COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

September 18, 2015

Mr. Michael Slenska
Environmental Manager
Beazer East, Inc.
One Oxford Center, Suite 3000
Pittsburgh, PA 15219-6401

VIA Electronic Mail

Re: Class 2 Modification, Hazardous Waste Management Permit – Approval
Site-Wide RCRA Corrective Action Final Remedy
Beazer East, Inc. – Koppers Inc., Roanoke Valley Site, Salem, VA
EPA ID No. VAD003125770

Dear Mr. Slenska:

The Department of Environmental Quality, Office of Waste Permitting and Compliance (DEQ) received the Class 2 modification request from ARCADIS, on behalf of Beazer East, Inc., located in Salem, Virginia (Beazer) to modify its Hazardous Waste Management Permit for Corrective Action (Permit). This Class 2 modification request, received on July 10, 2015, was to incorporate the final remedy, selected from its approved Corrective Measures Study (CMS) Report, into the Permit.

The DEQ has reviewed the submittal. The proposed corrective action remedy includes (1) DNAPL detection and recovery to ultimately eliminate DNAPL as an ongoing source to groundwater contamination, (2) groundwater monitoring to confirm stabilization and/or reductions in hazardous constituents on-site and confirm constituents are not migrating to potential off-site receptors, (3) dye trace studies to confirm constituents are not migrating to potential off-site receptors, and (4) development and maintenance of land use restrictions and institutional controls. Below is a list of permit modifications incorporating the final remedy:

- Table of Contents – Modified
- Definitions – Added
- Module I – Modified
- Module II – Modified

  - *Changed Module II from "General Facility Conditions" to "Site-Wide Corrective Action". Facility Conditions are now included as a subsection in Module II and in its Attachment A - Facility Description and Corrective Action Background.*
  - *Sections C and D of Module II describe the corrective measures activities to be conducted in accordance with the final remedy.*
- Module III – Deleted
  - *Post-Closure Care requirements associated with the closed surface impoundments are now included in Revised Module II, Section C Post-Closure Care Requirements.*
- Module IV – Deleted
  - *Site-wide corrective action is set forth in Sections C and D of Revised Module II.*
- Module V – Deleted
  - *The schedule for implementation of the site-wide corrective action is set forth in Revised Module II, Section D – Corrective Measures Implementation.*
- Attachments A-D – Revised
  - *All other Attachments were deleted.*

A public notice of the Class 2 permit modification was published in The Roanoke Times on July 13, 2015. The 60-day public comment period began on July 13, 2015 and ended on September 11, 2015. A public meeting was held at the Salem Public Library, 28 East Main Street, Salem, VA 24153 on July 30, 2015. No comments were received during the public meeting and one (1) comment was received during the public comment period, from the City of Roanoke, wherein the City requested prior notification of the facility's planned dye trace studies (See Enclosure 2). This comment did not require any changes to the draft permit. Furthermore, the required Class 2 modification permit fee in the amount of $2400.00 was received by the DEQ on July 17, 2015.

Therefore, the DEQ approves this Class 2 Modification of the Permit which is in accordance with Section 270.42(b). The DEQ has changed its copy of Beazer's Permit with the enclosed modified Hazardous Waste Management Permit for Corrective Action (complete copy – Enclosure 1). Please ensure that Beazer's Permit copies are also updated accordingly.

In addition, the DEQ will notify all persons on the facility mailing list of this modification approval within 10 days in accordance with 40 CFR 270.42(f)(1). Evidence of this mailing will be forwarded to the facility when available.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date of service of this decision to initiate an appeal by filing a notice of appeal with:

David K. Paylor
Director, Virginia Department of Environmental Quality
P.O. Box 1105
Richmond, Virginia 23218

In the event that this decision is served to you by mail, three days are added to this period. Please refer to Part 2A of the rules of the Supreme Court of Virginia, which describes the required contents of the Notice of Appeal, including specification of the Circuit Court to which the appeal is taken, and additional requirements governing appeals from decisions of administrative agencies.

If you have questions concerning the information provided in this letter, please contact Angela Alonso of my staff at 804-698-4328 or by e-mail at Angela.Alonso@deq.virginia.gov.

Sincerely,

Leslie A. Romanchik
Hazardous Waste Program Manager
Office of Waste Permitting and Compliance

Enclosures:
1 – Class 2 Modified Permit (complete copy)
2 – Public Comment from City of Roanoke

cc: Andrea Barbieri – EPA, Region III (3LC50)
Aziz Farahmand – DEQ, BRRO
Angela Alonso, Brett Fisher, Julia King-Collins, – DEQ, CO
CO File

Rob Anderson – ARCADIS
Hillary Evanko - ARCADIS

HAZARDOUS WASTE MANAGEMENT
SITE-WIDE CORRECTIVE ACTION PERMIT

Modified Date: September 16, 2015

BEAZER EAST, INC.
(KOPPERS INC. ROANOKE VALLEY SITE)
SALEM, VIRGINIA
EPA ID NO. VAD003125770

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
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L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

Hazardous Waste Management
Post-Closure and
Site-Wide Corrective Action Permit

Beazer East, Inc.
(Koppers, Inc. – Roanoke Valley Site)
Salem, Virginia 241533

EPA ID No. VAD003125770

Permittee: Beazer East, Inc.
c/o Three Rivers Management, Inc.
One Oxford Centre
Suite 3000
Pittsburgh, Pennsylvania 15219

EPA I.D. #: VAD003125770

Pursuant to Chapter 14, Section 10.1-1426, Code of Virginia (1950), as amended and regulations promulgated thereunder by the Department of Environmental Quality - Waste Operations, a Post-closure Care and Site-Wide Corrective Action Permit is issued to Beazer East, Inc. (hereinafter referred to as the Permit and the Permittee), to monitor a closed hazardous waste management unit located at the Koppers, Inc. - Roanoke Valley Plant in Salem, Virginia at latitude 37°16'20" North and longitude 80°07'45" West and conduct site-wide corrective action. Hazardous waste management at the above facility is currently limited to the following activities: maintenance and monitoring of six surface impoundments closed as a single hazardous waste landfill (hereinafter referred to as the Regulated Unit).

The Permittee must comply with all terms and conditions of this Permit. This Permit consists of the conditions contained herein (including those in Permit Attachments A through P) and the applicable regulations contained in the Virginia Hazardous Waste Management Regulations (9 VAC 20-60-12 et seq.), as specified in the Permit. Permit conditions will take precedence in the event of a conflict between a Permit Attachment and a Permit condition. Applicable regulations are those which are in effect on the date of issuance of this Permit (9 VAC 20-60-12 et seq.) as well as any self-implementing statutory provisions and related regulations which are automatically applicable to the Permittee's hazardous waste management activities, notwithstanding the conditions of this Permit.

This Permit is based on the assumption that the information submitted in the original Permit application dated July 14,1988, resubmitted on December 14, 1995, and modified by letters on May 5, May 10, and June 10, 1996 (hereinafter referred to as the original application), and in the substantive modification request submitted December 7, 1998, and in this application for Permit renewal dated April 28, 2006 is accurate and that the facility will be maintained and/or operated as specified in this Permit. Any inaccuracies found in the application may be grounds for termination or modification of this Permit (see 40 CFR §124.5, 40 CFR § 270.41, and 40 CFR § 270.43) and potential enforcement action. The Permittee must inform the Waste Division of the Virginia Department of Environmental Quality (hereinafter referred to as the DEQ or the Department) of any deviation from or changes in the information in the application which would affect the Permittee's ability to comply with the applicable regulations or Permit conditions. The facility will be maintained and/or operated as specified in this Permit.

This Permit is effective as of October 28, 2007 and shall remain in effect until October 28, 2017 (ten years from date of issuance) unless revoked and reissued, or terminated in accordance with 40 CFR § 270.41 through 40 CFR § 270.43 or continued in accordance with 9 VAC 20-60-270.B.5.

September 28, 2007
Date Signed

Leslie A. Romanchik
Leslie A. Romanchik,
Director, Office of Hazardous Waste

HAZARDOUS WASTE MANAGEMENT
SITE-WIDE CORRECTIVE ACTION PERMIT

BEAZER EAST, INC. (KOPPERS INC. ROANOKE VALLEY SITE)
SALEM, VIRGINIA
EPA ID NO. VAD003125770

TABLE OF CONTENTS

LIST OF ATTACHMENTS

The following Attachments are incorporated, in their entirety, by reference into this Permit. These incorporated attachments are enforceable conditions of this Permit. The Department has, as deemed necessary, modified specific language from the permit application. Additional modifications are prescribed in the permit conditions (Modules I and II), and thereby supersede the language of the Attachments.

Attachment A	Facility Description and Corrective Action Background
Attachment B	Facility Location Map, Survey Map and Property Parcel Coordinates
Attachment C	Post-Closure Care Requirements for Closed Surface Impoundments
Attachment D	Site Wide Corrective Action Remedial Cleanup Goals

DEFINITIONS

For the purposes of this Permit, the following definitions shall apply:

a. The term "Permit" shall mean the Permit issued by the Virginia Department of Environmental Quality, pursuant to Chapter 14, Article 4, Title 10.1, Code of Virginia (1950), as amended, and the Virginia Hazardous Waste Management Regulations (VHWMR) as codified in Title 9 of the Virginia Administrative Code, Agency 20, Chapter 60 (9 VAC 20 60).

b. The term "Director" shall mean the Director of the Virginia Department of Environmental Quality or his designated representative.

c. The term "Department" shall mean the Virginia Department of Environmental Quality (DEQ), (with the address as specified in Permit Condition I.I.).

d. The term "Facility" shall mean all contiguous property under the control of the owner or operator seeking a Permit. For the purpose of this Permit, the Facility descriptions are as set forth in Permit Module II.

e. The term "hazardous waste management unit" shall mean a contiguous area of land on or in which hazardous waste is placed, or the largest area in which there is significant likelihood of mixing hazardous waste constituents in the same area. Examples of hazardous waste management units include a surface impoundment, a waste pile, a land treatment area, a landfill cell, an incinerator, a tank and its associated piping and underlying containment system and a container storage area. A container alone does not constitute a unit; the unit includes containers and the land or pad upon which they are placed.

f. The term "release" shall mean any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of any hazardous waste or hazardous constituents.

g. The term "Area of Concern" shall mean an area at the Facility which it is not known at this time to be a solid waste management unit, where hazardous waste and/or hazardous constituents are present or are suspected to be present as a result of a release from the Facility.

h. The term "Hazardous Constituent" shall mean a constituent that caused the Administrator to list the hazardous waste in 40 CFR 261, Appendix VIII.

i. The term "Permittee" shall mean the party to which the Permit is issued.

j. The term "Owner" or "Operator" shall mean the owner or operator of any facility or activity subject to regulation under RCRA.

k. The term "EPA" shall mean United States Environmental Protection Agency.

l. The term "Solid Waste Management Unit" shall mean any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at which solid wastes have been routinely and systematically released.

m. The term "Days" shall mean calendar days except as otherwise provided herein.

n. All definitions contained in 40 CFR Sections 124.2, 260.10, 270.2, 264.141, 264.1031, 264.1051, 264.1081, and 9 VAC 20-60 are hereby incorporated, in their entirety, by reference into this Permit. Any of the definitions used above, shall supersede any definition of the same term given in 40 CFR Sections 124.2, 260.10, 270.2, 264.141, 264.1031, 264.1051, 264.1081, and 9 VAC 20-60. Where terms are not defined in the regulations or the Permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

o. Throughout the Permit, all references to 40 CFR Parts 124, 260-266, 268, 270, 273, 279, are as adopted by reference in the Virginia Hazardous Waste Management Regulations, 9 VAC 20-60.

MODULE I – STANDARD CONDITIONS

A. EFFECT OF PERMIT

This Permit, issued by the Director pursuant to 40 CFR § 270.1(c)(4), authorizes only the management of hazardous waste under corrective action (CA) expressly described in this Permit and in accordance with the conditions of this Permit and with the applicable provisions of the Virginia Hazardous Waste Management Regulations (VHWMR) under 9 VAC 20-60. Any management of hazardous waste by the Permittee which is not authorized by this Permit or 9 VAC 20-60, and for which a permit is required under Chapter 14, Article 4, Title 10.1, Code of Virginia (1950), as amended, is prohibited. (40 CFR §§ 270.30(g) and 270.4(b) and (c)) Compliance with this Permit generally constitutes compliance, for the purposes of enforcement, with Chapter 14, Article 4, Title 10.1-1426, Code of Virginia (1950), as amended. This Permit does not convey any property rights of any sort, or any exclusive privilege. Possession of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of Commonwealth of Virginia or local laws or regulations. Compliance with the terms of this Permit may not constitute a defense to any action brought under Chapter 14, Article 8, Code of Virginia (1950), as amended, or any other Commonwealth law governing protection of the public health or the environment.

The CA obligations contained in this Permit shall continue regardless of whether the Permittee continues to operate or ceases operation and closes the Facility. The Permittee is obligated to complete CA for the Facility under the conditions of a RCRA Permit regardless of the operational status of the Facility. The Permittee must submit an application for a new Permit at least 180-days before this Permit expires pursuant to 40 CFR § 270.10(h), unless the Permit has been modified to terminate the CA schedule of compliance and the Permittee has been released from the requirements for financial assurance for corrective action.

B. PERMIT ACTIONS

1. This Permit may be modified, revoked and reissued, or terminated for cause as specified in 40 CFR §§ 124.5, 270.30(f), 270.41, 270.42, and 270.43. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or the notification of planned changes or anticipated noncompliance does not stay the applicability or enforceability of any Permit Condition (40 CFR § 270.30(f)).

2. Permit modifications at the request of the Permittee shall be done as specified by 40 CFR § 270.42.

3. This Permit may be renewed as specified in 9 VAC 20-60-270.10 and 40 CFR § 270.10, and Permit Condition I.D.2. Review of any application for a permit renewal shall consider improvements in the state of control and measurement technology, as well as changes in applicable regulations.

C. SEVERABILITY

1. The provisions of this Permit are severable, and if any provision of this Permit or the application of any provision of this Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Permit shall not be affected thereby. Invalidation of any Commonwealth or federal statutory or regulatory provision which forms the basis for any condition of this Permit does not affect the validity of any other Commonwealth or Federal statutory or regulatory basis for said condition (40 CFR § 124.16(a)(2)).

2. In the event that a condition of this Permit is stayed for any reason, the Permittee shall continue to comply with the related applicable and relevant interim status standards in 40 CFR § 270.10(e) until final resolution of the stayed condition unless the Director determines compliance with the related applicable and relevant interim status standards would be technologically incompatible with compliance with other conditions of this Permit which have not been stayed.

D. DUTIES AND REQUIREMENTS

1. Duty to Comply.
   The Permittee shall comply with all conditions of this Permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit (see 40 Code of Federal Regulations (CFR) § 270.61). Any other Permit noncompliance constitutes a violation of Title 10.1, Code of Virginia (1950), as amended, and regulations promulgated thereunder and is grounds for enforcement action, Permit termination, revocation and reissuance, modification, or denial of a Permit renewal application (40 CFR 270.30(a)).

2. Duty to Reapply.
   If the Permittee wishes to or is required to continue an activity regulated by this Permit after the expiration date of this Permit, the Permittee shall apply for and obtain a new Permit as specified below.

   a. The Permittee shall submit a new and complete application for a new Permit at least 180 days before the Permit expires, unless a later date has been approved by the Director.

   b. Pursuant to 9 VAC 20-60-270.10.h, the Director shall not grant permission for an application to be submitted later than the existing Permit's expiration date (40 CFR 270.30(b)).

3. Need to Halt or Reduce Activity Not a Defense.
   It shall not be a defense in an enforcement action to argue that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Permit (40 CFR 270.30(c)).

4. Duty to Mitigate.
In the event of noncompliance with the Permit, the Permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Permit, and shall carry out such measures as are reasonable to prevent significant adverse impacts (40 CFR 270.30(d)).

5. Proper Operation and Maintenance.
The Permittee shall at all times properly operate and maintain all facilities and systems of the treatment and controls (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls; including appropriate quality assurance/quality control procedures. This provision requires the operation of back-up or auxiliary facility or similar systems only when necessary to maintain compliance with the conditions of the Permit (40 CFR 270.30(e)).

6. Duty to Provide Information.
The Permittee shall furnish the Director within a reasonable time, any relevant information the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Permittee shall also furnish the Director, upon request, copies of records required by this Permit (40 CFR 270.30(h)).

7. Inspection and Entry.
The Owner/Operator shall allow the Director or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

   a. Enter at reasonable times upon the Owner/Operator's premise where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Permit;

   b. Have access to and copy, at reasonable times, any records kept under conditions of this Permit;

   c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and

   d. Sample or monitor, at reasonable times, for the purpose of assuring Permit compliance or as otherwise authorized by VHWMR, any substance or parameters at any location (40 CFR 270.30(i)).

8. Reporting Planned Changes.
The Permittee shall give notice to the Director as soon as practical of any planned physical alterations or additions to the remedies implemented as part of corrective action at the permitted Facility. This notice shall include a detailed description of all incidents of

noncompliance reasonably expected to result from the proposed changes (40 CFR 270.30(l)(1)).

9. Anticipated Noncompliance.
The Permittee shall give advance notice to the Director of any planned changes in the permitted Facility or activity which may result in noncompliance with the Permit requirements (40 CFR 270.30(l)(2)).

10. New and Modified Portions of Any Waste Management Unit.
The Permittee shall not store or treat hazardous waste in any new or modified portion of the Facility, except as provided in 40 CFR § 270.42, until the Permittee has submitted to the Director, by certified mail or hand delivery, a letter signed by the Permittee and a professional engineer registered by the Commonwealth stating that the Facility has been constructed or modified in compliance with the Permit; and:

    a. The Director has inspected the modified or newly constructed Facility and finds it is in compliance with the conditions of the Permit; or

    b. Within 15 days of the date of submission of the letter required pursuant to Permit Condition I.D.10, if the Permittee has not received notice from the Director of his intent to inspect, prior inspection is waived and the Permittee may commence treatment of hazardous waste. (40 CFR 270.30(l)(2))

11. Twenty-four Hour Reporting.
The Permittee shall report to the Director any non-compliance with the Permit which may endanger human health or the environment. Any such information shall be provided orally within 24-hours from the time the Permittee becomes aware of the circumstances. The information specified in Permit Section I.D.11. a. and b. below shall be included as information which shall be reported verbally within 24 hours:

    a. Information concerning the release of any hazardous waste that may endanger public drinking water supplies shall be reported.

    b. Any information of a release or discharge of hazardous waste, or of a fire or explosion at the Facility, which could threaten the environment or human health. The description of the occurrence and its cause shall include at least the following:

        i. Name, address, and telephone number of the Owner or Operator;

        ii. Name, address, and telephone number of the Facility;

        iii. Date, time, and type of incident;

        iv. Name and quantity of material(s) involved;

v. The extent of injuries, if any;

vi. An assessment of actual or potential hazard to human health and the environment outside the Facility, where this is applicable; and

vii. Estimated quantity and disposition of recovered material that resulted from the incident (40 CFR 270.30(l)(6)).

c. A written submission shall also be provided to the Director within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain at a minimum the following:

i. A description of the noncompliance and its cause;

ii. The periods of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated duration of the noncompliance; and

iii. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

The Permittee need not comply with the 5-day written notice requirement only if the Director waives that requirement following the verbal notification required by Permit Section I.D.10. and the Permittee submits a written report within fifteen (15) days of the time the Permittee becomes aware of the circumstances (40 CFR 270.30(l)(6)(iii)).

