UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III

STATEMENT OF BASIS

GRIFFIN PIPE PRODUCTS COMPANY – THOMAS ROAD LANDFILL
THOMAS ROAD & ROUTE 685 (RIVER ROAD)
MADISON HEIGHTS, VIRGINIA

EPA ID NO. VAD000800532

Prepared by
Office of Remediation
Land and Chemicals Division
December 2016

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List of Acronyms

AR	Administrative Record
CMS	Corrective Measures Study
COC	Contaminants of Concern
DWM	VA Department of Waste Management
EPA	Environmental Protection Agency
FDRTC	Final Decision Response to Comments
GPRA	Government Performance and Results Act
HHRA	Human Health Risk Assessment
HSWA	Hazardous and Solid Waste Amendments
IM	Interim Measures
MCL	Maximum Contaminant Level
O&M	Operation and Maintenance
RCRA	Resource Conservation and Recovery Act
RFI	Remedial Field Investigation
RSL	Regional Screening Level
SB	Statement of Basis
SLERA	Screening Level Ecological Risk Assessment
UCLs	Upper Confidence Levels
VADEQ	Virginia Department of Environmental Quality
VHWMR	Virginia Hazardous Waste Management Regulations
WGS	World Geodetic System

Section 1: Introduction

The United States Environmental Protection Agency (EPA) has prepared this Statement of Basis (SB) to solicit public comment on its proposed decision for the Griffin Pipe Products Company (Griffin Pipe) Thomas Road landfill located on Thomas Road, Madison Heights, Virginia (Facility). EPA's review of available information indicates that there are no unaddressed releases of hazardous waste or hazardous constituents at the Facility. Based on this assessment, EPA's proposed remedy consists of the implementation of, compliance with, and maintenance of land use restrictions. This SB highlights key information relied upon by EPA in making its proposed remedy.

The Facility is subject to EPA's Corrective Action Program under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, and the Hazardous and Solid Waste Amendments (HSWA) of 1984, 42 U.S.C. §§ 6901 et seq. (Corrective Action Program). The Corrective Action Program is designed to ensure that certain facilities subject to RCRA have investigated and cleaned up any releases of hazardous waste and hazardous constituents that have occurred at their property.

The Administrative Record (AR) for the Facility contains all documents, including data and quality assurance information, on which EPA's proposed decision is based. See Section 9, Public Participation, for information on how you may review the AR. The index to the AR is an attachment to this SB (Section 10).

Information on the Corrective Action Program, as well as a fact sheet for the Facility, can be found by navigating to https://www3.epa.gov/reg3wcmd/ca/va.htm.

Section 2: Facility Background

A. Site Description and History

The Facility is located about one mile north of the intersection of Thomas Road and State Route 685 in Amherst County, Virginia. The Facility, consists of approximately 15 acres and is surrounded by mostly wooded area with scattered residences to the northeast of the facility. Approximately 8 acres of the Facility have been developed as a landfill. A location map is in Attachment 1.

Griffin Pipe has disposed of foundry wastes from its Lynchburg, Virginia foundry at the Facility since the 1970's. In 1981, Griffin purchased the Facility and operated the landfill until 1984. The wastes disposed at the landfill included baghouse dust produced by the air emission control system for the iron melting cupola. Cupola dust is considered hazardous for cadmium (D006) and lead (D008). Griffin Pipe was the only source of waste, both hazardous and non-hazardous, received at the Facility.

On June 1, 1988 the Virginia Department of Waste Management (DWM), which subsequently changed its name to the Virginia Department of Environmental Quality (VADEQ), acknowledged that the Facility landfill had closed in accordance with the Virginia Hazardous Waste Management Regulations (VHWMR). On October 25, 1988, DWM approved the solid waste landfill closure plan for the landfill. DWM certified that the landfill was capped and closed in November 1989.

On October 8, 2002, EPA issued a Final Administrative Order by Consent (Order) to Griffin Pipe, pursuant to Section 3008(h) of the Resource Conservation and Recovery Act of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984, 42 U.S.C. Section 6928(h). The purpose of this Order was to have Griffin Pipe perform a RCRA Facility Investigation (RFI) to determine the nature and extent of any release of hazardous waste and/or hazardous constituents at or from the Facility and to perform a Corrective Measures Study (CMS) to identify and to evaluate alternatives for corrective action if necessary.

