN AROUND TIME: NORMAL
REPORT LEVEL (see reverse) ☐ Level I ☐ Level II ☐ Level IV
SPECIAL DELIVERABLES: ☐ State of Origin ☐ Other
☐ EDD

TURN AROUND TIME: 1202MAL

	Level I	Level II	Level IV
Performance Indicators (see notes)			

SPECIAL DELIVERABLES:

☐ EDD: _____

☐ State of Origin: _____

☐ Other: _____

INVOICE TO: (CHECK IF SAME)

ADDRESS: _____
PHONE: _____
EMAIL: _____

[illegible]

4 of 4

SGS North America Inc.

Sample Receipt Checklist (SRC)

Client: **ELM Site Solutions**

Work Order No.: **31401993**

1. ☐ Shipped
☒ Hand Delivered
2. ☒ COC Present on Receipt
☐ No COC
☐ Additional Transmittal Forms
3. ☐ Custody Tape on Container
☒ No Custody Tape
4. ☒ Samples Intact
☐ Samples Broken / Leaking
5. ☒ Chilled on Receipt Actual Temp.(s) in °C: 0.0 Thermometer ID#: 98465
☐ Ambient on Receipt
☐ Walk-in on Ice; Coming down to temp.
☐ Temperature Blank Present
6. ☒ Sufficient Sample Submitted
☐ Insufficient Sample Submitted
7. ☐ Chlorine absent
☒ HNO₃ < 2
☐ HCL < 2
☐ Additional Preservatives verified (see notes)
8. ☒ Received Within Holding Time
☐ Not Received Within Holding Time
9. ☒ No Discrepancies Noted
☐ Discrepancies Noted
☐ NCDENR notified of Discrepancies*
10. ☐ No Headspace present in VOC vials
☐ Headspace present in VOC vials >6mm

Notes: _____

Comments: _____

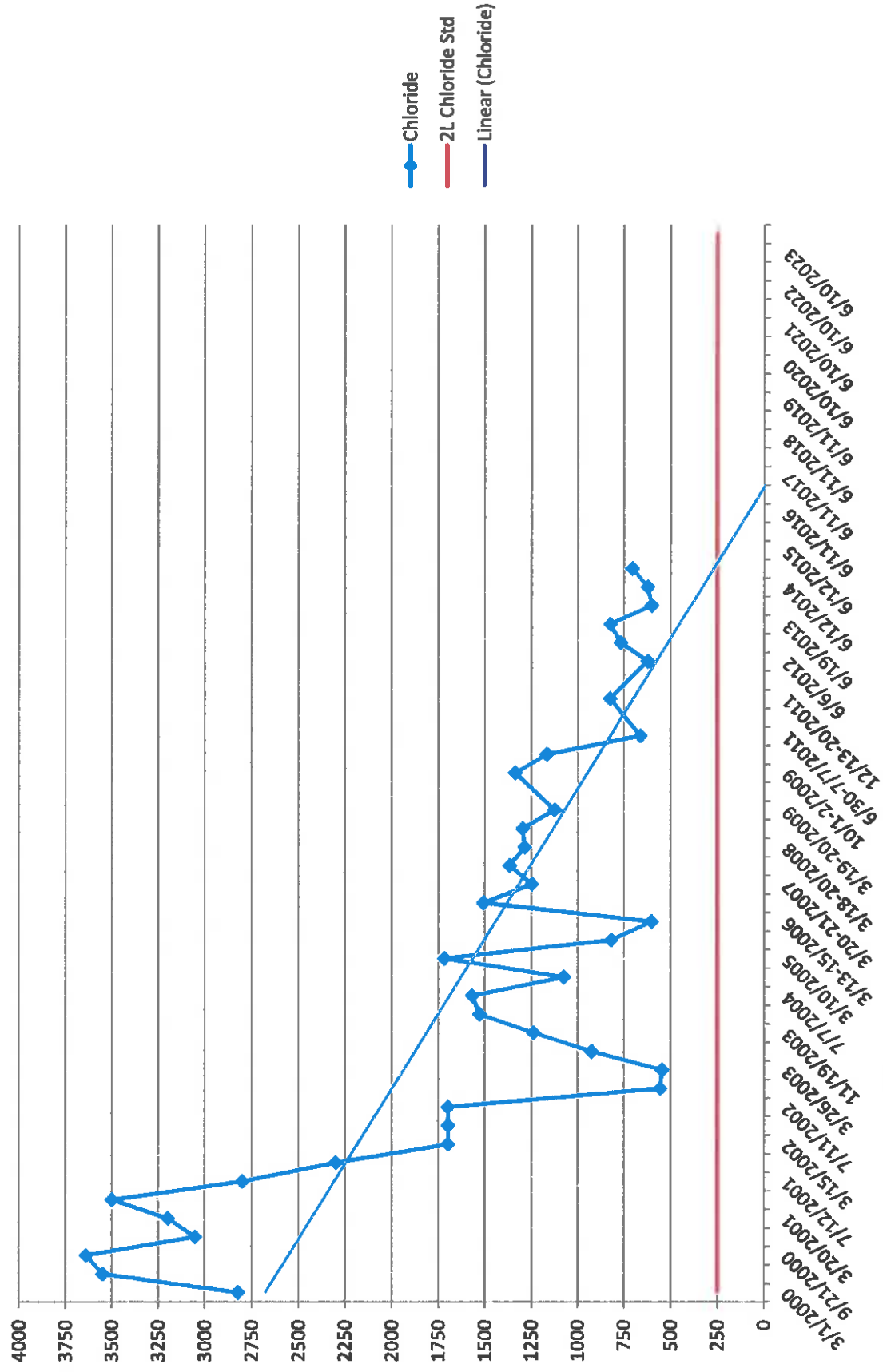
Inspected and Logged in by: **Amalie Walker**