12. Other Noncompliance.
The Permittee shall report all other instances of noncompliance with the Permit not otherwise required to be reported above, at the time monitoring reports are submitted. The reports shall contain at a minimum the information listed in Permit Section I.D.11. (40 CFR 270.30(l)(10)).

13. Other Information.
Whenever the Permittee becomes aware that they failed to submit any relevant facts in the Permit application, or submitted incorrect information in a Permit application or in any report to the Director, the Permittee shall promptly submit such facts or information to the Director (40 CFR 270.30(l)(11)).

E. MONITORING AND RECORDS

1. Monitoring shall be performed and results shall be reported at the intervals specified in the Permit.

2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method specified in 40 CFR 261, Appendix I, or an

equivalent method approved by the EPA. Laboratory methods must be those specified in *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, *SW-846* (3rd ed.; November, 1986, as updated), *Standard Methods of Wastewater Analysis* (16th ed.; 1985, as updated), an equivalent method approved by the EPA.

3. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records, and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this Permit, all certifications required by 40 CFR 264.73(b)(9), and records of all data used to complete the application for this Permit, for a period of at least 3 years (or longer if specified elsewhere in this Permit) from the date of the sample collection, measurement, report, certification, or application. These retention periods may be extended by the request of the Director at any time and are automatically extended during the course of any unresolved enforcement actions regarding this Facility. The Permittee shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations, for the active life of the Facility, and for disposal facilities for the corrective measures implementation period as well. (Also see Permit Condition I.J.)

   Records of monitoring information shall include at a minimum:

   a. The date, exact place, and time of sampling or measurements;

   b. The individual(s) who performed the sampling or measurements;

   c. The date(s) analyses were performed;

   d. The individual(s) who performed the analyses;

   e. The analytical techniques or test methods used; and

   f. The results of such analyses (40 CFR § 270.30(j)).

F. COMPLIANCE NOT CONSTITUTING DEFENSE

Compliance with the terms of this Permit does not constitute a defense to any action brought under Chapter 14, Article 8 of Title 10.1, Code of Virginia (1950) as amended or any other Commonwealth law governing protection of the public or the environment.

G. TRANSFER OF PERMITS

This Permit is not transferable to any person except after notice to the Director. (40 CFR § 270.30(l)(3)) This Permit may be transferred by the Permittee to a new Owner/ Operator only if the Permit has been modified or revoked and reissued under 40 CFR § 270.40(b) or § 270.42(b)(2) to identify the new Permittee and to incorporate such other requirements as

may be necessary under the RCRA. (40 CFR § 270.40). Before transferring ownership or operation of the Facility during its operation life, the Permittee shall notify the new owner or operator in writing of the requirements of 9 VAC 20-60-264 and 40 CFR Part 264 and 270 and at the same time shall send a copy of such notice to the Director (40 CFR § 264.12(c)).

H. PERMIT EXPIRATION AND CONTINUATION

Pursuant to 9 VAC 20-60-270 B 15 this Permit will remain in force until the effective date of a new permit if the Permittee has submitted a timely, complete application pursuant to Permit Condition I.D.2.a., and through no fault of the Permittee, the Director has not issued a new permit with an effective date on or before the expiration date of this Permit. All conditions of the continued Permit shall remain fully effective and enforceable (40 CFR § 270.51).

I. REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO THE DIRECTOR

1. The Department will review the plans, reports, schedules and other documents (hereinafter collectively referred to as "submission") submitted which require Department approval. The Department will notify the Permittee in writing of the Department's approval or disapproval of each submission.

2. In the event of Department disapproval in whole or in part of any submission, the Department shall specify the deficiencies in writing. Document review and approval shall be in accordance with Permit Section I.K.

3. Annual Report
   The Permittee shall submit an annual groundwater monitoring and remedial measures report no later than March 1st of each calendar year containing, at a minimum, annual groundwater monitoring data, final remedy O&M data, and evaluation of remedial effectiveness.

4. Corrective Measures Three Year Assessment Report
   The Permittee shall submit three (3)-year corrective action status evaluation reports on the progress of remedial measures and of meeting cleanup targets and goals; effectiveness of institutional controls and engineering controls for meeting human health and environmental protection objectives including, but not limited to, a review of potential new uses of the Facility with respect to zoning maps or planning documents that may affect future land use of the impacted area.

   The required three (3)-year assessment reports that coincide with annual reports may be compiled with the annual report.

5. Duty to Submit Certified Documents
   One (1) complete copy of all reports, notifications or other submissions which are

required by this Permit is to be sent or given to the Director of the Department and shall be sent certified mail or other method for which receipt can be tracked or be hand-delivered to:

Department of Environmental Quality
Attn: Mr. Brett Fisher, P.G.
Technical Reviewer - Corrective Action/Groundwater
Office of Remediation Programs
PO Box 1105
Richmond, VA 23218
Telephone Number: (804) 698-4219

Street address:
629 East Main Street
Richmond, Virginia 23219

One (1) copy of all reports, notifications or other submissions which are required by this Permit shall also be sent to:

Director
Blue Ridge Regional Office
Department of Environmental Quality
3015 Peters Creek Road
Roanoke, Virginia 24019
(540)562-6700

6. Signatory Requirements
All reports or other information submitted to the Director shall be signed and certified as specified by 40 CFR 270.11.

J. DOCUMENTS TO BE MAINTAINED AT THE SITE

1. Current copies of the following Facility documents, as amended, revised, and modified, shall be maintained at the Site. These documents shall be maintained until corrective action is completed and certified by the Permittee and by an independent, Virginia-registered professional engineer, unless a lesser time is specified in the Permit.

   a. The Permit, including all attachments;

   b. All Part A and B Permit Applications supporting the Permit;

   c. The Facility operating record required by 40 CFR § 264.73;

   d. Inspection schedules and logs required by 40 CFR § 264.15(b)(2) and § 264.15(d), as applicable;

e. Personnel training documents and records required by 40 CFR 264.16 and this Permit;

f. Closure Plans, as required by 40 CFR § 264.112(a), as applicable;

g. Post-Closure Plans, as required by 40 CFR § 264.118(a), as applicable;

h. Sampling and Analysis Plan for remedial effectiveness and on-going groundwater monitoring as described in the Corrective Measures Study.

i. Corrective Action Work Plans, Reports, and other information and submissions regarding corrective action, as applicable under this Permit.

K. APPROVAL/DISAPPROVAL OF SUBMISSIONS

1. The Department will review the plans, reports, schedules and other documents (hereinafter collectively referred to as "submissions") submitted which require the Director's approval. The Department will notify the Permittee in writing of the Department's approval, conditional approval, or disapproval of each submission.

2. Each submission required by this Permit, upon approval by the Director, is incorporated into this Permit. Any noncompliance with a Department -approved submission shall be deemed as noncompliance with this Permit. A conditionally approved submission, including any terms of such conditional approval set forth in DEQ's decision, shall constitute the Department -approved submission and shall be incorporated into this Permit.

3. In the event of the Department's conditional approval of submission, the Director shall specify in writing any deficiencies in the submission and the terms upon which approval of the submission is conditioned. If the Permittee disputes any term upon which approval of the submission was conditioned, the Permittee may initiate Dispute Resolution pursuant to Permit condition I.L.

4. In the event of the Department's disapproval of a submission, the Director or the Department shall specify the deficiencies in writing. Such disapproval shall not be subject to the Dispute Resolution provision set forth in Permit condition I.L. The Permittee shall modify the submission to correct/address the specified deficiencies within a reasonable time period established by the Director or the Department taking into account the tasks to be performed, and submit the revised submission to the Department for approval.

5. If the revised submission is disapproved, the Director or the Department will notify the Permittee of the deficiencies in writing and specify a schedule for the Permittee to correct the deficiencies and resubmit the submission to DEQ. The Permittee shall correct the deficiencies as directed by the Department, and forward the revised submission within the time period specified by the Department. In the event the Permittee disagrees with the Department's disapproval of the revised submission, the Permittee shall notify the Department in writing and the disagreement shall be resolved in accordance with the Dispute

Resolution provision in permit condition I.L. of this Permit.

L. DISPUTE RESOLUTION

1. Except as otherwise provided in this Permit, in the event the Permittee disagrees, in whole or in part, with Department disapproval of any submission or condition of approval required by this Permit, the Permittee shall notify the Department in writing of its objections, and the basis thereof, within fourteen (14) days of receipt of the Department's disapproval. Such notice shall set forth the specific matters in dispute, the position(s) the Permittee asserts which should be adopted as consistent with the requirements of the Permit, the basis for the Permittee's position, and supporting documentation considered necessary for the Department's determination.

2. The Department and the Permittee shall have an additional fourteen (14) days from the Department's receipt of the notification to meet or confer to resolve any disagreement/dispute. In the event agreement is reached, the Permittee shall submit the revised submission and implement the same in accordance with such agreement.

3. In the event the Permittee and the Department are not able to reach an agreement on the dispute items within the additional 14-day period, the Department will notify the Permittee in writing of its decision on the dispute and the Permittee shall comply with the terms and conditions of the Department's decision in the dispute. The Permittee does not waive its right to assert any and all available defenses in a proceeding to enforce this Permit.

4. In the event the Permittee disagrees with the Department's disapproval of a submission or revised submission and the Department’s written decision regarding dispute items, the Permittee may file an appeal with the Director within 30 days of the disapproval (as provided for in Rule 2A:2 of the Supreme Court of Virginia).

MODULE II – SITE-WIDE CORRECTIVE ACTION

A. CORRECTIVE ACTION FOR CONTINUING RELEASES; PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

1. Section 3004(u) of RCRA, 42 United States Code (USC) § 6924(u), and regulations codified at 40 CFR § 264.101, provide that all permits issued after November 8, 1984 must require corrective action as necessary to protect human health and the environment for all releases of hazardous waste or hazardous constituents from any solid waste management unit (SWMU), regardless of when waste was placed in the unit.

2. Under Section 3004(v) of RCRA, 42 USC § 6924(v), and 40 CFR § 264.101(c), the Department may require that corrective action at a permitted Facility be taken beyond the Facility boundary where necessary to protect human health and the environment, unless the owner or operator of the Facility concerned demonstrates to the satisfaction of the Department that, despite the owner or operator's best efforts, the owner or operator was unable to obtain the necessary permission to undertake such action.

3. Section 3005(c)(3) of RCRA, 42 USC § 6925(c)(3), and 40 CFR § 270.32(b) provide that each permit shall contain such terms and conditions as the Department determines necessary to protect human health and the environment.

B. FACILITY DESCRIPTION

This section further defines the Facility as it relates to the applicability of the Permit. Details on the Site and Facility background are provided in Attachment A.

1. The Facility is located within the Roanoke Valley Plant located in Salem, Virginia (the Site) that is currently owned by Koppers Inc.

2. Wood treating operations using creosote at the Facility began in 1955 when Koppers Company, Inc. built the Roanoke Valley Plant. In 1988, BNS, a subsidiary of Beazer PLC, acquired all common stock of Koppers Company, Inc. Subsequently, the Facility was purchased by Koppers Industries, Inc., a new independent company. The name Koppers Industries, Inc. was subsequently changed to Koppers Inc. In 1989, the company name of Koppers Company Inc., was changed to Beazer Materials and Services, Inc. and then subsequently changed to Beazer East, Inc. (Beazer) in 1990.

3. Beazer retained responsibility for certain environmental liabilities at the Site including responsibility for post-closure care and site wide corrective action (CA).

4. For purposes of this Permit, the Facility includes those units and areas (both onsite- and off-site) subject to post-closure care and CA under RCRA. Facility includes regulated units, SWMUs, and areas of concern (AOCs) that have been identified and investigated/evaluated at present or that may be identified in the future, and the current and future limits of groundwater impacts resulting from the Facility. Regulated units include the closed surface impoundments and the closed container storage facility (SWMU 6). The container storage facility was closed in 1996 in accordance with a VDEQ-approved closure plan. Corrective action for the closed container storage facility was deferred to site-wide corrective action. Operation of the surface impoundments ceased in June 1988. Closure activities included removal and disposal of sludges and soils in July and August 1988. A RCRA cap was installed in November 1993 and the VDEQ approved the closure in August 1995. The SWMUS and AOCs that have been identified at the Facility and their status are listed in Attachment A. The Permit does not include the general operations of the property owner as they are regulated outside the scope of this permit.

5. For purposes of this Permit, the term on-site includes the Property currently owned by Koppers Inc. and also referred to as the Roanoke Valley Plant. The property boundaries are defined in Attachment B. For purposes of this Permit, the term off-site includes areas outside the Property limits.

C. POST-CLOSURE CARE REQUIREMENTS

The Permittee shall inspect and maintain the final cover and security measures at the closed surface impoundments in accordance with the final remedy as described in Section D Corrective Measures Implementation of Module II of this Permit and comply with all other applicable requirements of 40 CFR Subpart F 264.90 – 264.100, 40 CFR 264.110, 40 CFR 264.310, and corrective measures implementation period in accordance with 40 CFR 264.117 (c). A Post Closure Care Plan is included as Attachment C.

The Department allowed the Permittee to integrate the groundwater corrective action at the closed surface impoundment with the site wide corrective action program under EPA's Hazardous and Solid Waste Amendments (HSWA) authority and the Department's authorities to address groundwater contamination at the facility related to SWMUs and the closed surface impoundments. The Department has deferred post-closure care groundwater monitoring requirements of the regulated unit to site-wide corrective action under the authority of 40 CFR 264.110(c) and 40 CFR 264.90(f). The groundwater plume beneath the site will be monitored as described in the Department approved Sampling and Analysis Plan and in accordance with the final remedy as described in Section D Corrective Measures Implementation of Module II of this Permit. The Director maintains in this Permit the authority to require unit specific corrective action above and beyond the HSWA site wide corrective action final remedy if it is necessary to protect human health and the environment.

D. CORRECTIVE MEASURES IMPLEMENTATION

1. Corrective actions are applicable to the Facility.

2. Final Remedy Selection

   a. Based on the findings of the RCRA Facility Investigation (RFI) and Corrective Measures Study (CMS), the Department concluded that historical releases in the eastern end of the process area and from the former SIs have impacted soil and groundwater in both the overburden and bedrock. Such releases have been abated and there are no ongoing releases to the surface or subsurface. While some isolated intervals of dense nonaqueous phase liquids (DNAPL) have been observed in the subsurface and may act as a continuing source of residual dissolved constituents to the groundwater, no recoverable pools of DNAPL have been observed. Constituents detected in groundwater primarily consist of semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAHs), benzene, ethylbenzene, and xylenes. Documentation for completion of investigation reports and studies have been compiled by the Department, entitled Administrative Record. Based on the CMS results and the Administrative Record, the Final Remedy for the Facility was developed and is described in the Statement of Basis. The requirements of this Permit provide for the implementation and operation and maintenance of the remedy described in the Statement of Basis.

   b. The goal of the remedy for corrective action is to ensure protection of human health and the environment. The details of the final remedy are summarized below and are described in detail in the Administrative Record including the Groundwater Sampling and Analysis Plan and Statement of Basis. Minor modifications in the activities, studies, techniques, procedures, and designs or schedules utilized in carrying out the requirements of this Permit and necessary for the O&M and/or completion of the remedy may be made by written agreement of the VDEQ contact identified in Module I - Section I.5. of the Permit. Remedial cleanup goals are included in Attachment D. Under this final remedy, the Department is requiring the following actions:

      i. Continue the DNAPL detection and recovery program to reduce and ultimately eliminate DNAPL as an ongoing source to groundwater contamination.

      ii. Continue the groundwater monitoring program to confirm stabilization and/or reductions in hazardous constituents on-site and continue to monitor sentinel wells off-site to confirm that constituents are not migrating to potential receptors.

iii. Perform a dye trace study every five years to reconfirm that constituents are not migrating off-site to potential receptors.

iv. Develop and maintain compliance with land use restrictions and institutional controls. Institutional controls will be implemented on the Permittee through the Facility's Permit. An Environmental Covenant will be filed on the Property deed which will be UECA compliant. Institutional controls will include:

- The property shall not be used for residential purposes or for children's (under the age of 16) daycare facilities, schools, or playground purposes.

- Groundwater beneath the property shall not be used for any purposes except for environmental monitoring and testing, or for non-contact industrial use as may be approved by the agency subject to the considerations in the CMS. Any new groundwater wells installed on the property must be approved by the agency.

- Excavation and disturbance on the property shall be conducted in accordance with the agency approved Materials Management Plan.

- Vapor intrusion mitigation measures shall be installed in any newly constructed totally enclosed building(s) designed for occupation within 100 feet of the foot print of groundwater impacted with VOCs and SVOCs. Additionally, the need for vapor intrusion mitigation measures shall be assessed for any existing totally enclosed building(s) designed for occupation should the use of such building(s) be modified from its current use in such a manner that vapor intrusion could become a human health risk. Vapor intrusion mitigation measures may be waived with agency approval based upon a demonstration that mitigation measures are not necessary for protection of human health.

- Future modifications at the property that could be reasonably understood to adversely affect or interfere with the integrity or protectiveness of the final remedy will be evaluated to identify and address those potential impacts or interferences. No removal, disturbance, or alteration shall occur to any corrective action components installed at the property, including, but not limited to groundwater monitoring wells and the engineered cover installed over the closed surface impoundments, without agency approval

3. Final Remedy Implementation

   a. Operation and maintenance of the corrective action activities are detailed in the Sampling and Analysis Plan (SAP). The corrective action includes:

      i. continue the DNAPL detection and recovery program to reduce and ultimately eliminate DNAPL as an ongoing source to groundwater contamination;

      ii. continue the groundwater monitoring program to confirm stabilization and/or reductions in hazardous constituents on-site; continue to monitor sentinel wells off-site to confirm that constituents are not migrating to potential receptors;

      iii. perform a dye trace study every five years to reconfirm that constituents are not migrating off-site to potential receptors;

   b. The Permittee shall work with the Owner to implement Institutional Controls through an environmental covenant pursuant to the Virginia Uniform Environmental Covenants Act (UECA), VA Code, §10.1-1238, et seq. and to be recorded with the deed for the property. A declaration of restrictive covenants or similar instrument consistent with applicable requirements under the laws of the Commonwealth of Virginia will be recorded with the real property records such that prospective purchasers of the property will have constructive notice of land use restrictions. The declaration of restrictive covenants will contain the land use controls described above and will be recorded with the land records in the office of the clerk of the circuit court for the jurisdiction in which the property is located. The current owner and future owners of the property will be obligated to comply with the recorded restrictive covenant since the covenant will run with the land.

   c. The Permittee shall, at a minimum, provide the Department with metes and bounds descriptions or coordinate surveys for applicable land use restrictions that meet the following requirements:

      i. Define the boundary of each use restriction as a polygon

      ii. Establish the longitude and latitude of each polygon vertex as follows:

         - Decimal degrees format
         - At least seven decimal places
         - Negative sign for west longitude
         - WGS 1984 datum

E. EVALUATION OF THE SELECTED REMEDY

Commencing one year from the submittal date of this modified Permit, the Permittee shall submit an annual progress report by March 1 of each following year covering the corrective measures remedy performance and continue to submit annual groundwater monitoring and corrective measures reports until remedial clean up requirements have been met. If the Department determines that the selected corrective measures remedy will not comply with the media clean-up requirements, the Department may require the Permittee to perform additional studies and/or perform modifications to the existing corrective action remedy. If necessary, the Department or the Permittee may seek modification of this Permit pursuant to 40 CFR § 270.41 or § 270.42 and § 124.5 to implement modifications to the existing corrective measures remedy.