B. Geology and Hydrogeology

Groundwater flow is generally northwest towards Buck Branch, a tributary to the James River. However, the majority of the groundwater flow is through discrete fractures in underlying bedrock with only minor transport through overlying soils. Permeability values for the soil overburden and the intact bedrock are low. The Facility generally slopes toward Buck Branch. Groundwater flows downslope to the northwest toward Buck Branch and ultimately discharges to the stream or turns to the southwest and flows downstream towards the James River. A steep ridge to the northwest of Buck Branch prevents flow beyond the valley floor in this direction.

Two engineered stormwater detention ponds (referred to as the eastern and western ponds, respectively), located approximately six to ten feet in elevation above Buck Branch, functioned as designed sedimentation basins that captured runoff from the landfill and adjacent areas. These ponds discharged to Buck Branch.

Section 3: Summary of Environmental Investigations

A. RCRA Facility Investigation

Four groundwater monitoring wells were installed during the November 2006 RFI to assess potential groundwater contamination from the landfill. The RFI groundwater sampling was conducted from November 2006 to March 2008. During this time, Griffin Pipe also collected samples of waste material in the landfill, soil, sediment in eastern and western ponds and surface water from Buck Branch.

Arsenic, cadmium, and lead were the only parameters found in the waste material at concentrations greater than the EPA Region 3 Risk Based Concentration (RBC) for Industrial Workers which establishes risk screening levels for industrial (non-residential) exposures. These

RBCs are commonly referred to as "Industrial Screening Levels."

A Human Health Risk Assessment (HHRA) was conducted to evaluate the significance of potential exposures to various constituents detected in groundwater, surface soil and sediment at the Facility and surface water and sediment of Buck Branch. Potential receptors include future industrial site workers, current and future trespassers, current and future recreational waders in Buck Branch, and off-site residents.

For groundwater, the only receptor groups with a potential risk were residential adults and children ingesting arsenic in groundwater. Based on available information, EPA determined that that Facility operations were not a source of arsenic. Moreover, arsenic in groundwater is present at naturally occurring levels and at levels below its drinking water standard, known as federal Maximum Contaminant Levels (MCLs), promulgated pursuant to Section 42 U.S.C. §§ 300f et seq. of the Safe Drinking Water Act (SDWA) and codified at 40 CFR Part 141. The HHRA concluded that the risks associated with surface soil, surface water and sediment do not exceed the applicable Regional Screening Levels (RSLs).

A Screening Level Ecological Risk Assessment (SLERA) was also conducted and focused on surface soil, sediment, and surface water exposures for terrestrial and aquatic receptors. The eastern detention pond had developed into an ecological habitat over time. Within the eastern detention pond of the landfill, the SLERA found that barium, cobalt, selenium, tin, cyanide, cadmium, lead, silver, and zinc exceeded their respective toxicity reference values (TRVS) and posed a risk to benthic macroinvertebrates, amphibians, mussels, and aquatic life.