Date: **12/12/2014**

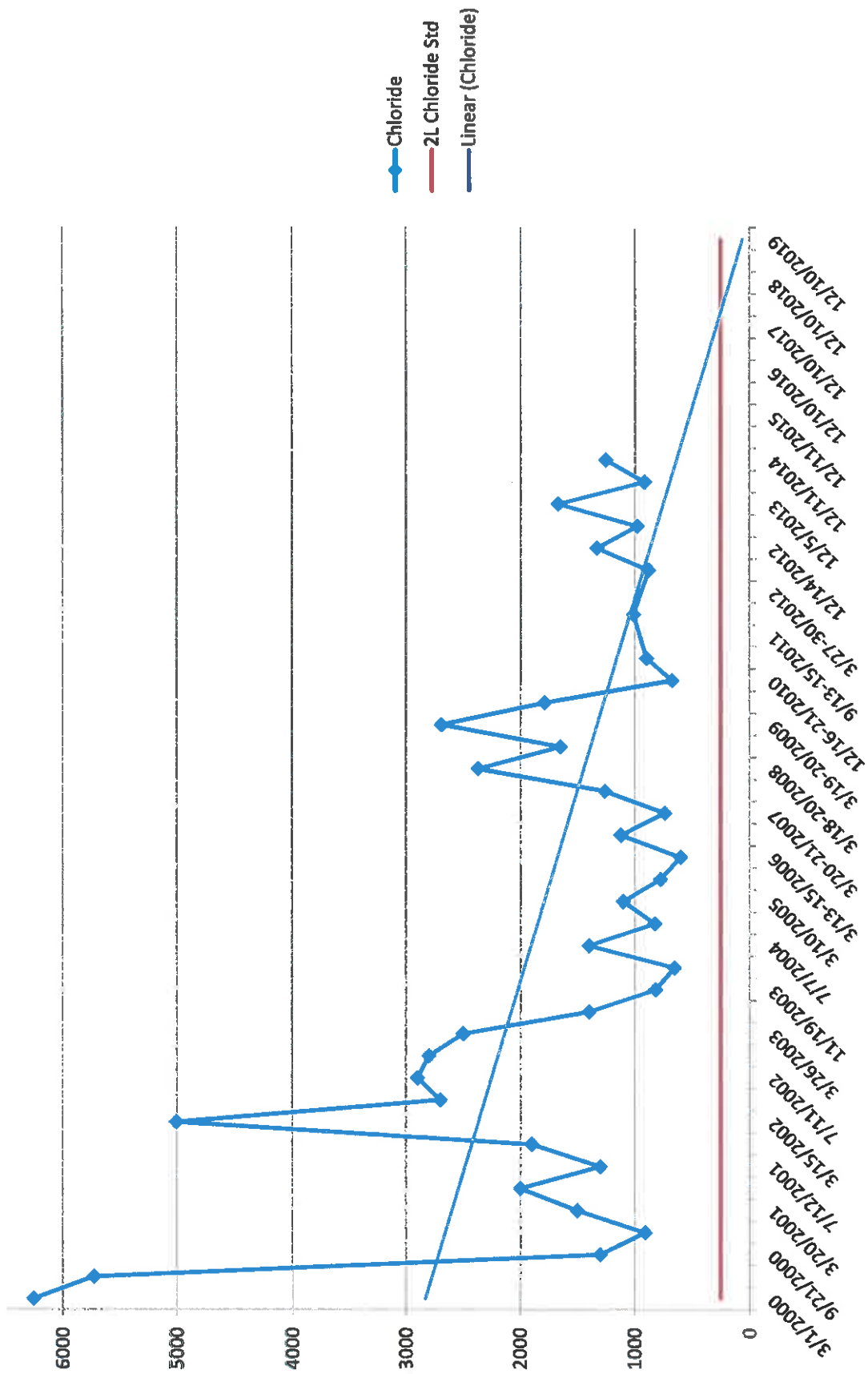
Appendix C

Trend Graphs for Chloride

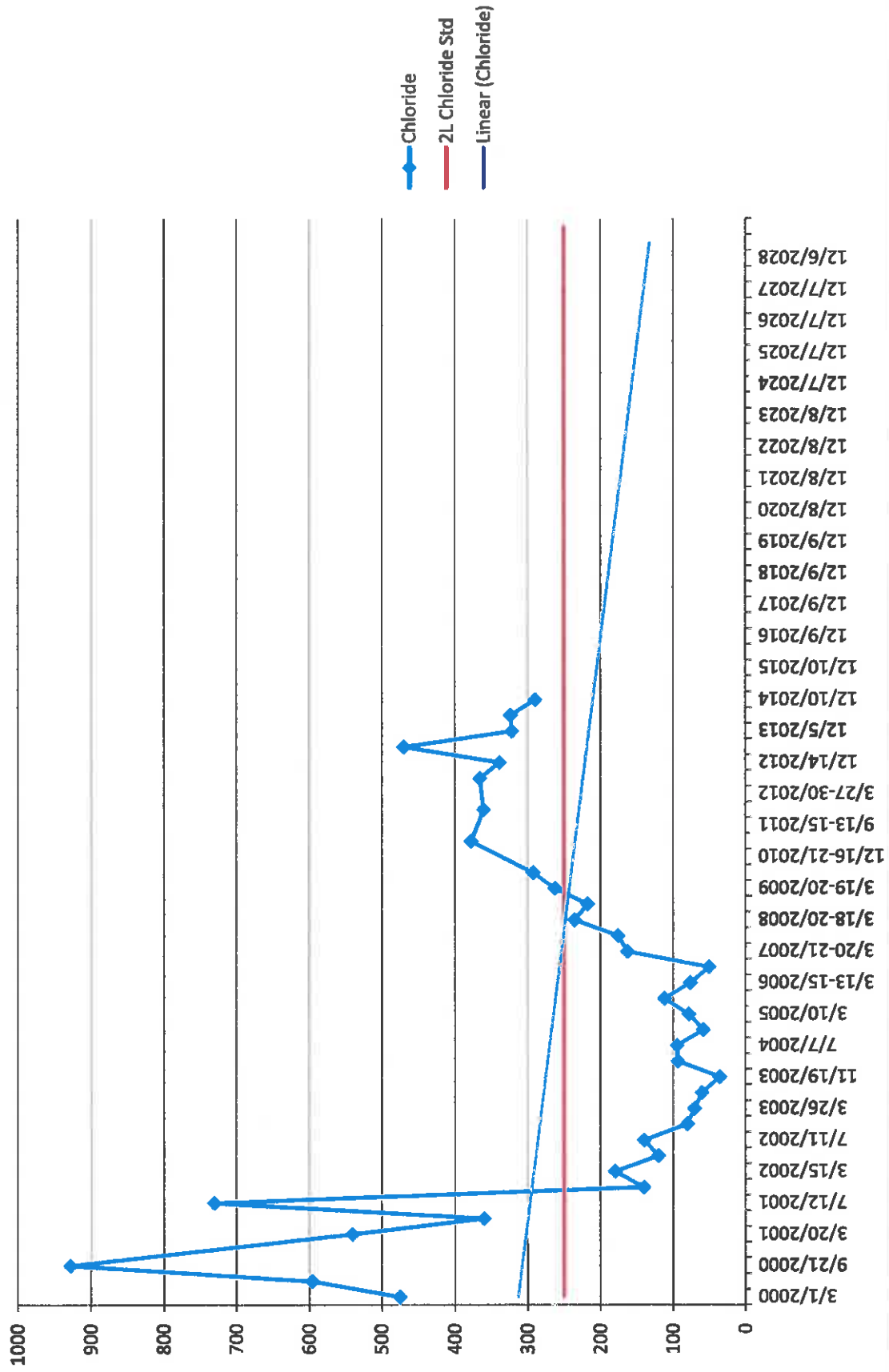
MW-3D Chloride



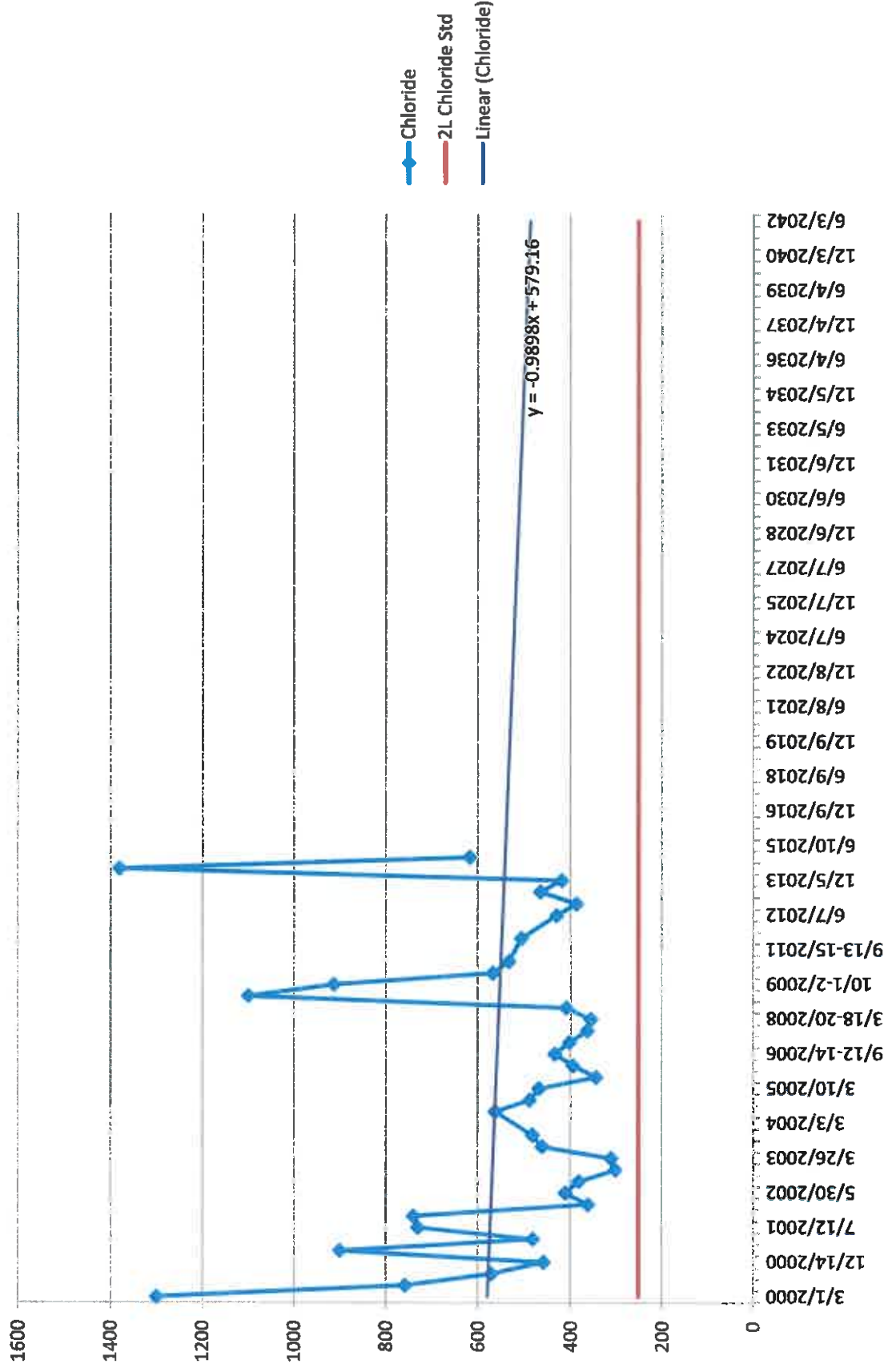
MW-14D Chloride



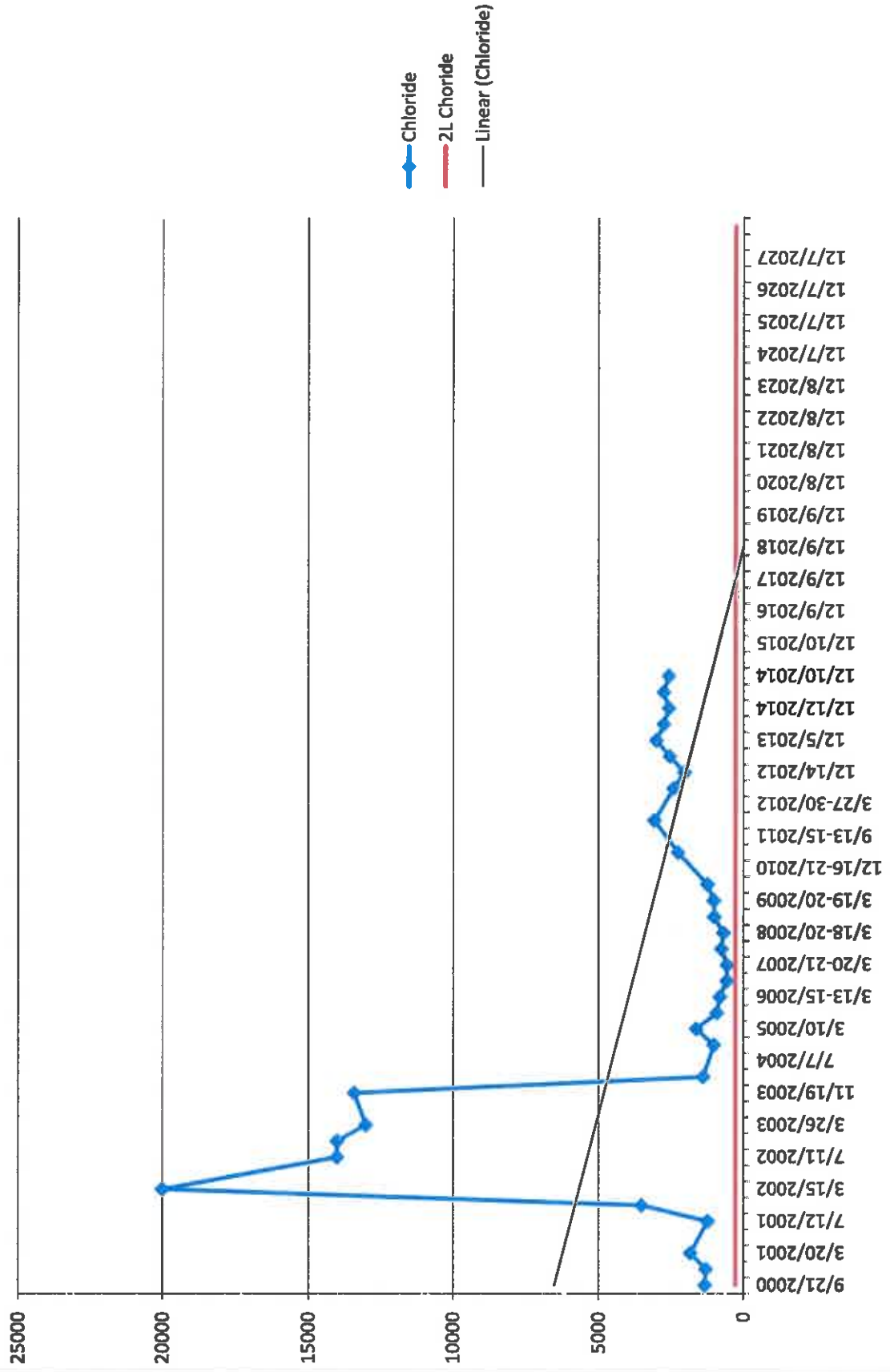
RW-4 Chloride



RW-6 Chloride



RW-18 Chloride



IHSB SITE NAME Takeda - BASF Corporation - Wilmington, North CarolinaDATE & NAME OF DOCUMENT Progress Monitoring Report #1TYPE OF SUBMITTAL (circle all that apply): Report, Work plan, Work Phase Comp. Statement, Schedule Change**REMEDIATING PARTY DOCUMENT CERTIFICATION STATEMENT (.0306(B)(2))**

"I certify under penalty of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information."

BASF Corporation - Vernon Burrows

Name of Remediating Party

Signature of Remediating Party

Date

3/25/2015**NOTARIZATION**NJ (Enter State)Morris COUNTY