F. EMERGENCY RESPONSE; RELEASE REPORTING

1. Emergencies
   If, at any time during the term of this Permit, the Permittee discovers that a release of hazardous waste or hazardous constituents at or from the Facility is presenting or may present an imminent and substantial endangerment to human health or the environment, and such release is not subject to Contingency Plan and Emergency Procedures as defined in the Permit, the Permittee shall:

   Notify the Department as soon as practicable of the source, nature, extent, location and amount of such release, the endangerment posed by such release and the actions taken and/or to be taken, to the extent known, to address such release. Such notification shall be confirmed in writing within three (3) days of discovery of such release.

   a. Unless otherwise directed by the Department, immediately take such actions as are necessary and appropriate to address such release.

2. Releases
   The Permittee shall notify the Department in writing of the nature, source, extent, location of a release of hazardous waste or hazardous constituents at or from the Facility within seven (7) days of discovery of such release which:

   a. Is not being addressed by corrective measures pursuant to Permit Module II at the time of such discovery.

   b. Is not being addressed pursuant to II.F Emergencies.

   c. Is not subject to the Contingency Plan and Emergency Procedures as set forth in the Permit.

Based on the information submitted, the Department may require the SWMU and/or AOC to be included in a RCRA Facility Investigation or may require Interim Measures.

3. Nothing in this Permit shall limit the Department's authority to undertake or require any person to undertake response action or corrective action under any law, including but not limited to, Sections 104 or 106 of CERCLA, 42 USC § 9604 or 9606, and Section 7003 of RCRA, 42 USC § 6973. Nothing in this Permit shall relieve the Permittee of any obligation it may have under any law, including, but not limited to, Section 103 of CERCLA, to report releases of hazardous waste, hazardous constituents or hazardous substances to, at or from the Facility.

G. GUIDANCE DOCUMENTS

Any corrective action performed at the Facility shall be in accordance with applicable EPA Corrective Action Guidance available at:
http://www.epa.gov/reg3wcmd/ca/ca_resources.htm.

H. SOLID WASTE MANAGEMENT UNIT (SWMU) ASSESSMENT

1. The Permittee shall notify the Department and the EPA Region 3, in writing, of any newly identified SWMU at the Facility, no later than thirty (30) days after the date of discovery. The notification shall include, but is not limited to, the following known information:

   a. A description of the SWMUs type, function, dates of operation, location (including a map), design criteria, dimensions, materials of construction, capacity, ancillary systems (e.g., piping), release controls, alterations made to the unit, engineering drawings, and all closure and post-closure information available, particularly whether wastes were left in place.

   b. A description of the composition and quantities of solid wastes processed by the units with emphasis on hazardous wastes and hazardous constituents.

   c. A description of any release (or suspected release) of hazardous waste or hazardous constituents originating from the unit. Include information on the date of release, type of hazardous waste or hazardous constituents, quantity released, nature of the release, extent of release migration, and cause of release (e.g., overflow, broken pipe, tank leak, etc.). Also, provide any available data that quantifies the nature and extent of environmental contamination, including the results of soil and/or groundwater sampling and analysis efforts. Likewise, submit any existing monitoring information that indicates releases of hazardous waste or hazardous constituents has not occurred or is not occurring. The Permittee may refer to information regarding releases previously submitted to the Department.

d. A discussion of the need for and feasibility of implementing interim measures immediately.

2. Upon receipt of the notification of any newly identified SWMU, the Department will determine the need for corrective action at such SWMU. If corrective action is necessary to protect human health or the environment, the Department will determine whether a RCRA Facility Investigation will be performed and the need for and scope of any Interim Measures.

3. Within sixty (60) days after receipt of the Director's determination that a RCRA Facility Investigation or Interim Measures is necessary, the Permittee shall submit a RCRA Facility Investigation Work Plan or Interim Measures Work Plan that meets the applicable guidance. The Department's determination shall either specify the media and/or parameters to be investigated or shall require the Permittee to propose and justify the selection of media and/or parameters.

4. Within the time specified in the approved RCRA Facility Investigation Work Plan, the Permittee shall submit the RCRA Facility Investigation Report or Interim Measures Report. The reports will provide all data necessary for the Department to determine whether a Corrective Measures Study or additional Interim Measures Work Plan is required.

5. In lieu of a separate RCRA Facility Investigation, the Permittee may propose either to incorporate any newly identified SWMU into an ongoing RCRA Facility Investigation or to submit a proposal for the performance of corrective measures. Any such proposal shall be submitted to the Department along with notification of the discovery of the SWMU(s).

I. FINANCIAL ASSURANCE

1. Initial Cost Estimate
Assurances of financial responsibility for corrective action must be provided in accordance with conditions herein. Within ninety (90) calendar days of receipt of the Department's written approval of the Corrective Measures Remedy, the Permittee shall submit an initial cost estimate for completing the approved remedy(ies). The initial estimate may be based on the Corrective Measure Study, the approved remedy(ies), or any other available information

2. Cost Estimate Updates
The cost estimate for completing the approved remedy(ies) shall be updated pursuant to any changes or modifications to the final remedy approved by the Department or development of more detailed information. Within ninety (90) calendar days of receipt

of the Department's written approval of modifications to the final remedy, the Permittee shall submit an updated cost estimate to the Department.

3. Financial Assurance Demonstration
   Within thirty (30) calendar days of approval of the initial cost estimate for financial assurance and each succeeding year, the Permittee shall demonstrate compliance with financial assurance to the Department for completing the approved remedies in accordance with 40 CFR § 264.101(b). Within thirty (30) calendar days of approval of any revised cost estimate, the Permittee shall demonstrate to the Department financial assurance for the updated cost estimates.

J. COMMUNITY RELATIONS

The Permittee shall implement actions as necessary to meet the information needs of the community during implementation of corrective measures at the site. The specific activities to be conducted are the following:

1. The Permittee shall establish and maintain a public repository for documents relating to the corrective action at the Salem Public Library (28 East Main Street, Salem, VA 241530. Past documents shall be made available in electronic form and current documents shall be available in both electronic form and hard copy.

2. Upon request from DEQ, the Permittee shall distribute fact sheets and other information to persons on the Facility Mailing List maintained by DEQ.

3. Upon request from DEQ due to the identification of any new significant information, the Permittee shall conduct a public meeting.

K. RECORDKEEPING

Upon completion of closure of any SWMU, the Permittee shall maintain in the Facility operating record, documentation of the closure measures taken.

L. ACCESS FOR CORRECTIVE ACTION OVERSIGHT

The Department and its authorized representatives shall have access to the Facility at all reasonable times for the purpose of monitoring compliance with the provisions of this Permit. The Permittee shall use its best efforts to obtain access to property beyond the boundaries of the Facility at which corrective action is required by this Permit (see Section 3004(v) of RCRA, 42 USC § 6924(v) and 40 CFR § 264.101(c)); (1) for itself and any contractor of the Permittee for the purpose of taking corrective action required by this Permit, and (2) for Department and its authorized representatives for the purposes described in this paragraph.

M. COMPLETION OF REMEDY

Within ten (10) days of receipt of notification by the Department that the remedy is complete, the Permittee shall submit a written certification to the Department, registered mail, stating that the remedy has been completed in accordance with the requirements of this Permit Modification. The certification must be signed by the Permittee and by an independent registered professional engineer registered in the Commonwealth of Virginia.

In cases where no other permit conditions remain, the Permit may be modified not only to reflect the completion determination, but also to change the expiration date of the permit to allow earlier permit expiration in accordance with 40 CFR Parts 124, 270.41, and 270.42, as applicable.

Modified Date: September 16, 2015

ATTACHMENT A

FACILITY DESCRIPTION AND CORRECTIVE ACTION BACKGROUND

ATTACHMENT A – FACILITY DESCRIPTION AND CORRECTIVE ACTION BACKGROUND

CORRECTIVE ACTION PERMIT

BEAZER EAST, INC. (KOPPERS INC ROANOKE VALLEY SITE)
SALEM, VIRGINIA
EPA ID NO. VAD003125770

BACKGROUND

The Site is an 85 acre property currently owned and operated by Koppers Inc. located in Salem, Virginia[1].

The Site is adjacent to the Roanoke River on the northern side. Wood treating operations using creosote began in 1955 when Koppers Company, Inc. built the Roanoke Valley Plant. In 1988 BNS, a subsidiary of Beazer PLC, acquired all common stock of Koppers Company, Inc. Subsequently, the Roanoke Valley Plant was purchased by Koppers Industries, Inc., a new independent company. The name Koppers Industries, Inc. was subsequently changed to Koppers Inc. In 1989, the company name of Koppers Company was changed to Beazer Materials and Services, Inc. and eventually was changed to Beazer East, Inc. in 1990. Current Roanoke Valley Plant operations still consist of wood treatment using creosote exclusively and Beazer East continues to maintain responsibility for the Facility[2] (i.e., the closed regulated units and the Corrective Action Program).

The Roanoke Valley Plant produces railroad cross ties by pressure treating wood using creosote. Xylene was historically used to dry untreated wood in cylinders, but was discontinued in 1986. A creosote/coal tar solution is delivered to the Roanoke Valley Plant in railcars and is unloaded at a transfer station with secondary containment and placed in the Roanoke Valley Plant's creosote holding tanks. Untreated wood is also delivered by railcar. The untreated wood is cut to size and placed in treatment cylinders to be seasoned prior to treatment by covering the wood with heated creosote and applying a vacuum to boil out excess water. The water is extracted and is the primary source of the Roanoke Valley Plant's waste water. Subsequently, heated creosote is placed in the cylinder with the wood and pressure is applied to force creosote into the cells of the wood. The cross ties are removed from the cylinders and allowed to dry for approximately 24 hours on the drip track. Waste water at the Roanoke Valley Plant is collected in surge tanks and is then passed through an oil/water separator. Oil collected from the separator is recycled to the work tanks and collected solids are placed in 55-gallon drums and shipped off-site for incineration. Treated waste water is discharged to the publicly owned treatment works

[1] The term "Site" refers to the Roanoke Valley Plant Property (or the Roanoke Valley Plant), which includes all land occupied or vacant within the boundaries identified on Figure 1 and in Attachment B.

[2] The term "Facility" refers to all contiguous property under the control of the owner or operator seeking a Permit. The Facility for purposes of this Permit includes those units and areas (both onsite- and off-site) subject to post-closure care and CA under RCRA. Facility includes regulated units, SWMUs, and areas of concern (AOCs) that have been identified and investigated/evaluated at present or that may be identified in the future, and the current and future limits of groundwater impacts resulting from the Facility. Regulated units include the closed surface impoundments and the closed container storage facility (SWMU 6).

(POTW).

In 1981, the Koppers Company, Inc. (a.k.a. Beazer) filed for RCRA Interim Status for two hazardous waste management units, which included a container storage facility and surface impoundments (see Section III.A below). The units were listed as storage units for hazardous waste type K001 (bottom sediment sludge from wood treating processes using creosote and/or pentachlorophenol). RCRA Interim Status detection groundwater monitoring began in 1981, and based on the results a Groundwater Quality Assessment was conducted from 1984 through 1995. In 1988, the use of the surface impoundments stopped and closure of the units began in accordance with RCRA Closure requirements. Closure was completed in 1993. In 1996, Beazer was issued a Hazardous Waste Management Permit for Post-Closure Care of the surface impoundments and in 1998 the container storage facility was closed in accordance with RCRA Closure requirements. Since then, Beazer has conducted post-closure care of the surface impoundments and performed environmental investigations in accordance with corrective action requirements including a Phase I RCRA Facility Investigation (RFI), Phase II RFI, Quantitative Risk Assessment (QRA), and a Corrective Measures Study (CMS).

SUMMARY OF ENVIRONMENTAL INVESTIGATIONS AND CLEANUP ACTIVITIES

Based on a review of files maintained by the DEQ and EPA Region 3, the Facility includes a number of identified solid waste management units (SWMUs). A SWMU Location map is included as Figure 2 showing the location of each SWMU and a monitoring well location map is included as Figure 3. The following table lists each SWMU.

SWMU Identification Table

Identification	SWMU and AOC Description
SWMU-1	Past Land Farm
SWMU-2	Waste Pile
SWMU-3	Spray Field
SWMU-4	Charge (Drip) Tracks
SWMU-5	Surface Impoundments
SWMU-6	Container Storage Facility
SWMU-7	Creosote Unloading Area
SWMU-8	Landfill
SWMU-9	Runoff Collection System (Sump)
SWMU-10	Below Grade Solvent Storage Vault
SWMU-11	Creosote Storage Tanks
SWMU-12	Effluent Separator Tanks
SWMU-13	Wood Boiler
SWMU-14	Boiler Blowdown Sump
SWMU-15	Waste Flyash Pile
SWMU-16	Saw Dust Pile

ATTACHMENT A – FACILITY DESCRIPTION AND CORRECTIVE ACTION BACKGROUND

Identification	SWMU and AOC Description
SWMU-17	Waste Oil Drum
SWMU-18	Tie Butt Storage Area
SWMU-19	Working Tanks (Past Location)
SWMU-20	Working Tanks (Current Location)

Based on operating history and records, it was determined that no further investigation or action was necessary at SWMUs 2, 9, 16, 17, 18, and 20 in order to meet the goals of the Corrective Action program. RCRA Closure was completed for SWMUs 5 and 6. A Verification Investigation, Phase I RFI, and Phase II RFI focused on the remaining SWMUs and combined them into three areas. The three areas include the Process Area, Drip Track Area, and Non-Process Area. In addition, groundwater was characterized site-wide during the environmental investigations. Below is a summary of the Site's environmental investigations and cleanup history.

RCRA Closure Activities and Permitting

The Koppers Company, Inc. (n.k.a Beazer) filed for RCRA Interim Status in 1981 for two hazardous waste management units, which included the surface impoundments (SWMU5) and the container storage facility (SWMU 6). At that time, an initial Groundwater Quality Assessment was implemented by installing four monitoring wells to characterize shallow groundwater at SWMU 5. Shallow groundwater is present within the alluvium that overlies the karst bedrock. Based on the results of the assessment, a four-phase Groundwater Quality Assessment was implemented in 1984 to further characterize site related contaminants (SRCs) detected in groundwater. SRCs primarily include semi-volatile organic compounds (SVOCs) in the form of polynuclear aromatic hydrocarbons (PAHs) and, to a lesser extent, volatile organic compounds (VOCs) including benzene, toluene, ethylbenzene, and xylenes (BTEX), which are associated with the use of creosote. Elevated concentrations of metals have also been observed in groundwater.

The first phase of the groundwater assessment included the installation of six additional monitoring wells in shallow groundwater. Results of sampling and analysis determined that additional wells were needed to evaluate the lateral and vertical extent of SRCs in groundwater. Based on the results, the second phase was implemented by installing an additional seventeen shallow wells and four wells screened at the alluvium/bedrock transitional zone. In 1987, phase three was implemented and included a geophysical survey, installation of twelve additional wells, sampling and analysis, and pump testing. Results of phase three indicated that additional wells south and southeast of SWMU 5 were necessary to evaluate the extent of SRCs in the bedrock aquifer.

In 1988, the surface impoundment operations ceased and a RCRA Post-Closure Care Permit application was submitted to DEQ. Closure of the surface impoundments began in July 1988 and consisted of removal and disposal of sludge and impacted soil. In 1993 an engineered cap covering the footprint of the impoundments was installed. During this

time, phase four of the groundwater assessment was implemented and included a fracture trace/lineament analysis, hydrologic features inventory, sampling of downgradient domestic and industrial wells, installation of thirteen additional on-site wells and one off-site well, and aquifer testing. Results of these investigations indicated that shallow and bedrock groundwater was impacted with SRCs and limited DNAPL was observed in bedrock groundwater. In 1995, a groundwater detection monitoring program was implemented at the surface impoundments, which subsequently transitioned into a groundwater corrective action monitoring program in accordance with the Post-Closure Care Permit requirements.

In 1996, the Beazer submitted a closure plan for the container storage facility (SWMU 6). SWMU 6 was closed in accordance with the approved closure plan and RCRA hazardous waste closure requirements in August 1998. Subsequently, the container storage facility was removed from the RCRA Post-Closure Care Permit. In addition, EPA Region 3 issued a Corrective Action Permit, which required that an RFI and evaluation and implementation of potential environmental cleanup options be completed. In 2007, the Beazer's Post-Closure Care Permit was renewed. At that time, regulated unit groundwater corrective action for the surface impoundments was deferred to the site-wide corrective action program and requirements of corrective action were incorporated into the Post-Closure Care Permit. Since then, the groundwater monitoring network has been updated to be representative of site wide groundwater.

Corrective Action Program Activities

Since 1998, the Permits for the Facility have included requirements of the Corrective Action Program in accordance with HSWA. The following is a summary of the RFI, QRA, and CMS that have been completed.

Phase I RFI

In 2002, field activities in accordance with an approved RFI Work Plan in support of an RFI investigation were completed. The RFI Report was developed and submitted to DEQ in September 2003. The RFI Report characterized site geology and hydrogeology and the presence, magnitude, and nature and extent of SRCs in soil and groundwater. In addition, an assessment of DNAPL was conducted, an evaluation of natural attenuation of SRCs in groundwater was completed, and a site conceptual model was developed.

The soil quality assessment included surface and subsurface soil above the water table and focused on the process area, drip track area, and SWMUs 1, 3, 8, and 15. Thirty six soil borings were advanced in the process area and nineteen soil borings were advanced in the drip track area. Twenty soil borings were advanced to assess soil quality at SWMUs 1, 3, 8, and15. A total of 141 soil samples were collected for chemical analysis of BTEX and SVOCs. Results of the soil quality assessment indicated that SRCs detected above EPA residential and industrial Regional Screening Levels (RSLs) for direct contact were primarily limited to surface soil in the process area, with concentrations decreasing with depth. SRCs were also observed in surface soil at the drip track area and in one surface soil sample at SWMU 8 and one surface soil sample at SWMU 1.