B. Additional Sampling

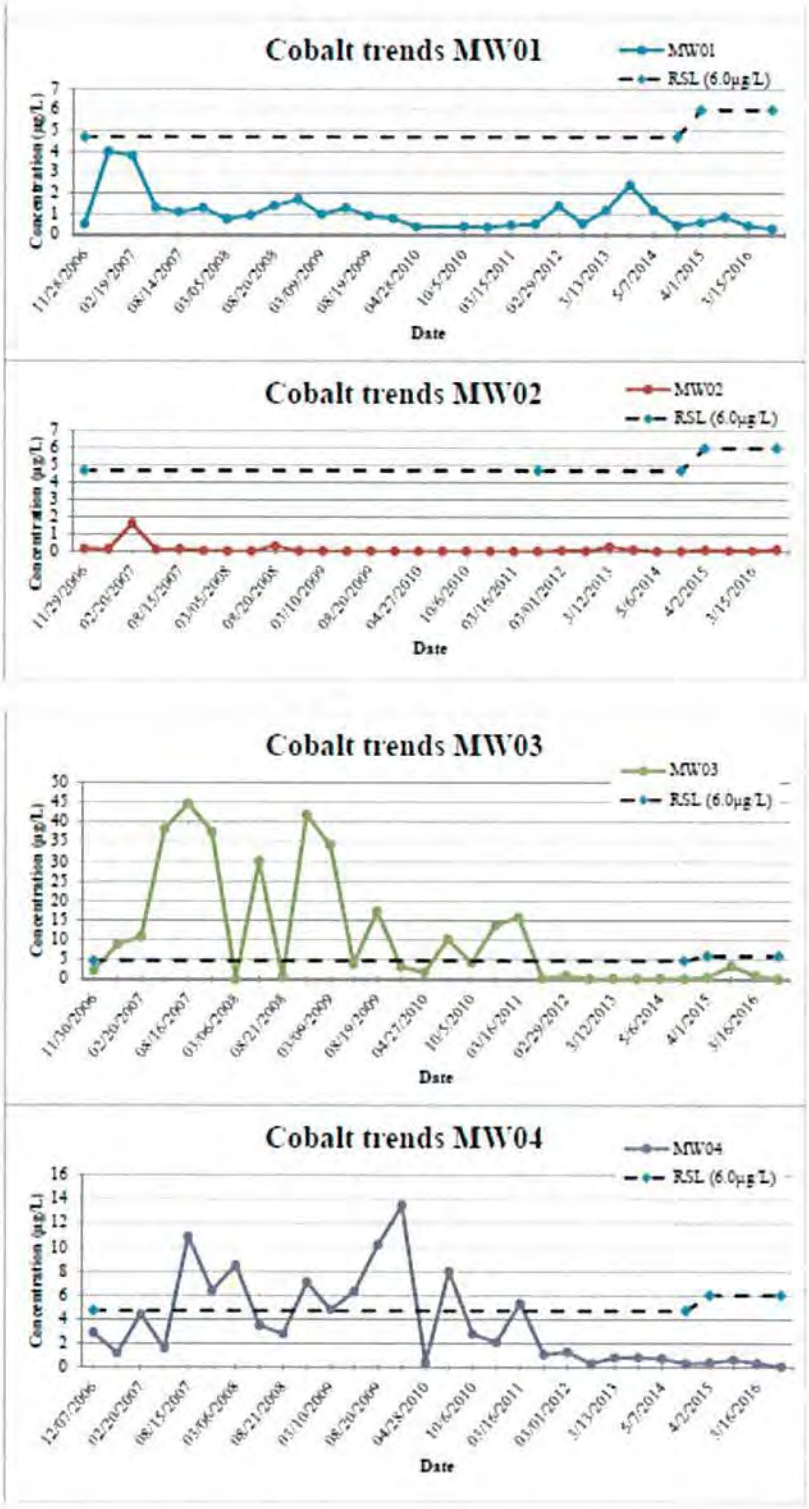
Following the RFI, Griffin Pipe continued quarterly groundwater monitoring through December 2011. Arsenic and cobalt were the only contaminants that exceeded their applicable MCLs, or RSL for tapwater, if no MCL exists, in groundwater. Arsenic was last detected above the MCL in 2008. Griffin Pipe re-evaluated the 95% Upper Confidence Levels (UCLs) for groundwater parameters in October 2010 and reported that the arsenic UCL was consistently below the Maximum Contaminant Level (MCL) for arsenic. The 95% UCL for cobalt remained above its applicable RSL. Cobalt does not have an MCL.

The Facility continued semiannual groundwater monitoring solely for cobalt through March 2016. Concentrations of cobalt have remained below the EPA RSL for tapwater (6 mg/L) since October 2011. On September 22, 2016, EPA approved the request from Griffin Pipe to discontinue groundwater monitoring.

In September 2013, sediment sampling was conducted to delineate the extent of potential contaminated soil within the eastern detention pond. Samples were analyzed for total barium, cadmium, cobalt, lead, selenium, silver, tin, zinc, and total cyanide. At least one inorganic parameter exceeded its respective remedial goal objective at each sample location. Cyanide was detected in two samples at concentrations less than the RSL. The remaining eight inorganic parameters were present to the total depth sampled at each of the ten borings. The highest concentrations were generally observed in the deep (2-4 foot) interval. Lead was the only

constituent that exceeded the EPA RSL for industrial use. Figures 1 and 2 depict the historical data for Cobalt.