I, Eleanor Sullivan, a Notary Public of said County and State, do hereby certify that Vernon Burrows did personally appear and sign before me this day, produced proper identification in the form of driver's license, was duly sworn or affirmed, and declared that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this 25th day of March, 2015.Eleanor Sullivan
Notary Public (signature)

(OFFICIAL SEAL)

My commission expires: 4/17

ELEANOR M SULLIVAN
Notary Public
State of New Jersey
My Commission Expires Apr 2, 2017

IHSB SITE NAME

DATE & NAME OF DOCUMENT

TYPE OF SUBMITTAL (circle all that apply): Report, Work plan, Work Phase Comp. Statement, Schedule Change

TAKEDA - BASF CORPORATION - WILMINGTON, NC
PROGRESS MONITORING REPORT #1

REGISTERED SITE MANAGER CERTIFICATION OF SIGNATURES

As the Registered Environmental Consultant for the Site for which this filing is made, I certify that the signatures included herewith are genuine and authentic original handwritten signatures and/or true, accurate, and complete copies of the genuine and authentic original handwritten signatures of the persons who purport to sign for this filing. I further certify that I have collected through reliable means the originals and/or copies of said signatures from the persons authorized to sign for this filing who, in fact, signed the originals thereof. Those persons and I understand and agree that any copies of signatures have the same legally binding effect as original handwritten signatures, and I certify that any person for whom I am submitting a copy of their signature has provided me with their express consent to submit said copy. Additionally, I certify that I am authorized to attest