The groundwater quality assessment included installation of monitoring wells within the Process Area, Drip Track Area, and areas downgradient in the southeast as sentinel wells for protection of human health. A number of these wells, including the sentinel wells, were installed as "well nests", which consist of placing three wells in the same location targeting overburden groundwater (A), the transition zone (B), and bedrock groundwater (C). As part of the assessment, DNAPL was characterized, a natural attenuation evaluation was completed, and aquifer characteristics for both the water table and bedrock groundwater were obtained in addition to sample analysis for SRCs.

Results of the assessment indicated that shallow overburden groundwater has limited thickness (10 feet or less) with a potentiometric gradient showing flow from north to south and east towards the Roanoke River. Groundwater flow in the karst bedrock is generally in the same southeasterly direction following the gradient of the Roanoke River. DNAPL was observed in overburden and bedrock groundwater wells that are associated with the process area and the surface impoundments, but was limited to discreet intervals and locations. Measurable DNAPL was only observed in four monitoring locations, but no significant amounts of DNAPL were observed. There was little evidence of lateral migration of DNAPL and it appeared that observed DNAPL was associated with silt and clay lenses in the overburden and voids in the karst bedrock. Dissolved concentrations of SRCs (PAHs and BTEX) were observed above drinking water standards, namely Maximum Contaminant Levels (MCLs) or tap water RSLs for contaminants that do not have an MCL, in overburden and bedrock groundwater at the process area and the surface impoundments and downgradient to the southeast. In addition, the evaluation of natural attenuation indicated that a degree of biodegradation is occurring downgradient. Trend analysis of oxidation reduction potential, electron acceptors and metabolic by-products are supportive of SRC degradation and attenuation. Results of microbial analysis are also consistent, and differences consistent with SRC biodegradation were noted between microbial communities both near and distant from the SRC source.

Based on the results provided in the Phase I RFI Report (approved by DEQ on September 17, 2008), dye trace studies were proposed for bedrock groundwater to determine the ultimate fate of SRCs and DNAPL in karst groundwater and identify any potential receptors. In addition, a Phase II RFI Work Plan was developed in order to complete the nature and extent evaluation of SRCs observed in soil.

Dye Trace Studies

In 2004 and 2007, two dye trace studies were performed on site in the karst bedrock groundwater to determine the fate and transport of SRCs and DNAPL and to identify if any potential receptors were present. The 2004 study involved injection of trace dyes into transition zone well M-33A and bedrock well M-4C and monitoring for the presence of trace dye at on-site monitoring wells, the river, springs identified in vicinity of the Site, and off-site domestic wells using dye detectors. The short term results of the 2004 study indicated that trace dye was not detected at any of the monitoring points on-site or off-site. However, it was noted that if dye was present in the river, which is the most likely receptor, it may not have been in sufficient amounts

to overcome rapid dilution making it non-detectable by the dye detectors. The final step of the study was completed by deploying activated carbon units at each monitoring point. These carbon units remained in place for 18 months. Upon retrieval and analysis, the only river unit left intact that could be analyzed indicated inconclusive detections of dye, but monitoring well units showed evidence of dye in on-site wells M-14B, M-14C, M-16B, and M-17. However, no off-site monitoring points indicated the presence of dye.

In 2007 following the startup of two, new water supply wells for the City of Salem another dye trace study was conducted to determine if pumping at the new wells had any effect on groundwater on-site and off-site in vicinity of the Site. During this study, larger quantities of dye were introduced to the aquifer using the same injection points (M-33A and M-4C). The results of this study were similar to the 2004 study with the exception of observing dye in M- 30C, which is near M-16, a location where dye was detected during the previous study. This result was determined to be a factor of introducing larger quantities of dye. Based on the results of these studies, it was concluded that SRCs are not likely capable of migrating off-site to receptors such as the river, springs, or water supply wells at concentrations that would pose an unacceptable risk to human health.

Phase II RFI

In 2009, field activities in support of completing a Phase II RFI were completed. The objectives of the investigation included; delineate the nature and extent of SRCs that exceeded EPA residential and industrial RSLs for direct contact and site screening levels (SSLs) for soil to groundwater transfer using a dilution attenuation factor of 20 (DAF-20); complete an ecological evaluation of the intermittent stream bisecting the site; and evaluate the integrity of the waste water treatment system. An additional 21 soil borings were advanced to further delineate SRCs in soil within the Process Area, Drip Track Area, and the Non-Process Area. Six sediment samples were collected from the stream bed to evaluate impacts to the ecological environment within the intermittent stream. In addition, a visual inspection of the storm water and waste water conveyance systems and the waste water treatment system was completed to evaluate its integrity.

In the Process Area, sample results indicated that VOCs were not detected above RSLs for direct contact and DAF-20 SSLs. Site related SVOCs were detected above screening criteria in three borings within the Process Area. One of the borings exceeded residential RSLs and DAF-20 SSLs, but not industrial RSLs. The other two borings exceeded all screening criteria specifically at depths 0-2 feet below ground surface (bgs) in one location and at 3-5 feet bgs in the other location. In the Drip Track Area, results indicate that VOCs were not detected above any screening criteria. Toluene was the only VOC detected at 0.91 micrograms per kilogram (ug/kg), which is well below residential RSLs and DAF-20 SSLs. Site related SVOCs were detected above all screening criteria in only one boring within the Drip Track Area at a depth of 0-2 feet bgs. VOCs were not detected above analytical method detection limits in samples collected from the Non-Process Area. Site related SVOCs were detected above screening criteria in two soil boring locations within the SWMU 1 location in the Non-Process Area. In one of the boring locations all screening criteria were exceeded at 0-2 feet bgs, but only residential RSLs

and DAF-20 SSLs at 4-6 feet bgs. In the other boring location residential RSLs and DAF-20 SSLs were exceeded at 0-2 feet bgs.

In addition to collection of soil samples, six sediment samples were collected from Big Bear Rock Branch, an intermittent stream bisecting the Site, in order to complete a screening level ecological risk assessment. Sample results indicated that VOCs were not detected and site related SVOCs were detected in two of the six samples. The highest concentrations of SVOCs were found in the sample located immediately downstream of the Norfolk Southern rail line and up gradient of the Process and Drip Track Areas. Results of the ecological risk assessment are provided in the section below, which discusses the quantitative risk assessment.
Lastly, a visual inspection of the storm water and waste water conveyance systems and waste water treatment system was conducted to evaluate their integrity. The evaluation included a review of historic treatment components and layout and a visual inspection of the current operating system. System components included in the inspection included the equalization tanks, oil/water separator, biological treatment using a non-return sludge suspended growth aerobic reactor, treated water effluent tanks, and associated piping. All components are located within secondary containment with the exception of the piping, most of which is above ground. Underground piping is limited to connecting the treated water effluent tanks to the sanitary sewer system, which is the discharge location.

Based on the results of the Phase I and Phase II RFI, the nature and extent of SRCs in groundwater and soil was successfully delineated. In addition, current drinking water standards (MCLs/RSLs) were identified as cleanup goals for groundwater and it was recommended that a quantitative risk assessment focusing on soil and sediment be conducted to characterize potential risk to human health and the environment.

Quantitative Risk Assessment

Subsequent to the RFI activities, a quantitative risk assessment (*Risk Assessment – Koppers Inc. Roanoke Valley Plant, dated June 2011, ARCADIS*) that focused on quantitatively evaluating risk to human health associated with surface soil and subsurface soil on-site for current and future users was completed. The risk assessment also included a screening level evaluation of groundwater for completeness and a screening level ecological risk assessment that focused on Big Bear Rock Branch, an intermittent stream bisecting the Site.

Operations conducted at the Site are an industrial use zoned in Salem's High Intensity Industrial District. However, the human health risk assessment evaluated the Site under current and future residential and industrial use. It was conducted in accordance with guidance documents *Risk Assessment Guidance for Superfund* (RAGS), *Volume I: Human Health Evaluation Manual* (USEPA 1989), *Exposure Factors Handbook* (USEPA 1997a), *Risk-Based Closure Guidance* (DEQ 1999), and *Guidelines for Developing Health-Based Cleanup Goals Using Risk Assessment at Hazardous Waste Site Facility for Restricted Industrial Use* (DEQ 1995). The approach followed the four step process of hazard identification, dose response assessment, exposure assessment, and risk characterization.

ATTACHMENT A – FACILITY DESCRIPTION AND CORRECTIVE ACTION BACKGROUND

Soil was identified as the media of concern and constituents of potential concern were identified through the screening process. The following constituents were identified regarding potential risk for direct contact and inhalation: benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene, and dibenzofuran. In addition, these constituents and several other PAHs, SVOCs, benzene, ethylbenzene, and xylenes were identified as constituents of potential concern because they exceeded the transfer to groundwater SSLs. The site was evaluated in sections, which included the Process and Non-Process Areas. The Process Area in this case included the Drip Track and Treatment Cylinder Areas, which were evaluated individually as well. Current and future hypothetical receptors were identified. Results indicated that for current and future industrial use the potential excess lifetime cancer risk from carcinogenic constituents for receptors ranged from 8 x 10-8 for a construction worker in the Non-Process Area to 3 x 10-5 for hypothetical commercial/industrial workers in the Treatment Cylinder Area. These results fall within EPA's acceptable risk range of 1 x 10-6 to 1 x 10-4 for current and future industrial use. Hazard quotients were calculated for non-carcinogenic constituents and compared to a hazard index of 1. A hazard quotient that is more than 1 implies an increased potential risk to human health. Results indicated quotients ranging from 0.0002 for a trespasser in the Drip Track Area to 0.4 for hypothetical commercial/industrial worker in the Treatment Cylinder Area. These results are below the acceptable hazard index of 1 for current and future industrial use.

A groundwater screening evaluation was completed to identify constituents of concern (COCs) in groundwater based on exceedance of MCLs or tap water RSLs if no MCL has been established for a constituent. The comparison indicated various site-related SVOCs, PAHs, VOCs, and inorganics are present in groundwater beneath the Site at concentrations exceeding MCLs (or tap water RSLs). Additionally, the historical groundwater record was evaluated to determine if constituents in soil that exceed the DAF-20 SSLs were also present in groundwater. For the constituents that are present in soil but are not found in groundwater, it can be determined based on the 30-year groundwater record that those constituents are not capable of transferring to groundwater. Therefore, groundwater COCs are limited to what is currently detected above drinking water standards. Because the cleanup goals for Site groundwater are drinking water standards, a quantitative risk assessment specific to groundwater was not completed.

In addition to the human health risk assessment, a screening level ecological risk assessment was completed. Evaluation of the stream included collection of six sediment samples, results of which were evaluated using EPA Region 3 screening criteria found in *Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota* (Jones, D.S. G.W. Suter II and R.N. Hull, 1997). In addition, screening criteria for sediment from EPA Regions 4 and 5 were provided. Sample results indicated that VOCs were not detected and site related SVOCs were detected in two of the six samples. The highest concentrations of SVOCs were found in the sample located immediately downstream of the Norfolk Southern rail line and up gradient of the Process and Drip Track Areas. As part of the evaluation, a characterization of habitats and potential plant and animal species was completed in order to characterize risk. Since the stream is ephemeral or intermittent in nature conveying water only during times of high precipitation, no aquatic habitats were identified. The stream is also isolated from runoff

from the Site by a series of levees and culverts. A field survey indicated that no stressed vegetation was identified and because the stream is located in the center of an industrial operation, it is unlikely a suitable habitat for wildlife. However, results were screened and hazard quotients were established for each chemical retained for evaluation based on exceedance of the screening criteria. The hazard quotients were then compared to a hazard index of 1 to characterize overall risk. Results indicated that when using Region 3 screening criteria, hazard quotients ranged from 1.02 to 40 with benzo(b)fluoranthene and indeno(1,2,3-cd)pyrene having the higher quotients. When using Region 4 and 5 screening criteria, hazard quotients ranged from 0.1 to 3.9 and 0.1 to 16, respectively. These results are based on one of six sediment samples, which was located immediately downstream of the rail line and up gradient of the Process and Drip Track Areas. Based on this, it is likely that the results are indicative of potential runoff from the rail line and not a result from the wood treatment process. Because these results were not observed in the downstream samples, no further evaluation or action was necessary as these results do not represent an unacceptable risk to the environment.

Based on the results of the investigations and assessments, the Department approved the RFI and risk assessment on October 11, 2011 and required that a CMS be developed to evaluate potential cleanup remedies and impose institutional controls in the form of land use restrictions. The land use restrictions will be imposed through a covenant that meets the requirements of the Uniform Environmental Covenants Act (UECA), VA Code § 10.1-1238, et seq. The CMS and institutional controls are discussed in more detail in the sections below.

Corrective Measures Study (CMS)

In 2012, a site-wide groundwater monitoring event in support of completing a CMS was completed. The CMS focused specifically on groundwater since the risk assessment previously conducted showed that constituents in soil and sediment in Big Bear Rock Branch were within EPA's acceptable risk ranges for industrial use and institutional controls will be imposed on the property. Based on historical investigation results described in the RFI, results of the 2012 site-wide groundwater sampling event, and the quantitative risk assessment, corrective action objectives were established in the CMS and are paraphrased below:

- Mitigate exposure to contamination left in soil by imposing land use restrictions that will ensure the property remains industrial and cannot be used for residential purposes. Soil disturbances such as excavation, trenching, etc. will be conducted in accordance with a Materials Management Plan.

- Ensure that groundwater cannot be used for any purpose other than environmental testing and/or non-contact cooling water.

- Mitigate constituent concentrations that exceed drinking water standards throughout the contaminant plume in the shallow overburden groundwater.

- Recover free phase DNAPL from bedrock groundwater. A DNAPL zone has not been identified, but occasionally it is observed in limited bedrock wells.

- Periodically reconfirm that SRCs are not migrating to potential off-site receptors through the karst bedrock.

The CMS included an evaluation of several potential remedies with respect to the corrective action objectives. The remedies included institutional controls, monitored plume stability, groundwater recirculation, in situ chemical oxidation, and biosparging. In addition, the occurrence of natural attenuation was evaluated concurrently with these remedies to assist in determining the most feasible remedy. Each remedy was evaluated based on ability to remediate sources, overall protection of human health, compliance with state and federal standards, short- term and long-term effectiveness, feasibility, cost, and community acceptance.

As a result, the CMS proposed institutional controls and monitored plume stability as the most readily implementable and feasible remedy that can meet the corrective action objectives. This determination was made because it was demonstrated that SRCs are not migrating off-site to potential receptors; evaluations indicate that natural attenuation is occurring in portions of the contaminant plume in the shallow overburden groundwater; and attenuation of the contaminant plume has been observed throughout the 30-year groundwater record. Results of the CMS also indicated that due to the lithology and aquifer characteristics beneath the Site, in situ chemical oxidation, biosparging and groundwater recirculation would not likely be effective. In addition, a dye trace study will be performed periodically to reconfirm that SRCs are not migrating off-site to potential receptors.

The Department approved the CMS on April 15, 2014. A draft covenant containing institutional controls was included in the CMS for review by the Department. As part of the proposed remedy, the Sampling and Analysis Plan (SAP) was revised to be more comprehensive of groundwater site-wide and a Materials Management Plan (MMP) was submitted. The SAP and MMP were approved by DEQ on December 30, 2014.

Current Conditions

Currently, the contaminant plume, which primarily consists of SVOCs, PAHs, benzene, ethylbenzene, and xylenes, is contained on Site with the exception of naphthalene at one monitoring well (M-27A) east of the property boundary. Naphthalene in this location was not detected above the laboratory method detection limit (MDL) 0.2 ug/L. However, the MDL was higher than the tap water RSL 0.17 ug/L. Therefore, it must be considered as present until it is demonstrated that it is not detectable above the RSL. Elevated concentrations of metals are present in groundwater as well. However, it appears that this is due to the presence of organic SRCs and their effect on the groundwater since the Roanoke Valley Plant did not have a release of or historically manage metals. In the overburden groundwater the contaminant plume extends from the Process Area to the east where SWMU 5 is located and to a lesser extent to the southeast. Contaminants in bedrock groundwater extend from south of the Process Area and SWMU 5 to the east and southeast as well. However, unlike overburden groundwater, contaminants in the bedrock are present within the karst features including fractures, voids, and solution features. Figures 4a and 4b are included showing the SRCs in groundwater.

An annual groundwater monitoring program and semi- annual DNAPL measurement and recovery events are implemented site wide including groundwater monitoring wells within the source areas (limited wells where DNAPL has been periodically observed), locations cross gradient and downgradient of the source areas, sentinel wells located downgradient of the plume terminus, and well locations off-site. Groundwater is monitored in accordance with Post-Closure Care Permit requirements. The groundwater monitoring program has been modified to be more extensive to evaluate effectiveness and better achieve corrective action objectives

CORRECTIVE ACTION OBJECTIVES

Soils

DEQ has determined that industrial risk based levels are protective of human health and the environment for individual contaminants provided that the Site is not used for residential purposes. Therefore, DEQ's Corrective Action Objective for Site soils is to control exposure to the hazardous constituents remaining in soils by requiring compliance with and maintenance of land use restrictions at the Site. In addition, an agency approved Materials Management Plan will be followed for any soil excavation and disturbance on the property. The requirement for a Materials Management Plan and the land use restrictions will be imposed on the Permittee[3] by the Post-Closure and Site-Wide Corrective Action Permit and on the Owner[4] by a covenant, which will be UECA compliant.

Groundwater

DEQ has determined that drinking water standards, namely MCLs or tap water RSLs for constituents that do not have an MCL, for contaminants are protective of human health and the environment for individual contaminants at the Site. DEQ's Corrective Action Objectives for groundwater are the following:

1. To control exposure to the hazardous constituents in the groundwater by requiring the compliance with and maintenance of a groundwater use restriction at the Siteas long as drinking water standards are exceeded. This restriction will be imposed on the Permittee by the Facility's Post-Closure and Site-Wide Corrective Action Permit and on the Owner by a covenant, which will be UECA compliant;

2. To remediate remaining sources by recovering DNAPL when observed; and

3. To monitor stability and/or attenuation of concentrations of the following hazardous constituents in groundwater until drinking water standards are met.

[3] The term "Permittee" shall mean the party to which the Post-Closure and Site-Wide Corrective Action Permit is issued.
[4] The term "Owner" or "Operator" as defined in 40 CFR 270.2 shall mean the owner or operator of any facility or activity subject to regulation under RCRA.