Figure 1



Section 4: Interim Measures

On September 24, 2014, Griffin Pipe proposed to remove the eastern detention pond berm and cap any remaining impacted areas. The proposed interim measure (IM) included removal of portions of the berms that were constructed to form both the eastern and western stormwater basins. The proposal also included the use of a geomembrane capping system (IM remediation cap) to control contaminated sediments currently in the eastern detention pond.

The IM Work Plan included an Operations and Maintenance (O&M) Plan for the existing landfill cap and the proposed IM remediation cap, and contains requirements for periodic inspection and maintenance of both caps. EPA approved the IM Work Plan on October 27, 2014.

Construction of the IM remediation cap commenced on July 25, 2016 and was completed on October 13, 2016 in accordance with the EPA-approved IM Work Plan. The IM remediation cap effectively eliminates access to contaminated sediment in the former pond to terrestrial plants and animals, and the associated unacceptable ecological risks.

In addition, the EPA-approved O&M Plan was revised and to acknowledge that groundwater monitoring was no longer required.

Section 5: Corrective Action Objectives

EPA's Corrective Action Objectives for the specific environmental media at the Facility are the following:

1. Soils

   EPA's Corrective Action Objective for soil is to prevent human exposure to contaminants concentrations above the EPA allowable risk range of $1x10^{-4}$ to $1x10^{-6}$ for an industrial exposure scenario.

2. Groundwater

   EPA expects final remedies to return usable groundwater to its maximum beneficial use within a timeframe that is reasonable given the particular circumstances of the project. For projects where aquifers are either currently used for water supply or have the potential to be used for water supply, EPA will use MCLs.

   Analytical results from the groundwater show no exceedances of applicable MCLs or EPA RSL's for tapwater. Based on the Groundwater Statistical tool, EPA has determined, with a 95% confidence level that concentrations of the contaminants remaining in the groundwater at the Facility will remain below the applicable MCLs or RSLs. Therefore, the overall objective to return the groundwater to its maximum

beneficial use has been met, and there is no further action required for groundwater.

Section 6: Proposed Remedy

A. Proposed Remedy

EPA's proposed remedy for the Facility consists of the continued maintenance of the landfill cap and IM remediation cap in accordance with the EPA-approved O&M Plan and the implementation of and compliance with the following land use restrictions and access and reporting requirements because some contaminants will remain in the soil at the Facility above levels appropriate for residential exposure:

- The landfill will not be used in a way that will adversely affect or interfere with the integrity and protectiveness of the soil cap. This restriction will include a prohibition on disturbing surface and subsurface soil within the landfill area, and a requirement to monitor and maintain the cap.

- The eastern detention pond will not be used in a way that will adversely affect or interfere with the integrity and protectiveness of the IM remediation cap. This restriction will include a restriction on disturbing the surface and subsurface soil within the eastern detention pond, and a requirement to monitor and maintain the IM remediation cap.

- The Facility property shall be restricted to commercial and/or industrial purposes and shall not be used for residential purposes unless it is demonstrated to EPA that such use will not pose a threat to human health or the environment and EPA provides prior written approval for such use. "Residential purposes" includes all purposes that provide for living accommodations or services (e.g. dormitories, senior citizen housing, any day care facility whether for infants, children, the infirm, or the elderly).

- A periodic written certification that contains a statement that land use restrictions are in place and effective shall be submitted to EPA.

- EPA, Virginia Department of Environmental Quality (VADEQ), and/or their authorized agents and representatives, shall be provided access to the Facility property to inspect and evaluate the continued effectiveness of the Final Remedy to be selected by EPA in the Final Decision and Response to Comments (FDRTC) and, if necessary, to conduct additional remediation to ensure the protection of the public health and safety and the environment.

B. Implementation

The proposed components of the Final Remedy for the Facility shall be implemented through an enforceable mechanism such as an order and/or an environmental covenant pursuant

to the Virginia Uniform Environmental Covenants Act, Title 10.1, Chapter 12.2, Sections 10.1-1238-10.1-1250 of the Code of Virginia (Environmental Covenant). If an Environmental Covenant is to be the institutional control mechanism, it will be recorded in the chain of title for the Facility property and will be recorded with the Clerk's Office of the Circuit Court of Amherst County and/or the city of Lynchburg. A clerk-stamped copy of the Environmental Covenant will be sent to EPA and VADEQ within sixty (60) calendar days of recordation.