to the genuineness and authenticity of the signatures, both originals and any copies, being submitted herewith and that by signing below, I do in fact attest to the genuineness and authenticity of all the signatures, both originals and copies, being submitted for this filing.

Name of Registered Site Manager

Signature of Registered Site Manager

Date

4/1/15

REGISTERED SITE MANAGER DOCUMENT CERTIFICATION STATEMENT (.0306(b)(1))

"I certify under penalty of law that I am personally familiar with the information contained in this submittal, including any and all supporting documents accompanying this certification, and that the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete and complies with the Inactive Hazardous Sites Response Act N.C.G.S. 130A-310, et seq, and the remedial action program Rules 15A NCAC 13C .0300. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information."

Name of Registered Site Manager

Signature of Registered Site Manager

Date

4/1/15

NOTARIZATION

North Carolina (Enter State)

Franklin COUNTY

I, Michelle Futrell, a Notary Public of said County and State, do hereby certify that Roland B Norris did personally appear and sign before me this day, produced proper identification in the form of NCID, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certifications is true and accurate, and he or she then signed these Certifications in my presence.

WITNESS my hand and official seal this 1 day of April, 2015

Notary Public (signature)

(OFFICIAL SEAL)

My commission expires: 1/22/17

Document Certification Form No. DC - II
(Revised 8/11)

MICHELLE FUTRELL
Notary Public
Franklin County
North Carolina
My Commission Expires Jan 22, 2017