ATTACHMENT A – FACILITY DESCRIPTION AND CORRECTIVE ACTION BACKGROUND

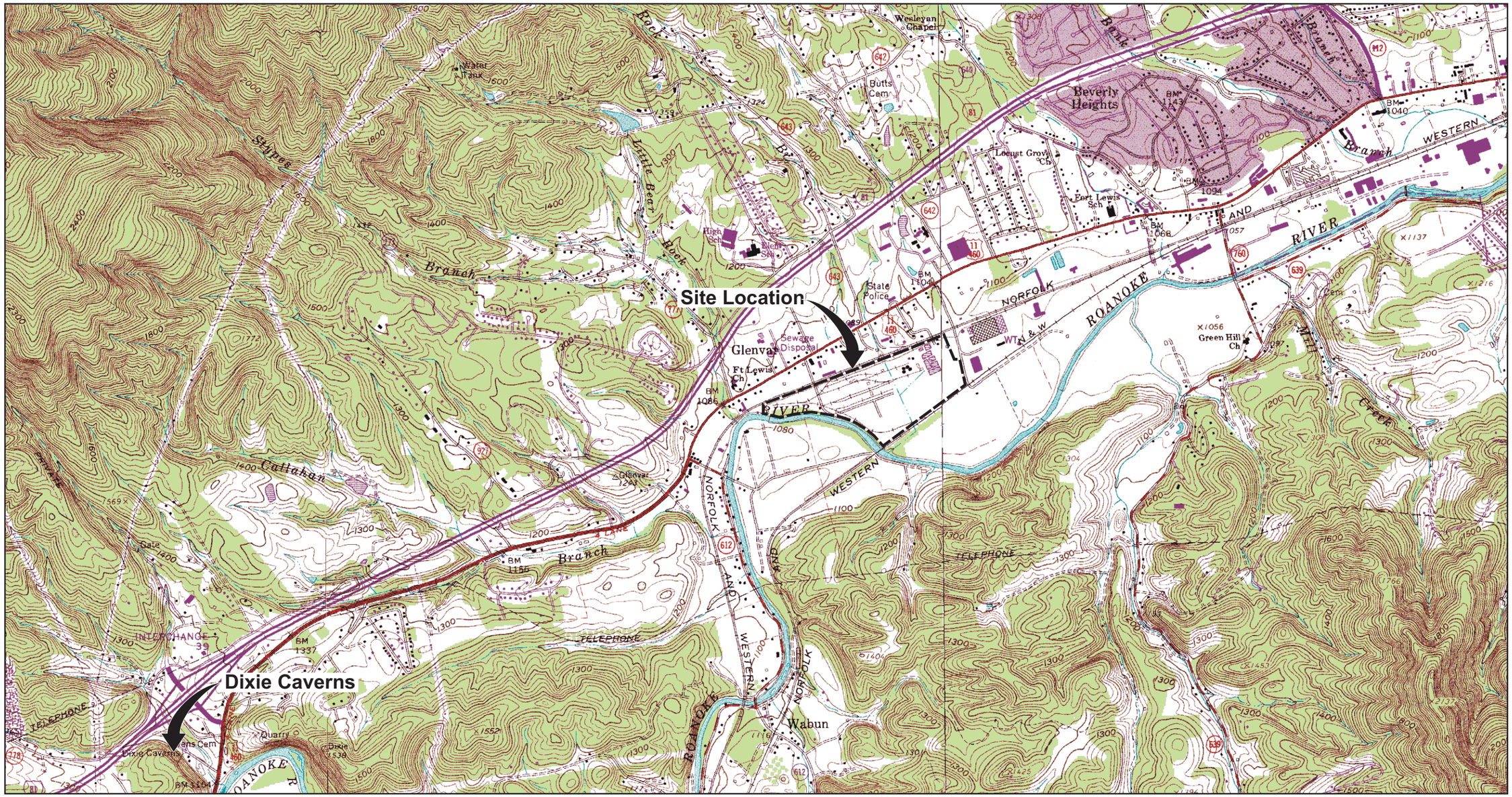
Constituents and Standards

Constituent	Standard (ug/l)	Source
Benzene	5	MCL
Ethylbenzene	700	MCL
Xylenes	10,000	MCL
Acenaphthene	530	RSL
Benzo(a)anthracene	0.034	RSL
Benzo(a)pyrene	0.2	MCL
Benzo(b)fluoranthene	0.034	RSL
2-Chlorophenol	91	RSL
p-Chloro-m-cresol	1,400	RSL
Chrysene	3.4	RSL
Dibenzo(a,h)anthracene	0.0034	RSL
Dibenzofuran	7.9	RSL
2,4-Dichlorophenol	46	RSL
2,4-Dimethylphenol	360	RSL
2,4-Dinitrophenol	39	MCL
Fluoranthene	800	RSL
Fluorene	290	RSL
Indeno(1,2,3-cd)pyrene	0.034	RSL
2-Methylnaphthalene	36	RSL
Naphthalene	0.17	RSL
Phenol	5,800	RSL
2,3,4,6-Tetrachlorophenol	240	RSL
2,4,5-Trichlorophenol	1,200	RSL
2,4,6-Trichlorophenol	4	RSL
Arsenic	10	MCL
Nickel	390	RSL

Indoor Air

DEQ's Corrective Action Objective for indoor air is to control exposure to volatile hazardous constituents in indoor air by requiring the use of vapor mitigation in or beneath new, totally enclosed structures designed for occupation within 100 feet of the foot print of

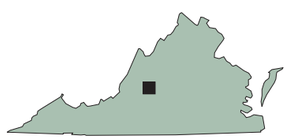
groundwater having site-related VOCs and SVOCs identified above protective levels (MCLs/RSLs) unless it is demonstrated to DEQ that vapor mitigation is not necessary to protect human health. This requirement will be imposed on the Permittee by the Post-Closure and Site-Wide Corrective Action Permit and on the Owner by a covenant, which will be UECA compliant.



REFERENCE: BASE MAP USGS 7.5 MIN. QUADS. GLENVAR, VA, 1963, PHOTOREVISED 1984 AND SALEM, VA, 1994.

2000' 0 2000'

Approximate Scale: 1" = 2000'



Area Location

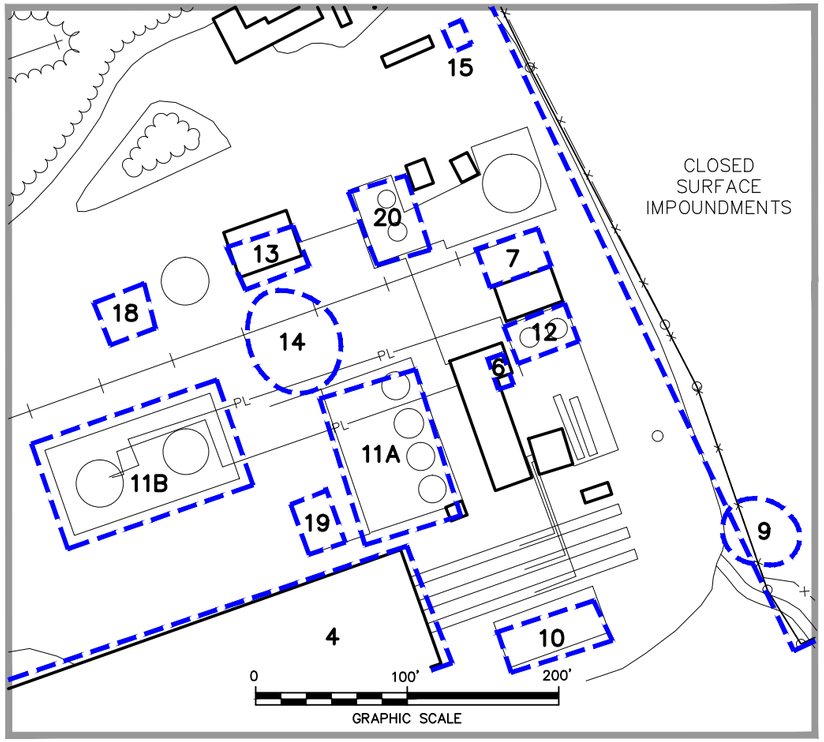
BEAZER EAST INC.
KI ROANOKE VALLEY PLANT
SALEM, VIRGINIA

SITE LOCATION MAP

ARCADIS

FIGURE 1

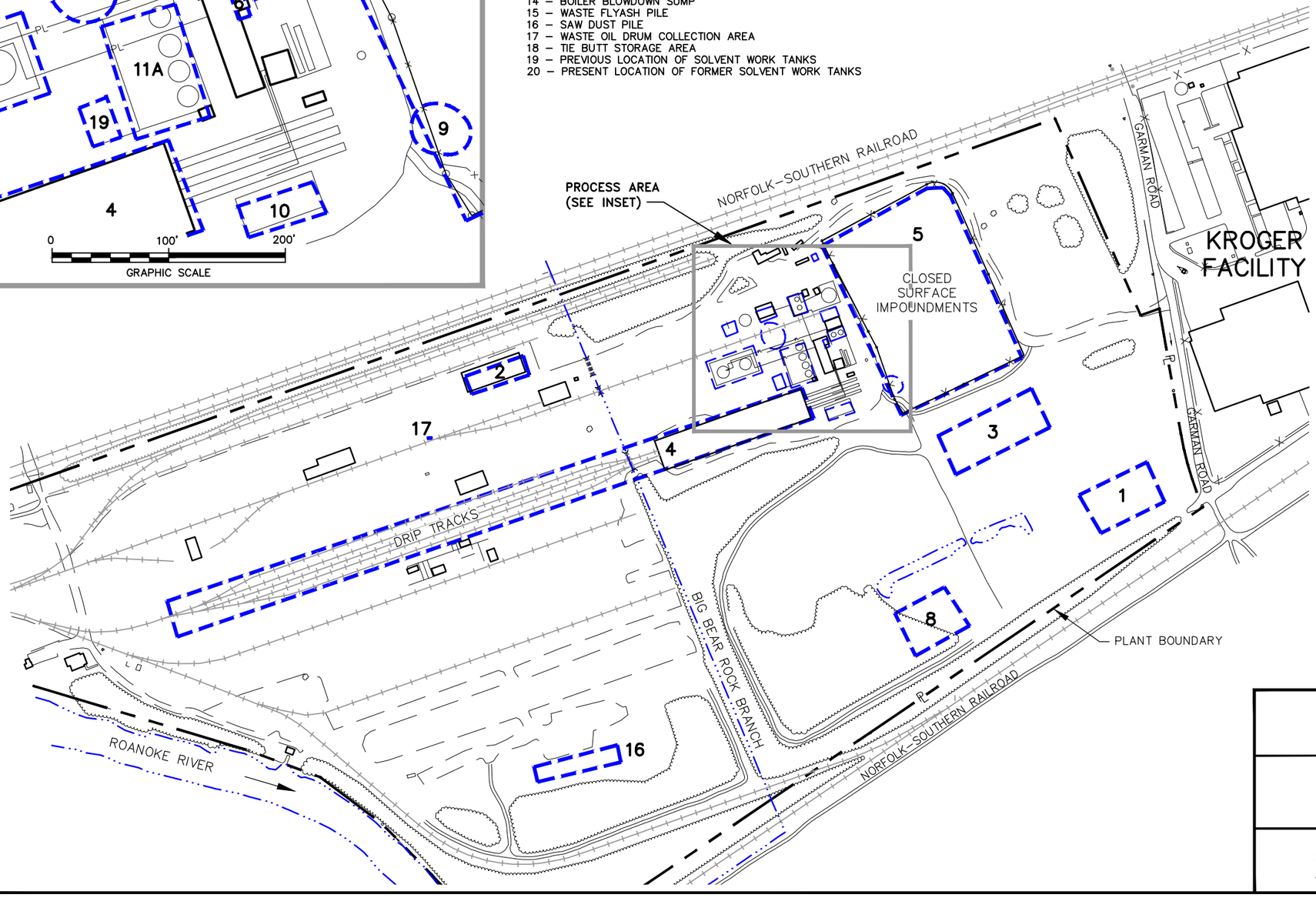
05/21/2013 SYRACUSE, NY-ENV/CAD-K.SARTORI, DJHOWES
B003923/000/000001/CDR/39253N01.CDR



CLOSED SURFACE IMPOUNDMENTS

SWMU LEGEND

1 – PAST LAND FARM AREA
2 – WASTE PILE
3 – SPRAYFIELD
4 – DRIP TRACK
5 – SURFACE IMPOUNDMENTS
6 – CONTAINER STORAGE FACILITY
7 – CREOSOTE UNLOADING AREA
8 – LANDFILL
9 – RUNOFF COLLECTION SYSTEM (SUMP)
10 – BELOW GRADE SOLVENT STORAGE VAULT
11 – CREOSOTE WORK TANKS
12 – EFFLUENT SEPARATOR TANKS
13 – WOOD BOILER
14 – BOILER BLOWDOWN SUMP
15 – WASTE FLYASH PILE
16 – SAW DUST PILE
17 – WASTE OIL DRUM COLLECTION AREA
18 – TIE BUTT STORAGE AREA
19 – PREVIOUS LOCATION OF SOLVENT WORK TANKS
20 – PRESENT LOCATION OF FORMER SOLVENT WORK TANKS



LEGEND:

SWMU BOUNDARY

17 SWMU DESIGNATION

NOTES:

1. BASE MAP SUPPLIED BY FLUOR DANIEL GTI; ACAD FILE SITEMAP.DWG, DATED 4/25/97, AT A SCALE OF 1"=300'.
2. MAP WAS COMPILED BY PIEDMONT AERIAL SURVEYS, 123 S. WALNUT CIRCLE, GREENSBORO, NC 27209-2631, USING STEREO PHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY DATED 11/19/94. GROUND CONTROL DATA WAS PROVIDED BY T.P. PARKER & SON, 816 BOULEVARD, SALEM, VIRGINIA 24153.

0 300' 600'

GRAPHIC SCALE

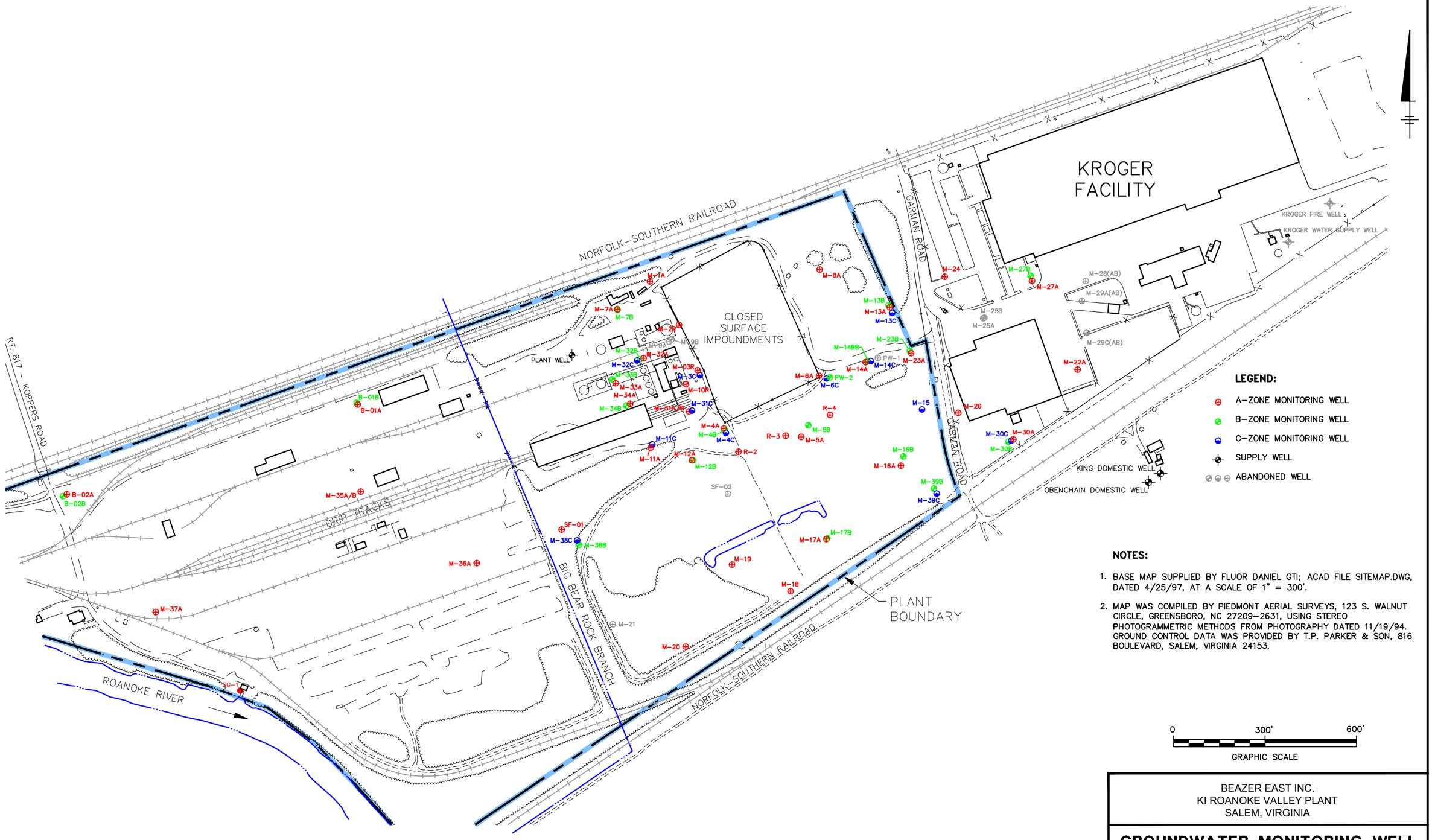
BEAZER EAST INC.
KI ROANOKE VALLEY PLANT
SALEM, VIRGINIA

SWMU LOCATION MAP

ARCADIS

FIGURE 2

CITY: SYRACUSE, NY DIV/GROUP: ENV10 DB: R. BASSETT PIC: J. S. HOLDEN PM/TM: H. EVANKO LYR: ON=*;OFF=REF; (FR2)
G:\ENVCAD\SYRACUSE\ACTIB\039253\000\200001d 138821B05.DWG LAYOUT: 2 SAVED: 10/30/2014 11:13 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---
XREFS: PROJECTNAME: ---
38821X02
39253X00
IMAGES:



LEGEND:

- A-ZONE MONITORING WELL
- B-ZONE MONITORING WELL
- C-ZONE MONITORING WELL
- SUPPLY WELL
- ABANDONED WELL

NOTES:

1. BASE MAP SUPPLIED BY FLUOR DANIEL GTI; ACAD FILE SITEMAP.DWG, DATED 4/25/97, AT A SCALE OF 1" = 300'.
2. MAP WAS COMPILED BY PIEDMONT AERIAL SURVEYS, 123 S. WALNUT CIRCLE, GREENSBORO, NC 27209-2631, USING STEREO PHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHY DATED 11/19/94. GROUND CONTROL DATA WAS PROVIDED BY T.P. PARKER & SON, 816 BOULEVARD, SALEM, VIRGINIA 24153.