Under the proposed remedy, Griffin Pipe will be required to provide a coordinate survey, as well as a metes and bounds survey, of the landfill cap, the IM remediation cap, and Facility boundaries as follows:

1. The boundary of each use restriction shall be defined as a polygon; and

2. The longitude and latitude of each polygon vertex shall be established as follows:

    a. Decimal degrees format;
    b. At least seven decimal places;
    c. Negative sign for west longitude; and
    d. World Geodetic System (WGS) 1984 datum.

Mapping the extent of the land use restrictions will allow for presentation in a publically accessible mapping program such as Google Earth or Google Maps.

If Griffin Pipe or any subsequent owner fails to meet its obligations under the enforceable mechanism selected or if EPA, in its sole discretion deems that additional corrective measures and/or land use restrictions are necessary to protect human health or the environment, EPA has the authority after public comment, to require and enforce such additional corrective measures and use restrictions, provided any necessary public participation requirements are met.

Section 7: Evaluation of Proposed Remedy

This section provides a description of the criteria EPA used to evaluate the Proposed Remedy consistent with EPA guidance. The criteria are applied in two phases. In the first phase, EPA evaluates three decision threshold criteria as general goals. In the second phase, for those remedies which meet the threshold criteria, EPA then evaluates seven balancing criteria.

Threshold Criteria

- **Protect Human Health and the Environment** -The proposed remedy will protect human health by eliminating and controlling exposure to potential unacceptable risk of exposure to contamination in the landfill and the eastern detention pond through the implementation and maintenance of use restrictions. EPA is proposing to restrict land use

to commercial or industrial purposes at the Facility.

The human health exposure pathway has been removed by the installation of caps over the landfill and the eastern detention pond. The installation of the landfill cap has ensured that the contaminants present in the perched groundwater within the landfill are not migrating to the aquifer below the landfill, and the groundwater monitoring has verified this. The IM remediation cap installed in the eastern detention pond eliminated exposure to contaminated sediment in the former pond to terrestrial plants and animals, and the associated unacceptable ecological risks. The proposed land use restrictions will ensure that both caps continue to protect of human health and the environment.

- **Achieve Media Cleanup Objectives** - The remedy proposed in this SB is based on the current and future anticipated land use at the Facility for commercial or industrial purposes. The landfill and the eastern detention pond were capped and the Facility is required to comply with an EPA-approved O&M Plan that includes procedures to maintain the caps.

- **Remediating the Source of Releases** - There is no continuing source of releases. The landfill and the eastern detention pond were capped and the Facility is required to comply with an EPA approved O&M Plan that includes procedures to maintain the Landfill cap. Additionally, groundwater monitoring has shown that there is no discharge of contaminants.

Balancing Criteria

- **Long-term effectiveness** - The proposed remedy will maintain protection of human health and the environment over time by controlling the direct exposure to hazardous constituents remaining in the landfill and eastern detention pond though requiring compliance with the EPA-approved O&M Plan and land use restrictions.

- **Short-term effectiveness** - The human health exposure pathway has been effectively removed with the installation of the landfill cap and the IM remediation cap. The landfill cap has ensured that the contaminants present in the perched groundwater within the landfill are not migrating to the aquifer below the landfill. The IM remediation cap effectively removed the exposure to contaminated sediment in the former pond by terrestrial plants and animals, and the associated unacceptable ecological risks.

- **Reduction of toxicity, mobility, or volume of the Hazardous Constituents** - The reduction of mobility and volume of hazardous constituents has already been achieved through the installation of the caps, as there is no exposure to unacceptable risk. The proposed remedy ensures the long-term reliability of the existing caps to reduce the mobility of the hazardous constituents.

- **Implementability** - The proposed remedy is readily implementable. The landfill and the IM remediation caps are in place. With respect to the implementation of the proposed

use restrictions, the Facility may pursue an enforceable mechanism such as an order and/or an Environmental Covenant, which are routine administrative tasks. Therefore, EPA does not anticipate any regulatory constraints in implementing its proposed remedy.

- **Cost** - EPA proposed remedy is cost effective since the only remaining activities are the implementation of land use controls and the implementation of the EPA- approved O&M Plan. The cost associated with these activities are less than $100,000.

- **Community Acceptance** - EPA will evaluate community acceptance of the proposed remedy during the public comment period and will be described in the FDRTC.

- **State/Support Agency Acceptance** -VADEQ has reviewed and concurred with EPA's proposed remedy for the Facility. Furthermore, EPA has solicited VADEQ input and involvement throughout the investigation process at the Facility.

Section 8: Financial Assurance

EPA has evaluated whether financial assurance for corrective action is necessary to implement EPA's proposed remedy at the Facility. The landfill and IM remediation caps have already been installed and, therefore, financial assurance will not be required since the cost for implementation of land use controls and the inspection and maintenance of the cap will be minimal.

Section 9: Public Participation

Before EPA makes a final decision on its proposed remedy for the Facility, the public may participate in the remedy selection process by reviewing this SB and documents contained in the AR for the Facility. The AR contains all information considered by EPA in reaching this proposed remedy. It is available for public review during normal business hours at:

U.S. EPA Region III
1650 Arch Street
Philadelphia, PA 19103
Contact: Leonard Hotham
Phone: (215) 814-5778
Fax: (215) 814-3113
Email: hotham.leonard@epa.gov

Interested parties are encouraged to review the AR and comment on EPA's proposed remedy. The public comment period will last thirty (30) calendar days from the date that notice is published in a local newspaper. You may submit comments by mail, fax, or e-mail to Mr.

Leonard Hotham. EPA will hold a public meeting to discuss this proposed remedy upon request. Requests for a public meeting should be made to Mr. Leonard Hotham.

EPA will respond to all relevant comments received during the comment period. If EPA determines that new information warrants a modification to the proposed remedy, EPA will modify the proposed remedy or select other alternatives based on such new information and/or public comments. EPA will announce its final remedy and explain the rationale for any changes in a document entitled the Final Decision and Response to Comments (FDRTC). All persons who comment on this proposed remedy will receive a copy of the FDRTC. Others may obtain a copy by contacting Mr. Leonard Hotham at the address listed above.

Date: 12.21.16

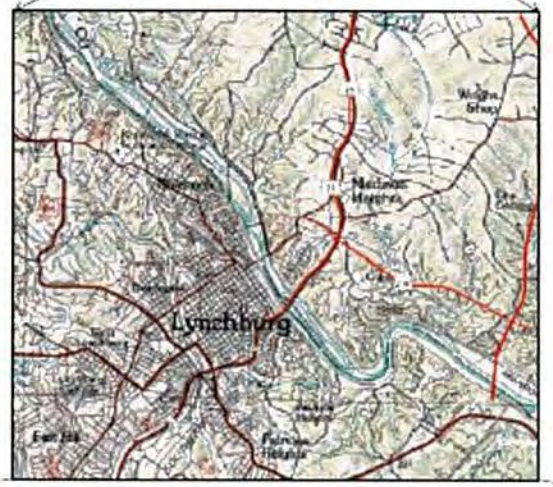
John A. Armstead, Director
Land and Chemicals Division
US EPA, Region III

Attachments:
Figure 1: Location of Facility

Section 10: Index to Administrative Record

October 8, 2002	3008(h) Order to Griffin Pipe (including cover letter)
August 8, 2003	Description of Current Conditions Report
December 10, 2007	Human Health & Ecological Risk Assessment (including cover letter)
April 30, 2010	RCRA Facility Investigation (RFI) Report – Revised (including cover letter)
April 14, 2011	EPA letter to Griffin Pipe Regrading Approval for Request of Reduced Groundwater Monitoring
August 10, 2012	Screening Level Ecological Risk Assessment (SLERA) (including cover letter)
April 30, 2013	Griffin Pipe letter to EPA for Addendum to August 10, 2012 SLERA
May 8, 2013	EPA letter to Griffin Pipe Regarding Approval of SLERA
June 27, 2013	EPA letter to Griffin Pipe Regarding Approval of RFI
November 8, 2013	Corrective Measures Study (CMS)
September 22, 2016	EPA letter to Griffin Pipe Regarding Approval for Discontinuation of Groundwater Monitoring
November 14, 2016	Interim Measures (IM) Report

Figure 1



aegis GEOENVIRONMENTAL

Site Location

Thomas Road Landfill
Griffin Pipe Products Company, LLC.
Amherst County, Virginia

David M. Sayre, P.G. September 2014

DRAWING 1