0 300' 600'

GRAPHIC SCALE

BEAZER EAST INC.
KI ROANOKE VALLEY PLANT
SALEM, VIRGINIA

GROUNDWATER MONITORING WELL LOCATION MAP

ARCADIS

FIGURE 3

SYR-ENVCAD-R. BASSETT LAYER: ON=*, OFF=REF
G:\ENVCAD\SYRACUSE\ACT\B0039253\0002\00001\dwg\39253B03.DWG SAVED:10/30/2014 1:57 PM LAYOUT:3 PAGESETUP:---- PENTABLE:PLTFULL.CTB PRINTED:10/30/2014 1:58 PM BY:RBASSETT
XREFS: IMAGES: PROJECTNAME: ----
39253X00
39253X02
PROJECTNAME: ----
XREFS: IMAGES:
39253X00
39253X02

M-16A							
	02/18/92	01/21/97	02/06/01	01/13/05	10/26/09	04/24/12	04/24/13
B	□5	□5	□5	□1	□1	□1	□1
N	□10	□10	□10	□11	□0.19	0.048 J	□0.2

M-23A			
	07/25/95	09/05/96	04/25/12
B	□5	□5	□1
N	□10	**78**	**0.32**

M-13A	
	04/24/12
B	□1
N	0.045 J

M-27A				
	01/22/97	02/06/01	01/22/02	04/25/12
B	□5	□5	□5	□1
N	□250	□10	□200 J	□0.20

M-14A						
	02/18/92	03/16/94	11/14/02	01/22/04	02/23/06	04/24/12
B	□100 J	□100 J	**67**	**28**	**24**	**29**
N	**4700**	**3900**	**3,600**	**1,500 D**	**930**	**550**

M-30A					
	11/12/02	01/12/05	10/26/09	04/24/12	04/24/13
B	□1	□1	□1	□1	□1
N	□11	□9.9	0.039 J	0.066 J	□0.2

M-06A					
	8/11/92	03/01/95	02/25/98	01/22/02	04/24/12
B	□250	□25	**11 D**	**14**	0.12 J
N	**3000**	**860**	**380 D**	**530 J**	**0.85**

M-10R			
	02/18/92	03/02/95	04/25/12
B	**540**	**550**	**54**
N	**14000**	**700,000**	**120**

M-33A		
	11/14/02	04/25/12
B	□1	□1
N	□1.5	**0.33**

M-34A		
	11/13/02	04/25/12
B	**130**	□1
N	**3.6 J**	□0.20

M-31A/B								
	11/11/02	03/24/08	05/28/09	04/16/10	10/13/10	04/12/11	04/24/12	04/25/13
B	280	500	250 [260]	200	230	200	210	250
N	7,100	8,800	6,200 [7,600]	4,600	4,200	3,700	4,000	2,300

M-11A	
	04/24/12
B	**11**
N	**5.5**

M-26			
	02/19/92	02/21/96	04/25/12
B	□5	□5	□1
N	□10 J	**18**	□0.20

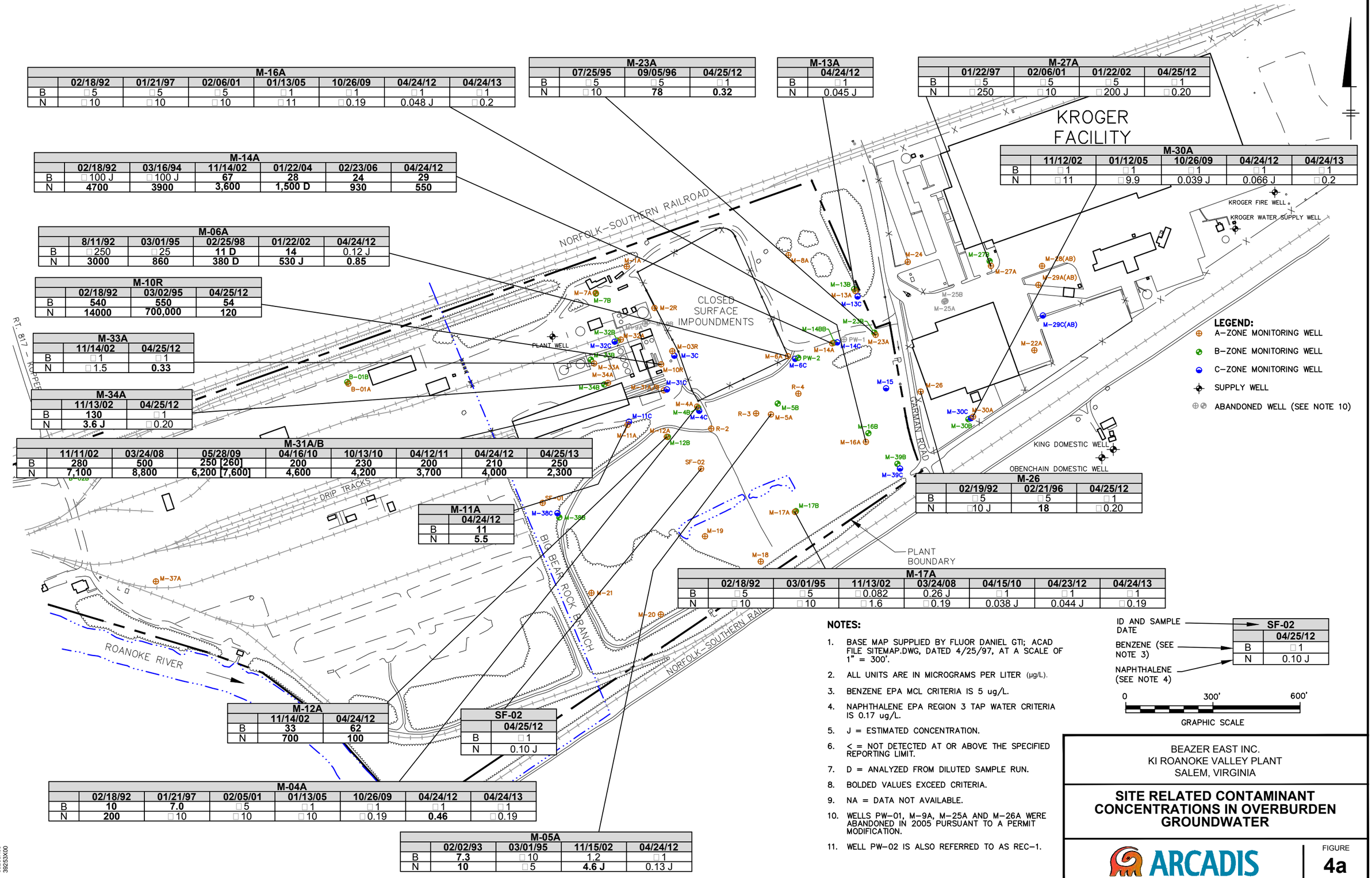
M-17A							
	02/18/92	03/01/95	11/13/02	03/24/08	04/15/10	04/23/12	04/24/13
B	□5	□5	□0.082	0.26 J	□1	□1	□1
N	□10	□10	□1.6	□0.19	0.038 J	0.044 J	□0.19

M-12A		
	11/14/02	04/24/12
B	**33**	**62**
N	**700**	**100**

SF-02	
	04/25/12
B	□1
N	0.10 J

M-04A							
	02/18/92	01/21/97	02/05/01	01/13/05	10/26/09	04/24/12	04/24/13
B	**10**	**7.0**	□5	□1	□1	□1	□1
N	**200**	□10	□10	□10	□0.19	**0.46**	□0.19

M-05A				
	02/02/93	03/01/95	11/15/02	04/24/12
B	**7.3**	□10	1.2	□1
N	**10**	□5	**4.6 J**	0.13 J



NOTES:

1. BASE MAP SUPPLIED BY FLUOR DANIEL GTI; ACAD FILE SITEMAP.DWG, DATED 4/25/97, AT A SCALE OF 1" = 300'.
2. ALL UNITS ARE IN MICROGRAMS PER LITER (µg/L).
3. BENZENE EPA MCL CRITERIA IS 5 ug/L.
4. NAPHTHALENE EPA REGION 3 TAP WATER CRITERIA IS 0.17 ug/L.
5. J = ESTIMATED CONCENTRATION.
6. < = NOT DETECTED AT OR ABOVE THE SPECIFIED REPORTING LIMIT.
7. D = ANALYZED FROM DILUTED SAMPLE RUN.
8. BOLDED VALUES EXCEED CRITERIA.
9. NA = DATA NOT AVAILABLE.
10. WELLS PW-01, M-9A, M-25A AND M-26A WERE ABANDONED IN 2005 PURSUANT TO A PERMIT MODIFICATION.
11. WELL PW-02 IS ALSO REFERRED TO AS REC-1.

ID AND SAMPLE DATE
BENZENE (SEE NOTE 3)
NAPHTHALENE (SEE NOTE 4)

SF-02	
	04/25/12
B	□1
N	0.10 J

BEAZER EAST INC.
KI ROANOKE VALLEY PLANT
SALEM, VIRGINIA

SITE RELATED CONTAMINANT CONCENTRATIONS IN OVERBURDEN GROUNDWATER

ARCADIS

FIGURE **4a**

M-23B								
	04/29/97	05/22/01	04/20/05	10/26/09	04/16/10	04/12/11	04/24/12	04/24/13
B	□50	66	31	30	18	23	30	27
N	660	550 D	210	340	2.9	220	210	130

M-30B							
	11/12/02	02/23/06	09/18/08	04/15/10	04/11/11	04/24/12	04/24/13
B	□1	□1	□1	□1	□1	□1	□1
N	□11	□9.8	0.11 J	**0.17 J**	□0.20	**0.19 J**	□0.2

M-30C							
	11/12/02	02/23/06	09/18/08	04/15/10	04/11/11	04/24/12	04/24/13
B	□1	0.28 J	□1	□1	□1	□1	□1
N	□9.7	□10	0.081 J	0.033 J	□0.20	0.042 J	□0.2

KING DOMESTIC						
	02/21/96	02/16/00	10/25/04	09/17/08	04/23/12	04/24/13
B	□5	□5	□1	□1	□1	□1
N	□10	□10	□9.6	□0.19	□0.19	□0.19

M-31C								
	11/13/02	03/24/08	05/28/09	04/16/10	10/13/10	04/12/11	04/24/12	04/25/13
B	200	56 [57]	430	69	350	350	220	250
N	3,700	140 [130]	7,200	1,800	1,900	2,400	3,600	2,800

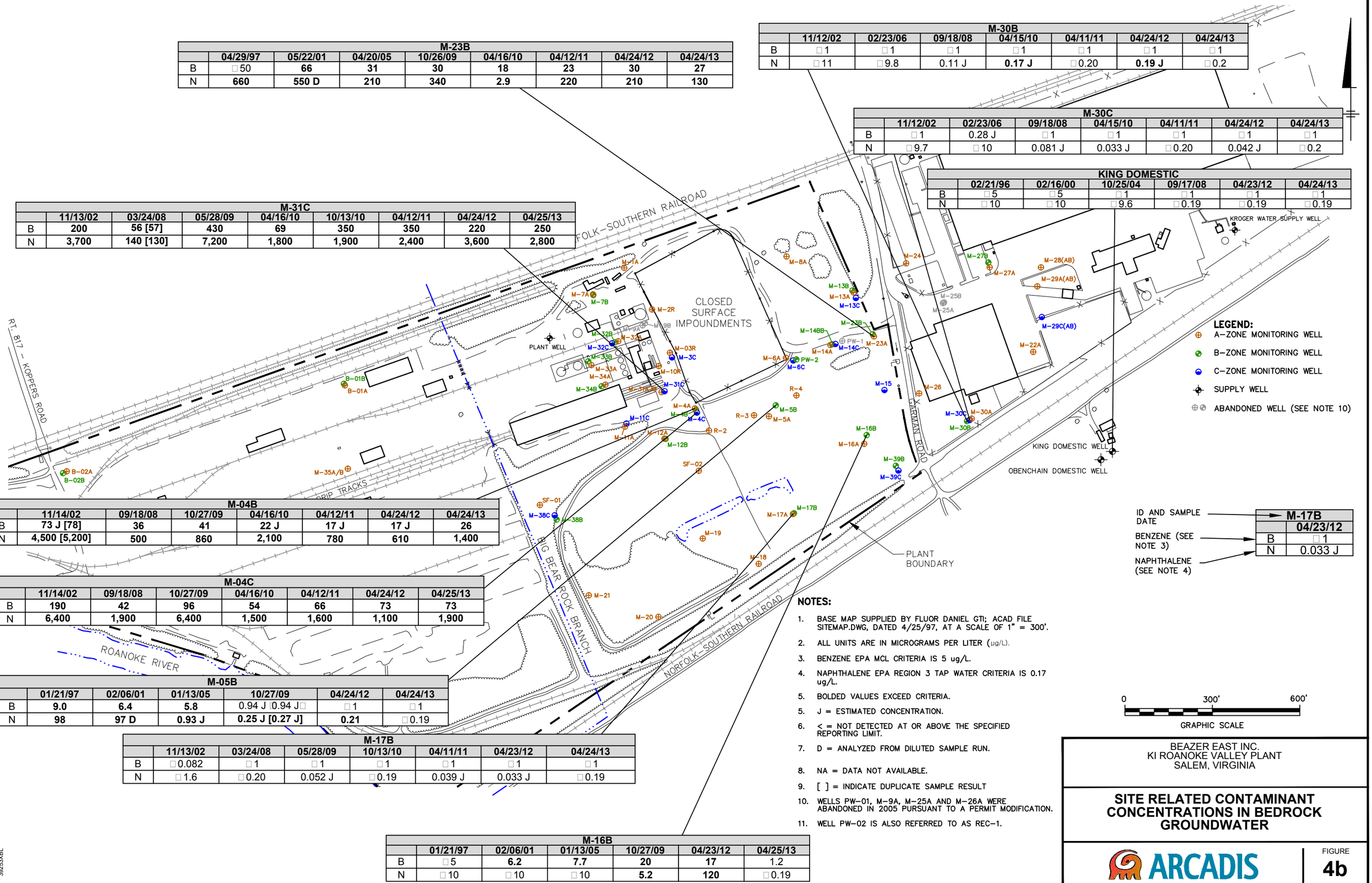
M-04B							
	11/14/02	09/18/08	10/27/09	04/16/10	04/12/11	04/24/12	04/24/13
B	73 J [78]	36	41	22 J	17 J	17 J	26
N	4,500 [5,200]	500	860	2,100	780	610	1,400

M-04C							
	11/14/02	09/18/08	10/27/09	04/16/10	04/12/11	04/24/12	04/25/13
B	190	42	96	54	66	73	73
N	6,400	1,900	6,400	1,500	1,600	1,100	1,900

M-05B						
	01/21/97	02/06/01	01/13/05	10/27/09	04/24/12	04/24/13
B	9.0	6.4	5.8	0.94 J □0.94 J□	□1	□1
N	98	97 D	0.93 J	0.25 J [0.27 J]	0.21	□0.19

M-17B							
	11/13/02	03/24/08	05/28/09	10/13/10	04/11/11	04/23/12	04/24/13
B	□0.082	□1	□1	□1	□1	□1	□1
N	□1.6	□0.20	0.052 J	□0.19	0.039 J	0.033 J	□0.19

M-16B						
	01/21/97	02/06/01	01/13/05	10/27/09	04/23/12	04/25/13
B	□5	6.2	7.7	20	17	1.2
N	□10	□10	□10	5.2	120	□0.19



LEGEND:
- A–ZONE MONITORING WELL
- B–ZONE MONITORING WELL
- C–ZONE MONITORING WELL
- SUPPLY WELL
- ABANDONED WELL (SEE NOTE 10)

ID AND SAMPLE DATE → M-17B, 04/23/12
BENZENE (SEE NOTE 3) → B: □1
NAPHTHALENE (SEE NOTE 4) → N: 0.033 J

NOTES:

1. BASE MAP SUPPLIED BY FLUOR DANIEL GTI; ACAD FILE SITEMAP.DWG, DATED 4/25/97, AT A SCALE OF 1" = 300'.
2. ALL UNITS ARE IN MICROGRAMS PER LITER (µg/L).
3. BENZENE EPA MCL CRITERIA IS 5 ug/L.
4. NAPHTHALENE EPA REGION 3 TAP WATER CRITERIA IS 0.17 ug/L.
5. BOLDED VALUES EXCEED CRITERIA.
5. J = ESTIMATED CONCENTRATION.
6. < = NOT DETECTED AT OR ABOVE THE SPECIFIED REPORTING LIMIT.
7. D = ANALYZED FROM DILUTED SAMPLE RUN.
8. NA = DATA NOT AVAILABLE.
9. [ ] = INDICATE DUPLICATE SAMPLE RESULT
10. WELLS PW–01, M–9A, M–25A AND M–26A WERE ABANDONED IN 2005 PURSUANT TO A PERMIT MODIFICATION.
11. WELL PW–02 IS ALSO REFERRED TO AS REC–1.

0 300' 600'
GRAPHIC SCALE

BEAZER EAST INC.
KI ROANOKE VALLEY PLANT
SALEM, VIRGINIA

SITE RELATED CONTAMINANT CONCENTRATIONS IN BEDROCK GROUNDWATER

ARCADIS

FIGURE **4b**

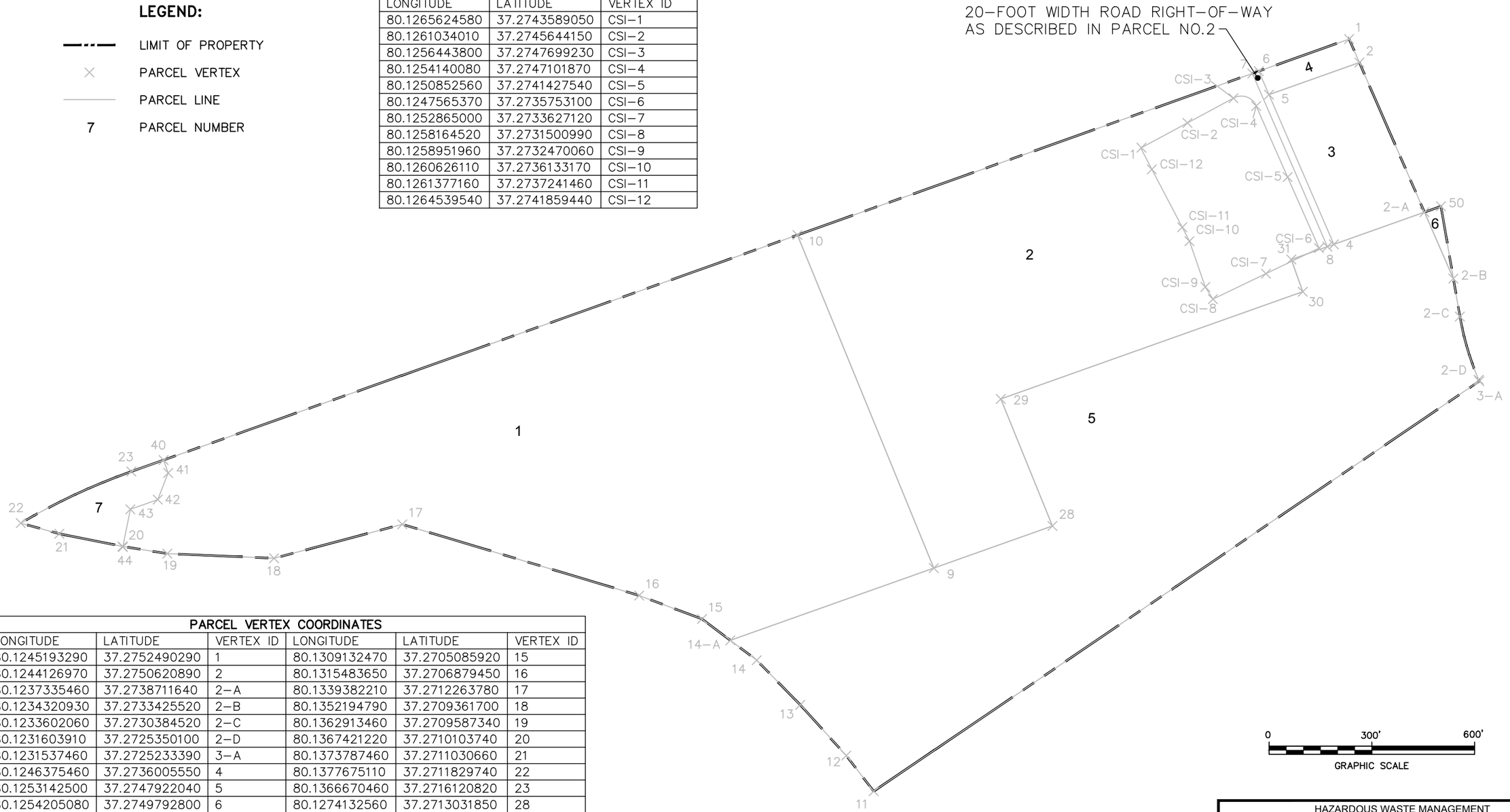
ATTACHMENT B

SURVEY MAP AND PROPERTY PARCEL COORDINATES

LEGEND:

- LIMIT OF PROPERTY
- PARCEL VERTEX
- PARCEL LINE
- 7 PARCEL NUMBER

CLOSED SURFACE IMPOUNDMENTS COORDINATES		
LONGITUDE	LATITUDE	VERTEX ID
80.1265624580	37.2743589050	CSI-1
80.1261034010	37.2745644150	CSI-2
80.1256443800	37.2747699230	CSI-3
80.1254140080	37.2747101870	CSI-4
80.1250852560	37.2741427540	CSI-5
80.1247565370	37.2735753100	CSI-6
80.1252865000	37.2733627120	CSI-7
80.1258164520	37.2731500990	CSI-8
80.1258951960	37.2732470060	CSI-9
80.1260626110	37.2736133170	CSI-10
80.1261377160	37.2737241460	CSI-11
80.1264539540	37.2741859440	CSI-12



PARCEL VERTEX COORDINATES					
LONGITUDE	LATITUDE	VERTEX ID	LONGITUDE	LATITUDE	VERTEX ID
80.1245193290	37.2752490290	1	80.1309132470	37.2705085920	15
80.1244126970	37.2750620890	2	80.1315483650	37.2706879450	16
80.1237335460	37.2738711640	2-A	80.1339382210	37.2712263780	17
80.1234320930	37.2733425520	2-B	80.1352194790	37.2709361700	18
80.1233602060	37.2730384520	2-C	80.1362913460	37.2709587340	19
80.1231603910	37.2725350100	2-D	80.1367421220	37.2710103740	20
80.1231537460	37.2725233390	3-A	80.1373787460	37.2711030660	21
80.1246375460	37.2736005550	4	80.1377675110	37.2711829740	22
80.1253142500	37.2747922040	5	80.1366670460	37.2716120820	23
80.1254205080	37.2749792800	6	80.1274132560	37.2713031850	28
80.1254850250	37.2749599930	7	80.1279534500	37.2723146220	29
80.1247020610	37.2735812390	8	80.1249410360	37.2732164120	30
80.1285965360	37.2709489340	9	80.1250615890	37.2734736130	31
80.1300228900	37.2736015140	10	80.1363452450	37.2717084560	40
80.1291609390	37.2691511060	11	80.1362969890	37.2716055780	41
80.1294427890	37.2694330690	12	80.1363964770	37.2713907330	42
80.1299130180	37.2698336880	13	80.1366700220	37.2713088140	43
80.1303575150	37.2701853660	14	80.1367392570	37.2710051040	44
80.1306257900	37.2703413880	14-A	80.1235686540	37.2739205050	50

HAZARDOUS WASTE MANAGEMENT
POST-CLOSURE AND SITE-WIDE CORRECTIVE ACTION PERMIT
BEAZER EAST, INC. (KOPPERS INC. ROANOKE VALLEY SITE)
SALEM, VIRGINIA
EPA ID NO. VAD003125770

SURVEY MAP OF PROPERTY

ARCADIS

EXHIBIT **B**

ATTACHMENT C

POST-CLOSURE PLAN: CLOSED SURFACE IMPOUNDMENTS

ATTACHMENT C
POST-CLOSURE PLAN: CLOSED SURFACE IMPOUNDMENTS

A. INTRODUCTION

1. The post-closure care shall continue for 30 years after certification of closure (August 14, 1995) and consists of the following:

    a. Monitoring and reporting in accordance with the requirements of 40 CFR 264 Subpart F and this permit.
    b. Maintenance and monitoring of the six (6) surface impoundments closed as a landfill in accordance with the requirements of 40 CFR 264.110 and 40 CFR 264.310.

2. Use of the Facility subject to this post-closure care plan shall never, during the post-closure care period, be allowed to disturb the integrity of the final cover or any other component of the containment system or the function of the Facility's monitoring system unless the Owner/Operator demonstrates to the Director that the disturbance:

    a. Is necessary to the proposed use of the property and will not increase the potential hazard to human health or the environment; or
    b. Is necessary to reduce the threat to human health or the environment.

    Such use will require the written permission of the Director prior to implementation.

B. INSPECTION AND MAINTENANCE SCHEDULE

1. Vegetation
   At least monthly, the cover and the area surrounding the closed surface impoundment shall be inspected for deterioration, settlement, subsidence, erosion, and undesirable plant species (i.e. deep-rooted shrubs and trees). A complete stand of vegetation shall be maintained on the entire vegetation layer throughout the post-closure care period. The vegetation layer shall be limed and fertilized as needed based on inspections. Mowing shall be performed at least yearly or more frequently as needed to control deep-rooted shrubs and trees. Approved herbicides and insecticides shall be applied as needed to control noxious invading species. Irrigation shall be performed as needed during excessive dry spells.

2. Cap/Cover
   The original configuration shall be maintained throughout the entire post-closure care

period. Within 30 days of the detection of significant subsidence or erosion, repair work shall be accomplished to bring the lines and grades back to at least their original configuration. Significant subsidence or erosion shall be defined as any deterioration which may reduce the performance of the cover from its original intended design performance. Erosional features with a depth of six inches will be considered "significant" due to final cover design. Soils, materials, and repair work shall meet minimum standards set forth in the closure cover design.

3. Drainage

Drainage shall be maintained as designed in the closure plan. Swales and gullies shall be maintained, repaired, and kept free from debris and brush as necessary to provide the appropriate slope. Appropriate maintenance and repair shall be accomplished to ensure drainage is directed towards the outfall or retention structure as indicated in the approved closure design.

4. Benchmarks

Benchmarks were installed after closure to act as points of reference for locating the boundaries of the Regulated Unit and to detect any changes such as subsidence that may impact the Facility. Benchmarks were installed by a certified land surveyor. Their location and elevation are tied into the property boundary and are recorded in the deed to the property. The location and elevation of the benchmarks shall be determined annually and any changes noted in the log book. The benchmark shall be inspected annually for any disturbance and maintained as necessary to sustain their intended use.

5. Groundwater monitoring wells

During groundwater sampling events, inspect and maintain all monitoring wells and piezometers to sustain their original intended purpose. Monitoring well locking caps shall be locked at all times except when the monitoring wells are being sampled or maintained. Protective concrete aprons shall be inspected for subsidence and breakage. Monitoring wells shall be replaced or repaired as necessary.

6. Security

Adequate security shall be maintained to prohibit unauthorized access to the Facility, and warning signs shall be maintained at all directions of approach. A four-foot chainlink security fence surrounds the closed regulated unit. The fence, locks, and gates shall be maintained and replaced as necessary to impede unauthorized access to the Facility. The Owner/Operator shall inspect the security fence at least semiannually. Monthly inspections shall be conducted to ensure that the gates and locks are secure.

7. Records

All inspections shall be logged and detailed inspection reports written. The logged reports of each inspection shall be maintained by the Owner/Operator during the entire post-closure care period. The inspection results and groundwater sampling and analysis results shall be available at the Facility for the Department of Environmental Quality representatives during periodic on-site inspections of the Facility.

B. FACILITY CONTACT

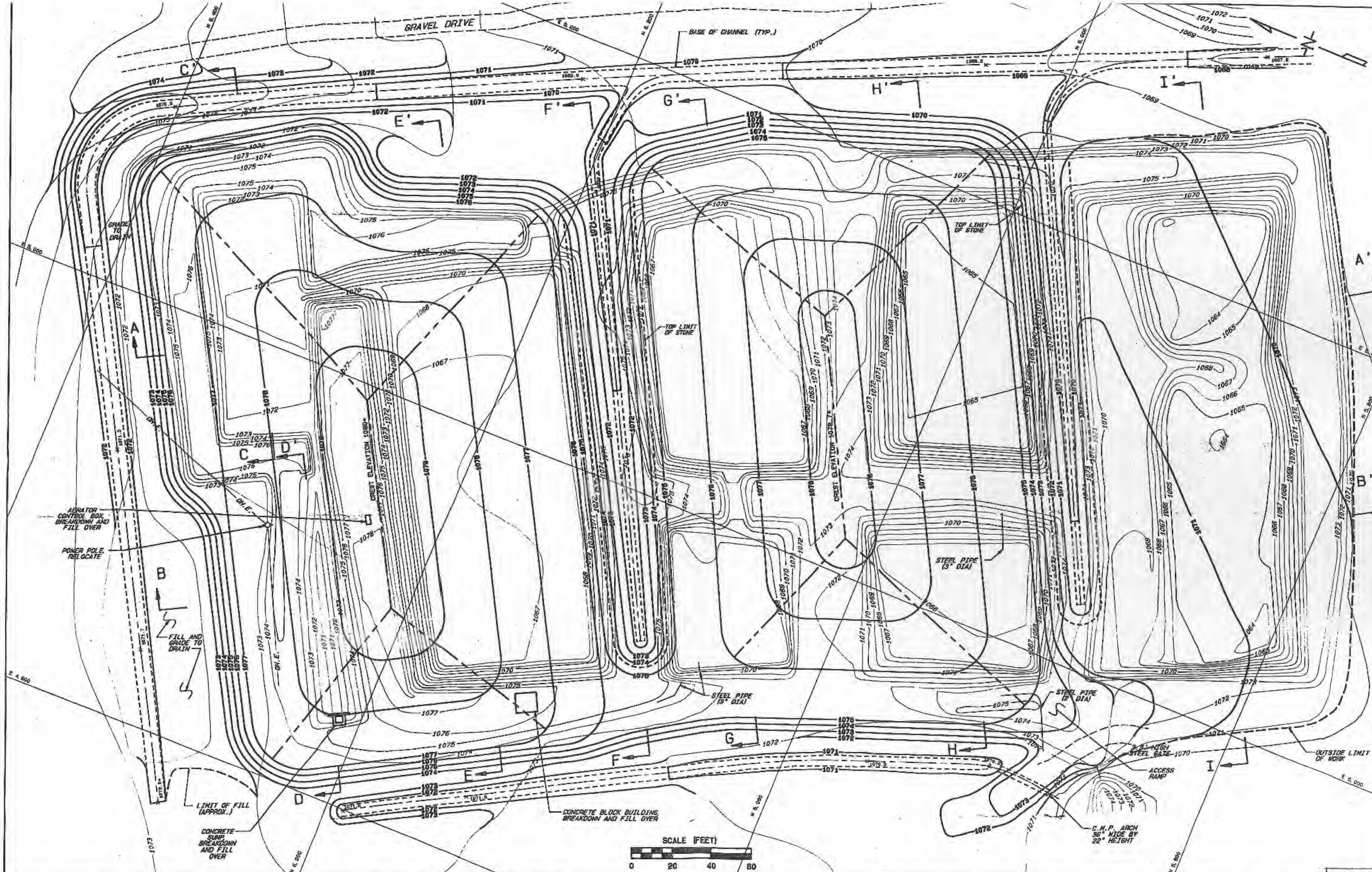
The post-closure care contact representative for the Koppers Industries, Inc. - Roanoke Valley Plant is noted below:

Property Owner Contact (for access purposes):
Current Koppers Plant Manager
Koppers, Inc.
4020 Koppers Road
Salem, VA 241533
Phone: (540) 380-2061

Facility Contact (for operational purposes):
Mr. Michael Slenska, P.E.
Environmental Manager
Beazer East, Inc. c/o Three Rivers Management, Inc.
One Oxford Centre, Suite 3000
Pittsburgh, PA 15219
Phone: (412) 208-8867

The Permittee is responsible for storing on-site and updating the Post-closure Plan during the post –closure period.

APPENDIX 1:
CAP CONSTRUCTION SPECIFICATIONS AND DETAILS EXCERPTED FROM THE APPROVED CLOSURE PLAN



A107027

NOTES:
1. WORK THIS DRAWING WITH DRAWINGS A107027 THROUGH A107030
2. SEE DRAWING A107030 FOR GENERAL CONSTRUCTION NOTES.
3. ALL PIPES TO BE REMOVED OR PLUGGED AS REQUIRED BY THE CLOSURE DOCUMENT.

REV.	DESCRIPTION	CHECKED BY	DATE
			10/7/91

	NAME	DATE
DRAWN BY	A.M. ALBENSI	9/11/91
CHECKED BY	M.R. Lehr	10/8/91
APPROVED BY	R. VanTassel	10/8/91

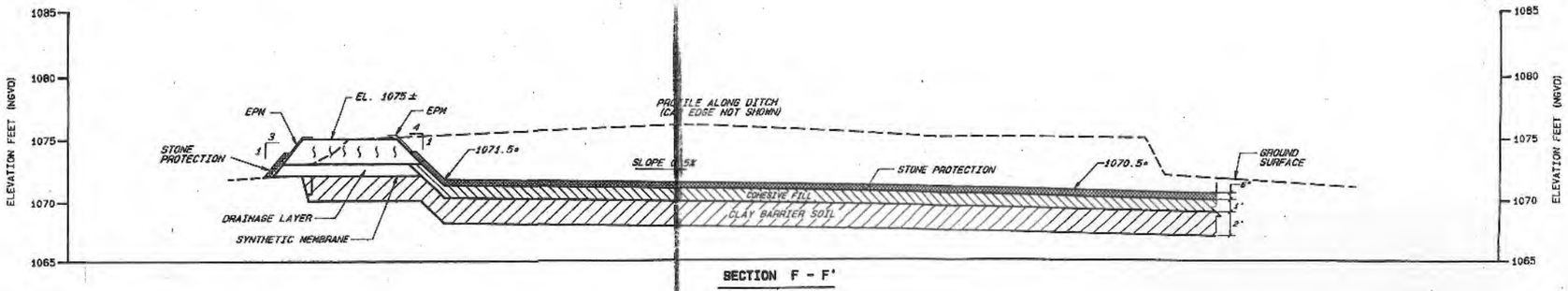
KEYSTONE ENVIRONMENTAL RESOURCES, INC.

This drawing and all information thereon is the property of Keystone Environmental Resources, Inc., a subsidiary of the Chester Engineers, and is confidential and must not be made public or copied unless authorized by it and is subject to return upon demand.

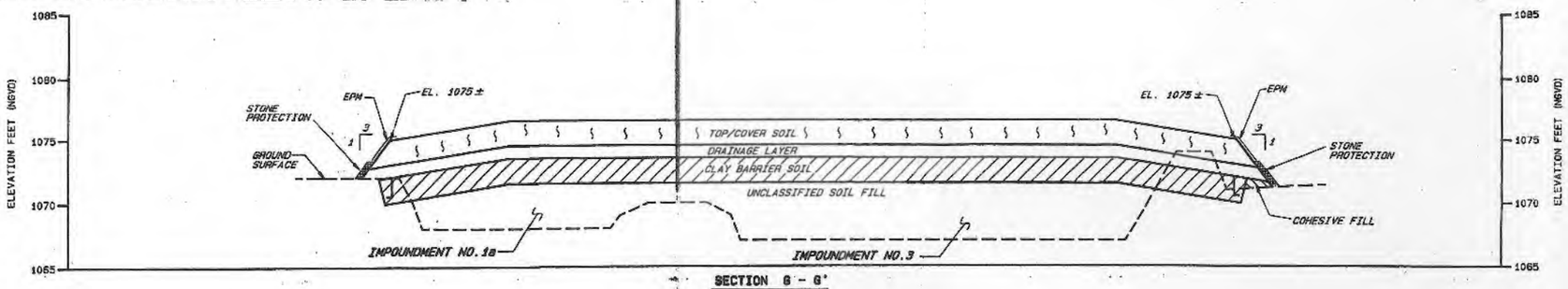
GRADING PLAN
CLOSURE OF IMPOUNDMENTS
ROANOKE, VIRGINIA

ACTIVITY NO. 178090-11 | SCALE 1" = 20'

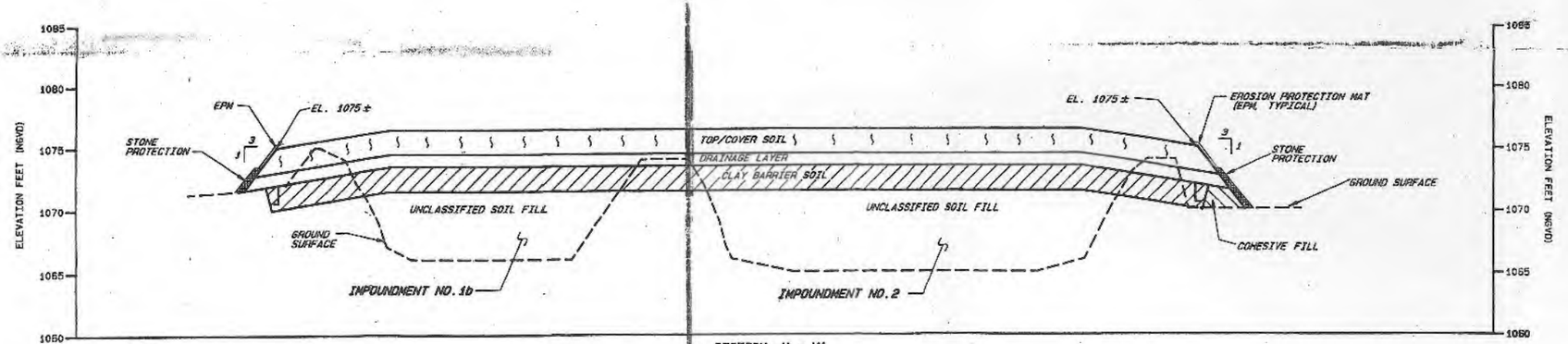
A107027 | REVISION 0



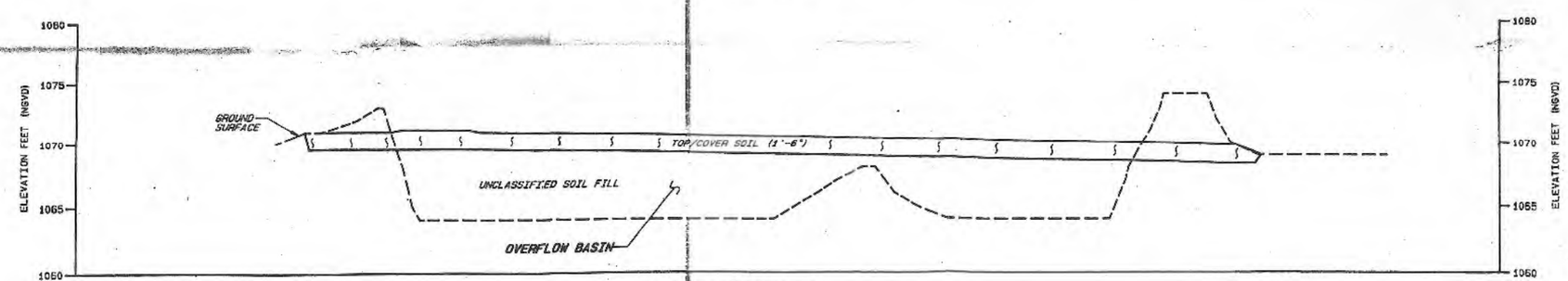
SECTION F - F'



SECTION G - G'



SECTION H - H'



SECTION I - I'

HORIZONTAL SCALE (FEET) 0 20 40 60

VERTICAL SCALE (FEET) 0 5 10 15

A107029

NOTES: 1. WORK THIS DRAWING WITH DRAWINGS A107027 THROUGH A107030

2. SEE DRAWING A107030 FOR GENERAL CONSTRUCTION NOTES.

REV.	DESCRIPTION	CHECKED BY	DATE
			10/7/91

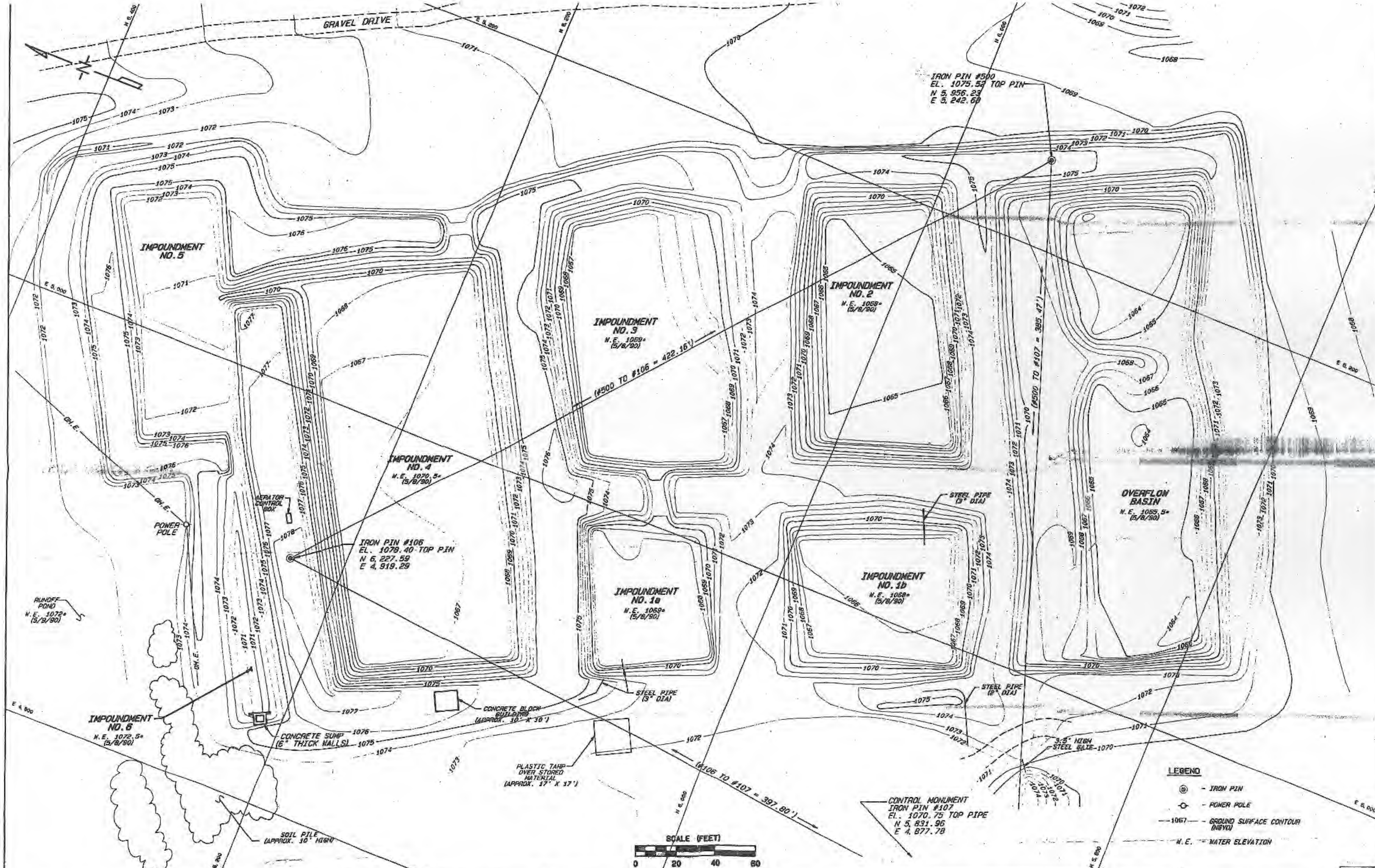
	NAME	DATE
DRAWN BY	A.N. ALBENSI	9/16/91
CHECKED BY	M.R. Lahr	10/8/91
APPROVED BY	R.L. VanTassel	10/8/91

KEYSTONE ENVIRONMENTAL RESOURCES, INC.

CROSS-SECTIONS
CLOSURE OF IMPOUNDMENTS
ROANOKE, VIRGINIA

ACTIVITY NO. 178090-11 | SCALE AS SHOWN

A107029 | REVISION 0



REFERENCE:
"PARTIAL TOPOGRAPHY SURVEY" FOR KOPPERS COMPANY, INC. BY T.R. PARKER & SON, ENGINEERS & SURVEYORS, LTD., NOVEMBER 10, 1988.
NOTES AND FEATURES ADDED TO DRAWING BASED ON SITE INSPECTION BY RICHARD VAN TASSEL 5/9/90.

NOTES:
1. WORK THIS DRAWING WITH DRAWINGS A105418 THROUGH A105422.
2. SEE DRAWING A105422 FOR GENERAL CONSTRUCTION NOTES.

REV.	DESCRIPTION	CHECKED BY	DATE

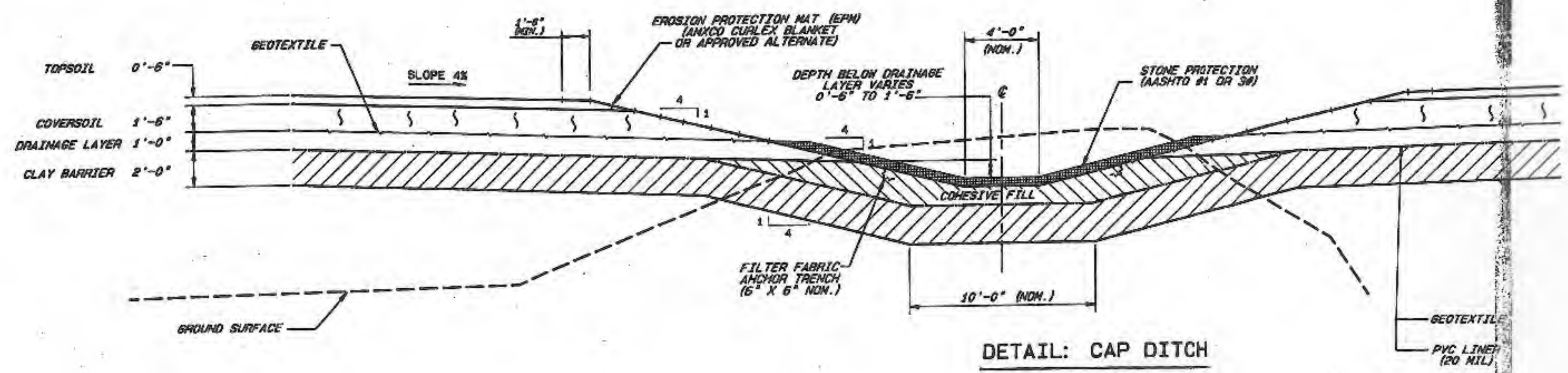
	NAME	DATE
DRAWN BY	A.H. ALBENSI	04/26/90
CHECKED BY	R.R. Lahr	6/7/90
APPROVED BY	R.L. Van Tassel	6/7/90

KEYSTONE ENVIRONMENTAL RESOURCES, INC.

EXISTING CONDITIONS
CLOSURE OF IMPOUNDMENTS
ROANOKE, VIRGINIA

ACTIVITY NO. 178080-01 SCALE 1" = 80'

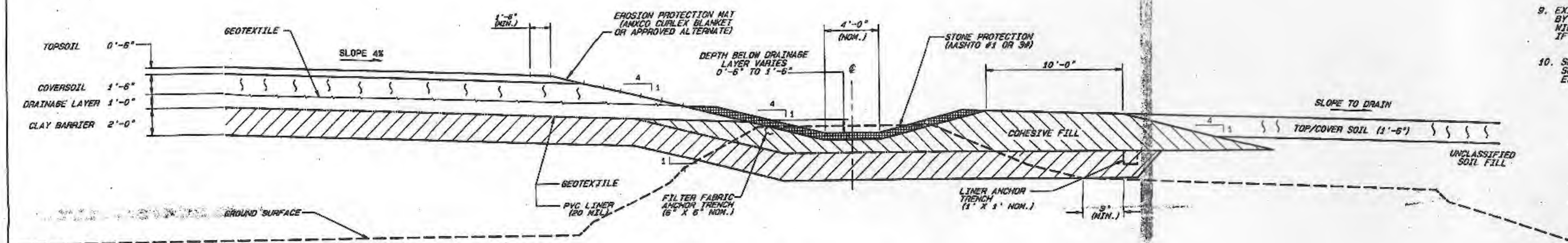
A105418 0



DETAIL: CAP DITCH

SCALE (FEET)

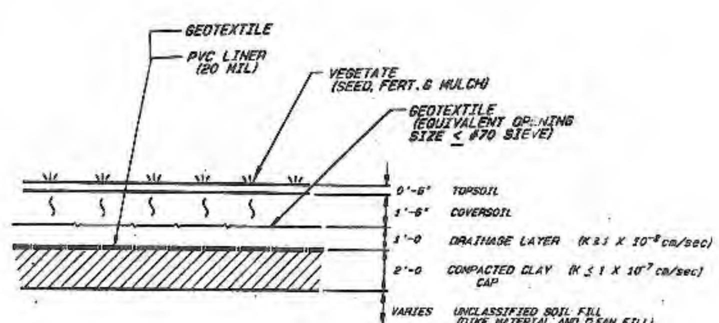
0 4 8 12



DETAIL: EDGE DITCH

SCALE (FEET)

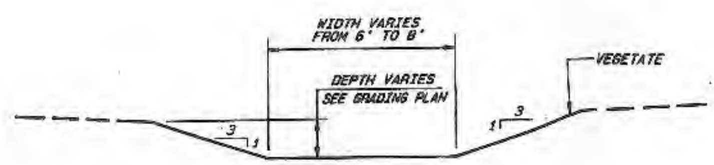
0 4 8 12



DETAIL: CAP

SCALE (FEET)

0 4 8 12

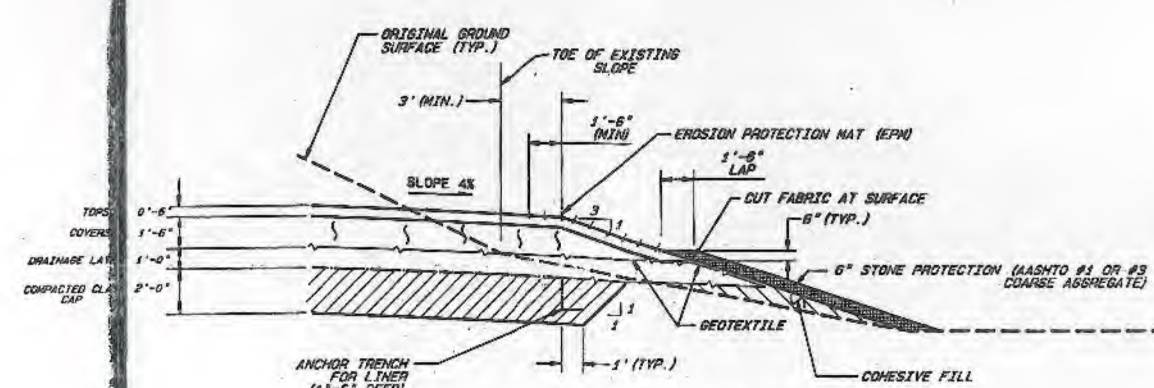


DETAIL: PERIMETER DITCH

NOT TO SCALE

NOTES:

1. THE LIMITS OF THE IMPOUNDMENTS AND PROPOSED CAPPING ARE APPROXIMATE AND SHOULD BE ADJUSTED TO ACCOMMODATE ACTUAL SITE CONDITIONS.
2. THE BASIS FOR THE TOPOGRAPHIC INFORMATION SHOWN ON THESE DRAWINGS IS A TOPOGRAPHIC CONTOUR MAP COMPLETED BY T.R. PARKER & SON, ENGINEERS & SURVEYORS LTD. DURING NOVEMBER 1988. REFER TO DRAWING A105418.
3. MONITORING WELLS SHOULD BE PROTECTED DURING CONSTRUCTION AND/OR CLOSED IN ACCORDANCE WITH POST CLOSURE MONITORING REQUIREMENTS.
4. ALL PIPES, VALVES, AND STRUCTURES WITHIN THE CONSTRUCTION LIMITS SHALL BE EXCAVATED AND HANDLED IN ACCORDANCE WITH THE PLANS.
5. BACKFILLING OF THE LAGOONS AND CONSTRUCTION OF THE CLOSURE CAP SHALL CONFORM TO THE REQUIREMENTS SPECIFIED IN THE PLANS.
6. REMOVE, HANDLE AND DISPOSE OF IMPOUNDED WATERS AND MATERIALS AS SPECIFIED IN THE APPROVED PLANS.
7. ALL PLACED MATERIALS SHALL BE COMPACTED WITH SUITABLE EQUIPMENT TO ACHIEVE THE SPECIFIED COMPACTED DENSITIES.
8. ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE CONSTRUCTION SPECIFICATIONS AND ANY NECESSARY ADJUSTMENTS SHALL BE APPROVED BY THE CERTIFYING ENGINEER PRIOR TO IMPLEMENTATION.
9. EXISTING DIKES WILL BE EXCAVATED AS REQUIRED BY THESE DRAWINGS. THE EXCAVATED MATERIAL WILL BE PLACED AND COMPACTED IN THE LAGOON AREAS, IF ACCEPTABLE AS FILL.
10. SEE DRAWING NO. A105418 FOR SURVEY BASELINE TIES TO ESTABLISH SURVEY GRID.



DETAIL: CAP-EDGE

SCALE (FEET)

0 4 8 12

NOTES: 1. WORK THIS DRAWING WITH DRAWINGS A107027 THROUGH A107030.

REV.	DESCRIPTION	CHECKED BY	DATE
			10/7/91

	NAME	DATE
DRAWN BY	A.H. ALBENS	9/16/91
CHECKED BY	M. R. Lahr	10/8/91
APPROVED BY	R.L. VanTassel	10/8/91

KEYSTONE ENVIRONMENTAL RESOURCES, INC.

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DETAILS
CLOSURE OF IMPOUNDMENTS
ROANOKE, VIRGINIA

ACTIVITY NO. 178050-11 SCALE AS SHOWN

A107030 REVISION 0

A107030

ATTACHMENT D

SITE WIDE CORRECTIVE ACTION REMEDIAL CLEANUP GOALS

ATTACHMENT D – SITE WIDE CORRECTIVE ACTION REMEDIAL CLEANUP GOALS

Constituent	Standard (ug/l)[1]	Source[2]
Benzene	5	MCL
Ethylbenzene	700	MCL
Xylenes	10,000	MCL
Acenaphthene	530	RSL
Benzo(a)anthracene	0.034	RSL
Benzo(a)pyrene	0.2	MCL
Benzo(b)fluoranthene	0.034	RSL
2-Chlorophenol	91	RSL
p-Chloro-m-cresol	1,400	RSL
Chrysene	3.4	RSL
Dibenzo(a,h)anthracene	0.0034	RSL
Dibenzofuran	7.9	RSL
2,4-Dichlorophenol	46	RSL
2,4-Dimethylphenol	360	RSL
2,4-Dinitrophenol	39	MCL
Fluoranthene	800	RSL
Fluorene	290	RSL
Indeno(1,2,3-cd)pyrene	0.034	RSL
2-Methylnaphthalene	36	RSL
Naphthalene	0.17	RSL
Phenol	5,800	RSL
2,3,4,6-Tetrachlorophenol	240	RSL
2,4,5-Trichlorophenol	1,200	RSL
2,4,6-Trichlorophenol	4	RSL
Arsenic	10	MCL
Nickel	390	RSL

Notes:

1. ug/l – migrograms per liter
2. Groundwater protection standards are Maximum Contaminant Levels (MCLs). If an MCL does not exist for a SRC, then the concentration is compared to the USEPA Region 3 Regional Screening Levels (RSLs) for Tap Water.

From:	Christopher.Blakeman@RoanokeVa.gov
To:	Alonso, Angela (DEQ)
Cc:	Fisher, Brett (DEQ); Sherman.Stovall@roanokeva.gov
Subject:	Public Comment - Koppers, Inc., Salem, VA Corrective Action Notice
Date:	Monday, July 20, 2015 2:37:07 PM

Ms. Alonso,

The City of Roanoke is in receipt of the Notice for Public Comment regarding the above facility's proposed permit modifications to allow for corrective actions aimed at eliminating DNAPL release at their location at 4020 Koppers Rd., Salem, VA 24153.

While we have no objection to the proposed actions, we hereby request prior notification of any planned "dye trace studies" as described in the Public Comment Notice. Notification of any such studies should be made as far in advance as possible and sent to my attention using any of the means provided in my signature text below.

Please understand that as a downstream community we are likely to get calls and/or be presented with a duty to dispatch emergency response investigations if such dye were to migrate into the Roanoke River. Prior notice will allow us an opportunity to alert our first responders and soothe any concerns expressed by the public.

We appreciate being afforded the opportunity to comment, as well as the efforts of the DEQ and others to mitigate this on-going source of DNAPL contamination.

Thank you for your time and consideration of this request

Christopher Blakeman, MS, REM
Environmental Administrator
City of Roanoke, Virginia
Office of Environmental Management
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(540) 853-2425
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